Customer and Competitor Orientation, Innovation and Performance in Small and Medium Sized Enterprises
Richard L. Flight and Achira Sedan Mudiyanselage

How Internet Penetration Affects Local B&M Retailers
José-Domingo Mora, Ph.D

Consumer Search for Nutrition Information when Eating in Restaurants
Rebecca Hochradel and Zinaida Taran
Editorial: Thoughts on Marketing Management Journal

The Current Issue:

In this issue, three regular submission manuscripts are presented. These articles highlight the wide scope of topics that fall within the realm of Marketing Management. I want to highlight several key takeaways I gleaned from each of these articles.

The lead article, “Customer and Competitor Orientation, Innovation and Performance in Small and Medium Sized Enterprises” by Flight and Mudiyanselage, examines the role customer and competitor orientations play on market and industry performance outcomes of SMEs when mediated by product and process innovation. The study proposes a unique research model to suggest that independent processes are at play between market orientation sub-dimensions (customer and competitive orientation) and cannot be discerned without independent path analysis. From a research perspective, this manuscript offers tools to extend research on the relationships between subcomponents of firm orientation constructs and their effects on firm outcomes.

The next article is titled, “How Internet Penetration Affects Local B&M Retailers,” and is written by José-Domingo Mora. This study analyzes the effects of Internet penetration on B&M retailers through the lens of intensity per capita and diversity of retail establishment. Study results indicate that even though Internet access and benefits are available to businesses of all sizes, Internet penetration favors specialist businesses that tend to be smaller and local to a greater degree than generalists that tend to be larger and non-local. Implications stemming from these findings are of importance to small local business owners and local government officials to promote Internet infrastructure to help support local retailers and benefit consumers through broader product arrays and stronger local economies.

In the last article, “Consumer Search for Nutrition Information when Eating in Restaurants,” written by Hochradel and Taran, the authors investigate whether consumers with higher levels of health consciousness, preventive health behaviors, perceived nutrition knowledge, self-efficacy, and body image use the nutrition information on the menu and have preferences for the framing of that information than consumers with lower levels of these constructs when eating out. The results of this study indicate that consumers with higher levels of the consumer characteristics measured, except for body image, do use nutrition information when eating out. Also, results suggest that consumers do not have a particular preference for the framing of nutrition information, although they desire expanded information for the benefit of selecting the menu item with full knowledge, regardless of whether the item is healthy or unhealthy. Given the findings, this study puts forth useful implications to policy makers in encouraging posting of nutrition information at all restaurants, as well as to restaurant managers in how the information needs to be presented to consumers.
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Scope and Mission

The mission of the *Marketing Management Journal* (MMJ) is to provide a forum for the sharing of the academic, theoretical, and practical research that may impact the development of the marketing management discipline. Manuscripts that focus upon empirical research, theory, methodology, and review of a broad range of marketing topics are strongly encouraged. Submissions are encouraged from both academic and practitioner communities.

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2. A file containing the manuscript title, an abstract of no more than 150 words, keywords, and manuscript. Author identification or affiliation should not appear anywhere in this file.

Manuscripts should be submitted using 12-point Times Roman font and should not exceed 30 typewritten pages inclusive of body, tables and figures, and references. Margins must be one inch. Preparation of the manuscript should follow style guidelines in the most recent *Publication Manual of the American Psychological Association, 6th* edition. Tables and figures used in the manuscript should be included on a separate page and placed at the end of the manuscript. Authors should insert a location note within the body of the manuscript to identify appropriate placement. Tables and figures should be constructed in table mode of Microsoft Word.

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INTRODUCTION

Since the mid-20th century, marketing theory has built upon the marketing concept, developing toward a market orientation ethos, which have been heavily studied since the mid-1990s (Kumar, Jones, Venkatesan, & Leone, 2011). As a strategic orientation, firms that possess a market orientation are said to be highly responsive to information flowing from external-to-the-firm sources, such as supply chain members, customers and competitors. Concurrently, such responsiveness is aided by an internal-to-the-firm readiness to act on market information manifested in well-developed social and cultural inter-functional capabilities. As a result, the firm is able to produce internal outcomes through new-to-the-firm innovation, whereas external effects are manifested by new-to-the-market innovation (Sandvik & Sandvik, 2003).

As a broad organizational philosophy, market orientation helps shape firm processes to be externally focused, while driving decision-making with market and industry intelligence. It is a heavily studied construct in its entirety, made up of customer orientation (or the ability to create value for the customer continuously), competitor orientation (where the seller understands the key strengths, weaknesses, strategies and capabilities of the competition), and inter-functional coordination (coordinated utilization of the companies’ resources) (Narver & Slater, 1990). In addition, much thought has been put into the role market orientation plays in the context of small and medium enterprises (SMEs) and the effect it has on firm performance (Keskin, 2006; Raju, Lonial & Crum, 2011), including digital formats (Hair et al. 2017). SMEs possess specific challenges and unique advantages, as compared to large firms, insomuch as their size, limited organizational structure, and informal modes of operation allow them to be fast, in response to changes related to customers or competitors. Yet at the same time, they lack the resources of larger firms and are less able to take advantage of volume discounts, expansive supply chain partner networks and financial leveraging tactics. As a consequence, SMEs are encouraged to compete through product and process differentiation rather than a cost-based means of competitive positioning (Leitner & Güldenberg, 2010; Newton, Gilinsky Jr, & Jordan, 2015). In this paper, we take these differences into account and propose that the broader managerial orientation-related constructs are insufficiently nuanced tools, particularly in the study of SME’s. Research suggests that subcomponents that make up these constructs (such as SME’s) are likely to have differing effects on a firm (Covin, 1991; Wolff & Pett 2006). As such, by...
Customer and Competitor Orientation. . .

concentrating on the composite construct we may lose information regarding the mechanics through which they impact a firm. We apply this idea to SME’s and suggest that a more nuanced exploration of the subcomponents of such key constructs is warranted. This may be particularly pertinent, given the notable structural differences between SME and non-SME firms.

Firm size implies constraints in terms of operations, people and resources available. It follows, therefore, that small firm’s internal constraints are likely to shape the effects of its various practices to some degree. Of the three market orientation constructs mentioned above, two (customer and competitor orientation) are outward-facing in nature, while inter-functional coordination, by its definition, is an internal construct affecting the internal workings of a firm. This current research considers the role customer and competitor orientations play on market and industry performance outcomes when mediated by product and process innovation. The model that is proposed and tested is done so in the context of small and medium sized enterprises (SMEs), which provide a unique setting that carries with them resource constraints and increased environmental turbulence. Though individually these businesses have limited impact on a large economy, they collectively account for a substantial portion of economic activity in both established and emerging economies. In some cases, they total upwards to 35% of total business transactions (Dubihela & Dhurup, 2015; Seilov, 2015), and 35-60% of emerging market exports (Knight, 2000).

To address this inquiry, background literature and prior research is explored, followed by the development of a formal hypothetical model, which explains the role market orientation and innovation have on market and industry performance in the context of small and medium sized enterprises. This is followed by a research study, its results and the discussion of the study’s implications.

BACKGROUND

The foundation of a market-oriented firm is the marketing concept, which was originally described by Drucker (1954). In part, Drucker suggests that the firm’s two most important jobs include engaging in marketing activities and innovation. Serving as a keystone to modern marketing, he suggests that as the outcome of business ends with a customer, a successful business should view itself through the lens of the customer, as well. As a result, the marketing concept embodies the active pursuit of identifying and satisfying customer needs, essentially fulfilling Drucker’s call. Most notable in this evolution is the work associated with market orientation by contemporary authors (e.g., Deshpandé, Farley, & Webster, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990; Slater & Narver, 1994; Slater & Narver, 1995) where it is described as a ‘business culture that most effectively and efficiently creates value for customers’ (Narver & Slater, 1990, p. 20). Thus, in this context, firms strive to achieve Drucker’s first call for the customer engagement in order to better serve the markets in which they operate.

Yet, for all its good intentions, this orientation does not sufficiently provide for innovation as dictated by Drucker (1954). To complete Drucker’s call to adopt a marketing concept, innovation must play a significant role among firm activities. An aggressive orientation frames the firm as an entity that can move or reposition itself in order to best serve current and future customers. As a result, two distinct managerial paradigms have emerged, each of which calls for the firm to devote resources toward marketing activities which effect market-oriented and innovation-oriented cultures.

Market and innovation orientations have been linked in past research. Yet, while these theoretical constructs contribute together toward similar performance outcomes, they have come to represent differing views of how firms should compete. While the linkage between market orientation and performance is established in the literature, a direct path between the two has been called into question (Guo, 2002; Han, Kim, & Srivastava, 1998). The path has since been intervened by numerous mediators, including learning and entrepreneur orientations, as well as moderators like environmental turbulence, industry uncertainty and dynamism, competitive intensity and hostility, technological change and market shifts (Gonzalez-Benito, Gonzalez-
Relating to environmental turbulence, Ashrafi and Ravasan (2018) found that firms’ responsiveness to market changes would serve as an appropriate antecedent of market performance and is accentuated when turbulence is present. In abbreviated form the market oriented firm places emphasis on reacting to immediate customer and competitive pressure by developing coordinated information through inter-functional efforts following Narver and Slater (1990). The ability to do this results from the rapid assimilation and distribution of market-based information, following Kohli and Jaworski (1990, p. 6) who focus the role of market orientation on market intelligence gathering, dissemination and response. By coordinating internal practices based upon market information, the firm strives to anticipate future consumer needs and competitor reactions, in order to play a leadership role and in doing so, frame the market in which they will participate. To this extent recent research by Hashi and Stojic (2013) found that as a firm’s market orientation intensifies, the likelihood that they would decide to innovate also intensifies.

In isolation, both market and innovation orientations are thought of as potential strategic resources to be leveraged in order to gain a competitive market advantage over other firms. In concert though, these orientations provide interactive effects that increase firm performance outcomes (Han et al., 1998). Therefore, a natural extension of this theoretical body of knowledge is the inclusion of innovation and market orientations into a single model of competition. The co-existence of these two constructs has been proposed (e.g., Conner, 1999; Jaworski, Kohli, & Sahay, 2000; Slater & Narver, 1998) and developed further, assuming a relationship of full mediation (Atuahene-Gima, 1996; Han et al., 1998; Hurley & Hult, 1998; Olavarrieta & Friedmann, 2008; Olavarrieta & Friedmann, 1999; Verhees & Meulenberg, 2004). In such models the positive relationship between market orientation and performance is shown to be mediated (positively) by innovation activities, as predicted. As we move forward, focus is narrowed upon the key relationships between the variables concerned. In doing so, we hope to establish a basic model that provides the maximum explanatory power with the least amount of complexity. By confirming the basic relationships, we hope to open the way for further exploration in future studies.

Market Orientation and SMEs

Market orientation reflects the extent to which an organization’s analysis of the external marketing environment informs and influences the strategic planning process (Baker & Sinkula, 2002). Narver and Slater (1990, p. 21) state that it is an organizational culture that most effectively and efficiently generates the necessary behaviors for the creation of superior value for buyers, and thus continuous superior performance. Simultaneously, Kohli and Jaworski (1990, p. 6) define it as the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it.

A significant body of research has been devoted toward market orientation in small and medium sized enterprises (see the Appendix for a representative review). Like larger firms, having a market orientation is positively correlated to SME performance (Harris & Watkins, 1998; Pelham, 1997; Kara, Spillan, & DeShields, 2005). Baker and Sinkula (2009) found that market orientation is beneficial because it helps SMEs focus on superior value creation as they generate new products and services that better meet customer needs. For smaller firms, which are often characterized by ad hoc and short-term decision-making tactics, a market orientation can provide them with an organization-wide focus for formulating objectives, guiding decisions and directing actions. The nature of SMEs, which generally have fewer than 500 employees (Knight, 2000), suggests a limited range of products and customers, thus decreasing the need to develop formal procedures to gather and process customer or market information for decision making. In sum, having a relatively narrow scope of the product-market enhances the ability of smaller firms to manage from a market-oriented perspective (Pelham & Wilson, 1996).
While certain efficiencies are gained due to size and structural simplicity, executing a market orientation has been seen as a challenge for SMEs (Blankson, Motwani, & Levenburg, 2006; Blankson & Stokes, 2002; Harris & Watkins, 1998; Pelham & Wilson, 1996). Many SMEs are noted for their lack of long-range focus. As systematic decision making could be a critical determinant of performance (Sexton & Van Auken, 1982), this may restrict or prohibit SMEs from developing a robust market orientation. In a study of small hotel businesses, Harris and Watkins (1998) suggest that ignorance of the concept and its application, limited resources, perceived inappropriateness, contentment with status quo, ‘short-termism’ in their marketing planning, unclear views of the customer and, finally, a lack of competitive differentiation were constraints.

In an effort to overcome resource constraints, SMEs have an advantage in that they can speedily respond to customers’ wants and needs with their marketing planning processes (Li, Zhao, Tan, & Liu, 2008). A limited resource base, simple organizational structure and informal business processes facilitate speedy response (Baker & Sinkula, 2009; Blankson & Omar, 2002; McCarton-Quinn & Carson, 2003; Moriarty, Jones, Rowley, & Kupiec-Teahan, 2008).

Firm Innovation and SMEs

Baker and Sinkula (2009) define innovativeness as a willingness by firms to support creativity and experimentation in new product development, technology adoption, and internal processes and procedures (see also for example Dibrell, Craig, & Hansen, 2011; Knight, 1997; Lumpkin & Dess, 1996; Menguc & Auh, 2006). In broad terms, innovation is a means of organizational adaptation to its environment and is generally considered vital to survival and growth (Cooper, 1984; Manu, 1992). Adaptations to environmental pressures emerge from responses to information drawn from the firm’s marketplace (Verhees & Meulenberg, 2004).

Critical to the employment of ‘firm innovation’ is the idea that firms strive to not just operate in concert with others, but rather operate in advance of others in an effort to gain market-based advantages as the industry leader. In doing so, innovation within the firm provides one method in which firms differentiate themselves from each other as competition increases and consumers become flush with product choice (Berthon, Hulbert, & Pitt, 1999).

Innovation orientation, therefore, prepares a firm to depart from existing technologies and extend beyond the current state of the art (Kimberly, 1981). It requires a complex knowledge structure that is grounded in common beliefs throughout all levels of an organization (Siguaw, Simpson, & Enz, 2006). Possessing an innovation orientation provides firms with the ability to take advantage of dynamic market movements. Firms that possess an innovation orientation tend to have elements such as: respect for creativity and innovation; lowered risk aversion; pride and enthusiasm for firm capability; a market-leader view of the firm; and an offensive versus defensive mentality (Siguaw et al., 2006). As a result, firms seek to maintain or capture markets, to outdistance competitors, and assure long-term growth and survival, especially in highly complex and turbulent environments (e.g., Eisenhardt & Brown, 1999; Freeman, 1994; Lawless & Anderson, 1996).

In order to be closer to customers and to create the conditions that facilitate the exploitation of sources of innovation from external channels, market-oriented firms must be externally focused. This enables them to better identify the current and future needs of customers. From the perspective of SMEs, high levels of market orientation are associated with greater flexibility and responsiveness, given uncertain environmental conditions (Didonet, Simmons, Diaz-Villavicencio, & Palmer, 2012; Pelham & Wilson, 1996). One can surmise that market-oriented SMEs seek sources of innovation as a way to meet market demands, and from there, are motivated to create an intra-firm environment dedicated to exploiting these sources in achieving innovation success.

Orientation Integration

Research has shown that market orientation can support innovative attempts to generate superior value for customers, which in turn can generate superior firm performance (Kohli & Jaworski, 1990; Narver & Slater, 1990; Slater & Narver, 1994). Hashi and Stojcic (2013)
revealed that as a firm’s market orientation increases, the likelihood that they would decide to innovate also increases. More specifically, Hurley and Hult (1998) suggest that market orientation is a source of new ideas and motivation in response to the environment that promotes receptivity toward innovation within the firm’s culture.

While seemingly conclusive, the relationship between market and innovation orientations has been marked by contrasts where some view technological innovation as the driver of economic growth, while others view satisfying current customer needs as the dominant driver of economic growth (Berthon et al., 1999). In short, firms driven by an extreme innovation orientation could be viewed as providing markets with products they do not yet need, while market oriented firms produce and deliver what is desired now by the current majority of the market, and miss the potential contribution to innovation by outlier customers (Bethon et al., 1999). Moreover, at times there has been debate between the innovation and marketing orientation schools. Slater and Narver (1995) suggest that an innovation orientation is a subset of MO, contending that continuous innovation is implicit to the maintenance of its foundation (customer, competitive and inter-functional). Meanwhile, Atuahene-Gima (1996) and Hurley and Hult (1998) define these orientations as separate, yet intricately related. They suggest that the presence of a strong market orientation enhances the likelihood of innovation orientation activities and outcomes.

Researchers have identified market orientation as being important for supporting innovation that can positively contribute to SME performance (Dibrell, Craig & Hansen, 2011; Salavou, Baltas, & Lioukas, 2004). For SMEs, the presence of market orientation is viewed as an innovation input (Langerak, Hultink, & Robben, 2004) and found to have both a direct effect on a firm’s profitability, and an indirect effect when mediated by innovation success (Baker & Sinkula 2009). Market-oriented SMEs are able to innovate successfully with the capacity to plan ahead (Salavou et al., 2004). SMEs that are customer-focused aim to produce different product characteristics, with respect to competitors’ products, in order to obtain a superior product in terms of quality (Bigliardi, Colacino, & Dormio, 2011). As stated by Langerak et al. (2004, p. 83), ‘the rationale for market orientation being positively related to new product performance is rooted in the belief that a market oriented culture embodies organizational values and beliefs that guide activities, including new product development activities.’

### Model and Hypothesis Development

Generally, market orientation has been shown to impact firm performance, especially in the long-term (Pelham & Wilson, 1996). It is found to enhance new product success, market share and overall greater market position, which in-turn produces stronger performance results. Though limited, some research has found an inconsistent relationship between market orientation and certain performance outcomes (Sin, Tse, Heung, & Yim, 2005). In turn, these results have prompted researchers to further define the boundary constraints as to where and how market orientation supports firm performance. For instance, Doyle and Armenakyan (2014) distinguish performance in terms of customer, market and financial outcomes. Homburg and Pflesser (2000) and Green, Inman, Brown, and Willis (2005) propose and successfully test the direct relationship between market orientation and both financial and marketing performance. Homburg and Pflesser (2000) use customer satisfaction and loyalty as market performance measures and return on assets for a measure of financial performance following tradition. In this research we propose that the broader construct of market orientation is insufficient in explaining nuanced forms of performance. Rather, the construct should appropriately be broken into its sub-components, then intervened by specific forms of innovation by product and process, which in-turn produces positive industry and market performance (See Figure 1).

Focusing first on competitive orientation, firms incorporate into its decision-making processes the behaviors of its competitors (Gatignon & Xuereb, 1997). Heavily concentrated industries that require high capital investments or have high exit barriers, and those noted for high
buyer power often force firms to compete directly by taking a cost-leadership or differentiation strategy (Day & Wensley, 1988; Porter, 1980, p. 49; Slater & Narver, 1994). In such cases, firms often tend to develop innovations that are cost competitive (Gatignon & Xuereb, 1997). To achieve this, the firm’s focus is primarily on gathering competitor information and counteracting the actions of their rivals, in order to gain market advantages (Slater & Narver, 1994).

Perhaps the most accessible form of information for competitors is product information. Based on what is offered in the market, competitive firms can analyze another company’s product, and then compete based on the specifications, cost of product, or both. Prompting product innovation is seen by Langerak et al. (2004) to require market orientation as a cross-functional commitment toward strategy design. Slater and Narver (1995) further describe product development as a primary reaction to competitive pressures. Thus, competitive advantage can be achieved through product differentiation, and this type of orientation allows for companies to focus on product innovation (Gatignon & Xeureb, 1997). Moreover, prior research has proposed and found support for the linkage between the regular monitoring of competitive metrics (competitors costs, margins, sales, market share, customer satisfaction, retention, etc.) and elevated industry performance. Therefore:

\[ H_{1a} \]: Competitive orientation is positively related to product-related innovation.

\[ H_{1b} \]: Competitive orientation is positively related to industry performance.

Customer orientation applies to firms that actively develop and strategically manage their processes based on market intelligence with regards to the customer (Kohli & Jaworski, 1990). The use of customer knowledge typically goes above and beyond traditional customer research. It involves looking at alternative market factors that could potentially have an effect on what customers need and want in the future (Kohli & Jaworski, 1990). As we learn from Slater and Narver (1994, p. 48), ‘Customer focus is a relative emphasis on collecting and processing customer-related information.’ Firms that have this emphasis to the extent that it informs and drives decision-making, place an extreme importance on the methods used to gather information, how this information is utilized, and how the firm can provide better value to the customer. This statement supports the belief that having a customer orientation leads to greater process-oriented innovation within the firm. Firms that are customer-oriented look for opportunities to provide value through different specialized processes, instead of specific product offerings. With regard to innovativeness, customer-oriented firms are described by Gatignon and Xuereb (1997) as being able to identify, study, understand, and meet user needs. Han et al. (1998), found that customer orientation was related positively to the number of innovations implemented.

Slater and Narver (1994) suggest that greater advantages might be achieved from the utilization of customer-oriented information in high-growth markets, as opposed to competitor-oriented information. They also discuss markets with large numbers of competitors, and the importance of focusing on the buyers’ needs and wants. Moreover, Matanda and Ndubisi (2009) find a strong association between customer orientation and market performance among SMEs in Zimbabwe. This leads us to believe that having a customer orientation is beneficial in regard to market performance. The nature of consumer markets makes constant focus on the customer necessary.

\[ H_{2a} \]: Customer orientation is positively related to process-related innovation.

\[ H_{2b} \]: Customer orientation is positively related to market performance.

The introduction of new products opens up previously cluttered markets, and the design of new processes re-defines the cost structure and efficiency model to which an industry may be accustomed. An important distinction may be drawn between product and process innovation. Firm growth is often seen as dependent on product innovation through the development of new products. New products are strongly associated with positive sales growth and market leadership (Wolff & Pett 2006), while process innovation is said to be a significant contributor to gains in performance efficiency (Covin 1991). This is especially important to firms that are resource-constrained, which may stretch organizational resources if efficiencies
are not found in their operational processes (Wolff & Pett, 2006).

Along with other benefits, innovative firms enjoy improved company image and reputation; the capability to continually reinvent themselves; enhanced brand or corporate image; and the ability to charge higher prices (Siguaw et al., 2006; Totterdell, Leach, Birdi, Clegg, & Wall, 2002). Gatignon and Xeureb (1997) state that such benefits could be due to the type of innovation they utilize. We agree that each type of innovation is positively related to both industry and market performance. This follows the idea that innovation partially mediates the relationship between market orientation and a broad variety of performance outcomes (Verhees & Meulenberg, 2004).

H3a-b: Product innovation is positively related to industry performance (a) and market performance (b).

H4a-b: Process innovation is positively related to industry performance (a) and market performance (b).

RESEARCH STUDY

Procedure

Data collection took place using a paper and pencil survey delivered by postal mail to businesses in rural areas in the Midwest United States. This setting was chosen because of the high percentage of SMEs that participate in local, small-town U.S. business groups, such as area Chamber of Commerce. In addition, names and addresses provided by groups of rural or sparsely populated regions would most likely be the business owner or principle agent charged with operating the member business (Figueroa-Armijos & Johnson, 2013).

Once a sufficiently large number of businesses were identified, a survey was mailed to each, along with a cover letter and postage-paid return envelope. To encourage a timely response, a return deadline was imposed. For verification purposes, approximately 10% of the recipients were called to determine if 1) the survey was received, 2) the business information was correct, and 3) it was received by the senior-most person of authority in the business. If the mailing was returned due to improper addresses, a new address was sought and the survey was re-mailed to the updated address.

As with all survey-driven research, non-response bias is an artifact that may lead to lost statistical power and biased relationships (Schwab, 2007). This bias is addressed in two ways. First, a follow-up mailing was sent to non-respondents to increase participation levels (Truell, 2003). Second, a comparison of early and late respondents assessed potential response bias, yielding no differences at p < .05 (Armstrong & Overton, 1977).

Sample

The sample was drawn from small and medium businesses located in the Midwest, United States. A list of 610 businesses was obtained from several local and regional business

FIGURE 1:
Hypothesized Market-Innovation Orientation Performance Model

![Hypothesized Market-Innovation Orientation Performance Model](image-url)
organizations. In addition, business names, addresses, along with their principle agents were obtained through public records search of business licenses from the same geographic region. After deleting respondents who were not reachable, the initial sample pool included 569 businesses. One hundred and fifty-six surveys were completed and returned, providing an initial response rate of 27.4%.

From this initial set of respondents, six were eliminated because they had more than 250 employees, thus falling outside our sample criteria for small and medium sized enterprises. The firms in the sample are represented by over 20 industries, the most frequent being manufacturing and fabricating (20.7%), followed by utility services (12%), retail trade (10.7%), and health services (10.7%). Twenty-seven percent of the respondents identified as managing partners or owners, 41.6% are presidents or senior managers, while 18% are area managers. Men represent 65.8% of the sample and the sample’s model age falls between 50 and 65 years of age. Consistent with our expectations of SMEs, 75.6% of the sample firms have fewer than 200 employees while 32.1% of the sample firms have fewer than 20 employees and 82% of the firms have gross revenue of less than $10 million per year.

Measures

Prior studies that have examined the link between organizational variables and business performance have often utilized two main approaches. The first is a subjective-competitive business performance approach, which is primarily concerned with performance of firms relative to that of their competitors (Chao & DeShields, 2010; Golden, 1992). The second method is an objective-concept approach, which is based on absolute measures of performance (Cronin & Page, 1988). Studies that have adopted both performance measures reported a strong association between objective measures and subjective responses (Robinson & Pearce, 1988). Jaworski and Kohli (1993) utilized both methods, while Slater and Narver (1994) adopt the subjective method by examining business performance over the previous three-year period. This current study also uses the subjective-concept approach.

Narver and Slater (1990) propose the design used in this research regarding the measurement of market orientation. Their scale work on customer and competitor orientations were adopted (Table 1). The scales in use were constructed for the purpose of this study, in order to better capture the nuances of the construct and the context. Since Narver and Slater (1990) other scale work has been published (see Sørensen 2009; Berthon, et al. 2004; Hajjar 2002, and Saxe & Weitz 1982). Firm innovation was measured using innovation orientation measures, which is appropriate given the strong research support suggesting that such an orientation may be a strategic goal, and that having such, generally leads to both internal process and external market innovations. Innovation was distinguished by product innovation and process innovation.

Finally, performance is measured using a series of eight semantic differential response questions, each relating to perceived performance relative to the market (customers) served, and industry (competitors), including firm standing in comparison to the industry, customer loyalty and financial performance among others. Business performance was measured by a series of self-response questions, where respondents (firm owners, presidents, and general managers) were asked to rate their firm in relation to their main competitors on a list of performance indicator, using a seven-point Likert-type scale. Items were phrased in similarity to like Reijonen et al. (2015), Zeng et al. (2015), and Pavlou and El Sawy (2010). This method follows the design of Gonzalez-Benito et al. (2014). Exploratory factor analysis (EFA) was performed to assess and modify the components of each latent construct, as needed. Convergent validity was established, as all items for each construct loaded significantly (t-values, 1.96, p < 0.05) with large pattern coefficients (Anderson & Gerbing, 1988). Factor loadings of .50 were accepted while no cross loading greater than .40 were allowed. In addition, EFA reliability was measured by Cronbach’s alpha. In each case, this measure of internal consistency was above the benchmark of .70 for developmental research (Churchill, 1979). Once satisfied with an acceptable EFA, the measurement model was subjected to confirmatory factor analysis.
(CFA) using Lisrel 8.8 (Jöreskog & Sörbom, 2006). The measurement model provided a modest fit with the Non-normed Fit Index \( \text{NNFI} = .91 \), the Comparative Fit index \( \text{CFI} = .93 \), and Incremental Fit Index \( \text{IFI} = .93 \). In addition, the model’s RMSEA is \( .072 \) with a \( \chi^2 \) value of 308.42 (174 df, \( p < .001 \)), which provides an acceptable \( \chi^2_{\text{df}} \) ratio of 1.77, well below 5.0 (Fornell & Larcker, 1981). Given the modest RMSEA, we use caution in its interpretation, noting Rigdon (1996) who suggests that a weak RMSEA may be from a small sample size \( (n = 150) \) where RMSEA is generally more appropriate for large sample situations. Additionally, convergent validity is evident, as each item loads on its intended construct with sufficiently large path coefficients, as reported in Table 1, with no modifications to the model made. Average variance explained \( \text{(AVE)} \) for each construct is very close to, or over, the .50 benchmark, as is the Composite Reliabilities \( \text{(CR)} \) to the .70 benchmark.

Finally, common method bias may exist due to the fact that all the measures of the constructs were collected from the same source (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). This potential problem was checked with the Harman one-factor test (Podsakoff & Organ, 1986). A factor analysis of focal variables resulted in the six factors with Eigen values greater than 1, which accounted for 67.5 percent of the total variance. When a single factor is loaded, only 22.9 percent of the variance is accounted for. Because a single factor does not naturally emerge and when forced it does not account for more variance, common method bias is unlikely to be a concern with the data. Moreover, other tests of the sample include Bartlett’s test of sphericity, which returned a \( \chi^2 \) value of 1401.8 (253 df, \( p < .001 \)) suggesting sufficiently equal variance across the sampling population (Snedecor & Cochran, 1989), along with a modest Kaiser-Meyer-Olkin \( \text{(KMO)} \) measure of sampling adequacy (.78).

**RESULTS**

Results indicate significant relationships between most proposed constructs and an acceptable (though modest) overall model fit (see Figure 2 and Table 2). To test the proposed relationships, structural equation modeling was performed using LISREL 8.8. The specified structural model demonstrates an acceptable fit as evidenced by traditional indices. As per the results, Non-normed Fit Index \( \text{NNFI} = .89 \), the Comparative Fit index \( \text{CFI} = .91 \), and Incremental Fit Index \( \text{IFI} = .91 \). In addition, the model’s RMSEA was \( .079 \) with a \( \chi^2 \) value of 345.87 (180 df, \( p < .001 \)), and the acceptable \( \chi^2_{\text{df}} \) ratio of 1.92. The latter is well below 5.0 (Fornell & Larcker, 1981). Again however, a relatively high RMSEA, beyond the suggested level of 0.05 or less, indicates a less than desirable fit to which we surmise is due to a small sample size \( (n = 150) \) (Rigdon, 1996).

Hypotheses 1a-b propose that competitive orientation is positively related to product-related innovation and industry performance. We find that competitor orientation is significantly associated with product innovation activities, lending support for our expectation that as firms focus on gathering competitor information, they analyze their products and then compete based on the specifications, cost of product, or both. Yet, in a surprise finding, having a competitor orientation is not directly associated with industry performance. While this was unexpected, it suggested that the product innovation construct fully mediates the relationship between competitor orientation and industry performance outcomes. It also affirms the idea that simply focusing on competition is not enough to directly alter industry performance. The firm must couple their focus with innovative practices that will mediate their position among competitors.

Hypotheses 2a-b posit that customer orientation is positively related to process-related innovation and market performance. We find support for both relationships. Customer orientation is significantly associated with process innovation activities, lending support for the idea that firms provide value through different specialized processes, instead of specific product offerings. There also appears to be a significant direct impact on market performance as firms hold a customer-focused decision-making orientation.
### TABLE 1: Scale Items: Sources and Path Coefficients

<table>
<thead>
<tr>
<th>Factor and Item</th>
<th>EFA Factor Loadings (α)*</th>
<th>CFA Path Coefficients (AVE)/CR*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Customer Orientation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. We have routine or regular measures of customer service</td>
<td>0.80</td>
<td>(0.43)/0.68</td>
</tr>
<tr>
<td>2. We are more customer focused than our competitors.</td>
<td>0.72</td>
<td>0.72</td>
</tr>
<tr>
<td>3. We have a good sense of what our customers value in our products and services.</td>
<td>0.68</td>
<td>0.78</td>
</tr>
<tr>
<td><strong>Competitive Orientation</strong></td>
<td>(0.737)</td>
<td>(0.47)/0.78</td>
</tr>
<tr>
<td>1. New and existing competitors are seen as a threat to our firm.</td>
<td>0.78</td>
<td>0.65</td>
</tr>
<tr>
<td>2. We respond rapidly to our competitors’ actions.</td>
<td>0.77</td>
<td>0.61</td>
</tr>
<tr>
<td>3. Our top managers spend significant time discussing our competitors.</td>
<td>0.75</td>
<td>0.77</td>
</tr>
<tr>
<td>4. We respond to competitors actions by changing our prices or products, in order to be more competitive.</td>
<td>0.61</td>
<td>0.71</td>
</tr>
<tr>
<td><strong>Product Innovation</strong></td>
<td>(0.730)</td>
<td>(0.54)/0.77</td>
</tr>
<tr>
<td>1. When wanting to expand we look for new products to sell before we look for new customers to sell to.</td>
<td>0.91</td>
<td>0.55</td>
</tr>
<tr>
<td>2. If given a choice, our firm would invest in a new product project rather than re-investing in an existing product.</td>
<td>0.75</td>
<td>0.76</td>
</tr>
<tr>
<td>3. We devote many resources, including money and manpower, to developing new products.</td>
<td>0.52</td>
<td>0.86</td>
</tr>
<tr>
<td><strong>Process Innovation</strong></td>
<td>(0.753)</td>
<td>(0.50)/0.74</td>
</tr>
<tr>
<td>1. Our business practices (or processes) are new and unlike what our competitors are doing.</td>
<td>0.91</td>
<td>0.71</td>
</tr>
<tr>
<td>2. We devote many resources, including money and manpower, to developing new business processes.</td>
<td>0.77</td>
<td>0.51</td>
</tr>
<tr>
<td>3. Our business practices (or processes) are often ahead of current trends in our industry.</td>
<td>0.61</td>
<td>0.85</td>
</tr>
<tr>
<td><strong>Market Performance</strong></td>
<td>(0.847)</td>
<td>(0.63)/0.87</td>
</tr>
<tr>
<td>Our customers are (less/more) loyal than other firms’ customers in our industry.</td>
<td>0.91</td>
<td>0.79</td>
</tr>
<tr>
<td>2. Our products or services are viewed as (less/more) popular than other firms’ products and services.</td>
<td>0.83</td>
<td>0.74</td>
</tr>
<tr>
<td>3. Our products or services meet customer needs (worse/better) than other firm’s products or services.</td>
<td>0.75</td>
<td>0.81</td>
</tr>
<tr>
<td>4. Our customers are (less/more) satisfied than other firms’ customers in our industry.</td>
<td>0.75</td>
<td>0.84</td>
</tr>
<tr>
<td><strong>Industry Performance</strong></td>
<td>(0.794)</td>
<td>(0.48)/0.78</td>
</tr>
<tr>
<td>Compared to other firms in our industry our market share is smaller/larger.</td>
<td>0.88</td>
<td>0.88</td>
</tr>
<tr>
<td>2. Compared to other firms in our industry we are smaller/larger.</td>
<td>0.85</td>
<td>0.73</td>
</tr>
<tr>
<td>3. Our company is growing slower/faster than other firms in our industry.</td>
<td>0.63</td>
<td>0.61</td>
</tr>
<tr>
<td>4. Our profits are lower/higher than other firms in our industry.</td>
<td>0.63</td>
<td>0.51</td>
</tr>
</tbody>
</table>

* α = Chronbach’s alpha, AVE = average variance extracted, CR = composite reliability
Finally, hypotheses 3a-b and 4a-b each associate innovation sub-dimensions (product (H₃) and process (H₄)) to performance outcomes (industry (a) and market (b)). Unexpectedly the data suggest that hypothesis 3a (Product Innovation → Industry Performance) and hypothesis 4b (Process Innovation → Market Performance) are supported yet, hypotheses 3b and 4a are not.

**DISCUSSION AND IMPLICATIONS**

Guo (2002) contends the direct link between market orientation and performance is a dangerous leap, given so much that must happen between the two. In short, both mediating and moderating variables go unaccounted and depict an incomplete picture of their complex relationship. Given this study’s results, innovation’s role as both a full and partial mediator between market orientation and performance is now better explained. Many researchers believe that innovation orientation acts to mediate the relationship between market orientation and performance (Han et al., 1998; Kirca, Jayachandran, & Bearden, 2005), while others have proposed innovation orientation as a moderator (Zhang, & Duan, 2010). The results in this research suggest that independent processes are at play between market orientation sub-dimensions (customer and competitive orientation) and cannot be

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**TABLE 2:** Path Coefficients and Hypothesis Test Results

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>p-value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁a: Competitive Orientation à Product Innovation</td>
<td>0.31</td>
<td>2.86</td>
<td>.004</td>
<td>Support</td>
</tr>
<tr>
<td>H₁b: Competitive Orientation à Industry Performance</td>
<td>-0.18</td>
<td>1.69</td>
<td>.093</td>
<td>Fail to Support</td>
</tr>
<tr>
<td>H₂a: Customer Orientation à Process Innovation</td>
<td>0.36</td>
<td>3.03</td>
<td>.002</td>
<td>Support</td>
</tr>
<tr>
<td>H₃a: Customer Orientation à Market Performance</td>
<td>0.46</td>
<td>4.42</td>
<td>.000</td>
<td>Support</td>
</tr>
<tr>
<td>H₃b: Product Innovation à Industry Performance</td>
<td>0.40</td>
<td>3.30</td>
<td>.001</td>
<td>Support</td>
</tr>
<tr>
<td>H₄a: Process Innovation à Industry Performance</td>
<td>0.04</td>
<td>0.42</td>
<td>.675</td>
<td>Fail to Support</td>
</tr>
<tr>
<td>H₄b: Process Innovation à Market Performance</td>
<td>-0.02</td>
<td>0.17</td>
<td>.865</td>
<td>Fail to Support</td>
</tr>
<tr>
<td>H₅a: Process Innovation à Market Performance</td>
<td>0.26</td>
<td>2.50</td>
<td>.013</td>
<td>Support</td>
</tr>
</tbody>
</table>
Customer and Competitor Orientation. . . .

Innovative practices are capable of creating superior customer products and services (Atuahene-Gima, 1996), which is thought to be especially significant for SMEs as they must also adapt to turbulent business environments (Grinstein, 2008). In addition to potentially constrained resources, the SME is also faced with significant uncertainty in the ability to compete over a long period from a lack of access to long-term supplier relationships, distributor networks and technology investment. Moreover, they often compete in fluid product-markets that endure constant change or they bring discontinuous practices and products to a mature product-market. In such a situation, they create change which further produces a turbulent business environment, including technological disturbances because of some rapidly changing condition, and is predicted to influence the market orientation – performance relationship (Houston, 1986). Such rapidly changing environmental conditions gives credence to the SME’s short-term planning horizon, demanding them to innovate their business practices in order to accommodate new realities that exist in the broader business environment. Examples beyond this current study suggest a multitude of research environments, whereby market orientation, innovation orientation, and performance have been examined, including China, Russia, Sub-Saharan Africa, South Africa, Taiwan, India, and so forth. Therefore, environmental turbulence is found to significantly moderate the relationship between market orientation and performance, which is especially important to SMEs that are more vulnerable due to weaker resources when compared to larger firms. (Gonzalez-Benito et al., 2014). While, this current study does not use an emerging market sample, it does illustrate that the effectiveness of both customer and competitor orientations even when institutional voids don’t exist, as in a developed, stable economy. This research draws from a U.S. sample, which is rare in international SME research and it represents a moderately stable economic environment where turbulence is likely minimal when compared to other international economies. SMEs that employ a market orientation coupled with their natural tendency toward innovation is critical for their long-term success in the absence of many resources.
Additionally, the implications of non-significant paths coefficients between product innovation and market performance (H₃b) and between process innovation and industry performance (H₄a) suggest a possibility that market performance (associated with the customer) is independent of the process that leads to industry performance. The lack of a relationship between the two paths might be due to the perceptual nature of the measures being utilized. While market outcomes are comparatively straightforward for study respondents to assess (via tangible details like sales information and direct feedback), industry comparisons may be influenced by more subjective assessment. Moreover, in the case of SMEs, industry and competitor information may not be as readily available as in the case of larger entities, and accurate assessments may be difficult. Nonetheless, the two innovation sub-dimensions (process and product innovation) have distinct and significant relationships with different aspects of performance (market and industry). The lack of significant cross relationships between the innovation and performance dimensions indicate singular direct effects that do not include all hypothesized expectations.

This study focuses on the main relationships between the subcomponents of major firm orientation constructs and how they affect firm outcomes. In doing so, we aim to develop a parsimonious model to establish the proposed mediated relationships. While the literature on the topic has argued the presence of many different moderators and mediators that affect said relationships, we have not sought to test them at this stage. Once the base model has been established, it will open the way for further elaborations on the relationships in future research.

CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

Prior research views market orientation as a tool to clarify and focus management thinking, while providing direction in establishing priorities and improving the quality of marketing knowledge (for example, Analoui & Karami, 2003). While it seems that having a market orientation is generally positive, it does not produce enhanced performance results by itself. This research affirms Drucker (1954) and others that have developed complex models which incorporate both external (competitor and market-facing) and internal (operation and process) \textit{modus operandi}. Given the need for a multi-oriented managerial approach, a host of additional questions emerge. For small and medium enterprises, under what resource constraints does a specific managerial orientation best serve the firm? How should managerial orientation change over time? How does managerial orientation change as a firm matures? How should it change, given external turbulence and competitive change? Likewise, how should it change, given external market changes?

Given the nature of survey data, a number of limitations exist as a result of the sample and process that impact the voracity of the data. The study uses several scales constructed for the purpose, with the intent of better capturing the desired variables. While using pre-published scales would have been ideal in terms of validity and legitimacy, our aim was to try to capture the constructs as closely as possible, while doing justice to the context. Upon measurement assessment, it is clear that composite reliabilities and average variance extracted (during the CFA) are slightly less than desirable. These measure issues impede the overall fit of the hypothesized model, yet do not seem to impede the general findings of the study. In addition, it would be ideal to have a larger sample. While we are confident that the sample is appropriate for the research study, a greater sample from a broader geographic footprint would be desirable. Finally, regarding the sample, it is noted that some of the firms are locally owned, while others are regional locations for national brands. It is assumed that local managers have the autonomy to make local managerial decisions, however influence from a larger, national organizational structures cannot be ignored. This may be problematic because while working at a local-level, they may still take advantage of resource-rich parent affiliation.

As this research moves forward, additional work is needed to understand the managerial implications of dueling orientations. While it is assumed that both market and innovation orientations support each other, is it possible for a firm to continue with one at the expense of the other? How do these orientations fit other
management theory models, organizational structure and from a market perspective, models of competition? Moreover, a significant amount of research has been devoted to managerial orientation among SMEs, yet continued research among micro firms and entrepreneurs, along with non-profit SMEs, is needed. Further, we see the potential look at more nontraditional fields, such as firms operating in the digital sphere and through social media. There are interesting possibilities in their study, given that these firms offer unique products and processes that can lead to novel challenges and opportunities.

REFERENCES


Customer and Competitor Orientation... Flight and Mudiyanseilage


## APPENDIX:
### Representative Literature of Strategic Orientations and Performance in the Context of SMEs

<table>
<thead>
<tr>
<th>Citation (Context, Sample)</th>
<th>Model</th>
<th>Key Measures</th>
<th>Method</th>
<th>Key Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amin, Thurasamy, Aldakhil, &amp; Kaswuri (2016) (Malaysia); 117 manufacturing firms</td>
<td>Entrepreneurial Orientation --&gt; Performance while mediated by Market Orientation</td>
<td>Entrepreneurial Orientation (Knight, 1997, Lumpkin &amp; Dess, 1996; Merlo &amp; Auh, 2009); Market Orientation- (Narver &amp; Slater 1990); Performance (Knight, 1997; Lin, Peng, &amp; Kao, 2008; Merlo &amp; Auh, 2009, and Wiklund &amp; Shepherd, 2005).</td>
<td>Structural Equation Modeling</td>
<td>Strong significance was found for each relationship tested.</td>
</tr>
<tr>
<td>Appiah-Adu &amp; Singh (1998) (United Kingdom); 101 Marketing Executives in UK manufacturing and service firms.</td>
<td>Customer Orientation --&gt; Performance with Innovation Orientation affects. Market Dynamism --&gt; Customer Orientation; Competitive Intensity --&gt; Customer Orientation.</td>
<td>Customer Orientation (Deshpandé, Farley, &amp; Webster (1993); Innovation Orientation and Market Dynamism (Pelham &amp; Wilson, 1996; Jaworski &amp; Kohli (1993); Competitive Intensity (Pelham &amp; Wilson, 1996; Jaworski &amp; Kohli, 1993); New Product Success Sales Growth and ROI used objective methods.</td>
<td>Multiple Regression</td>
<td>Customer Orientation is found to be significantly related to new product success (p&lt;.01), sales growth (p&lt;.05), and ROI (p&lt;.01). Innovation orientation and customer orientation are related (p&lt;.05); however market dynamism and competitive intensity are not significantly associated with customer orientation.</td>
</tr>
<tr>
<td>Aziz &amp; Omar (2013) (Malaysia); 101 manufacturing SME managers</td>
<td>Market Orientation / Learning Orientation / Internet Marketing Orientation --&gt; Innovation Capabilities --&gt; Performance</td>
<td>Market Orientation and Performance (adapted, Narver &amp; Slater 1990); Learning Orientation and Innovation Capabilities (adapted, Calantone, Cavusgil, &amp; Zhao (2002); Internet Marketing Orientation (Prasad, Ramamurthy &amp; Naidu, 2001); Performance is measured using a subjective approach.</td>
<td>Multiple Regression</td>
<td>Both market orientation constructs fail to significantly explain business performance; moreover, innovation capabilities (as a mediator) is only partially supported. Shared Knowledge &amp; Vision appear to be significant within the model.</td>
</tr>
<tr>
<td>Celuch, Walz, Saxby, &amp; Ehlen (2011) (United States; 139 SMEs 'top managers' (under 1500 employees)</td>
<td>Market orientation --&gt; positive usefulness of using the internet for managing supplier information; Market orientation --&gt; the internet is not useful for communicating with suppliers.</td>
<td>MARKOR (Kohl, Jaworski, &amp; Kumar 1993); Learning orientation; Behavioral norms; Perceived usefulness; Perceived ease of use; Behavioral intention, intent to increase its use of the Internet within the next 12 months.</td>
<td>Multiple Regression</td>
<td>Market orientation did not have direct effect on usefulness, but some evidence was found for an indirect effect of market orientation working through behavioral norm to impact usefulness perceptions.</td>
</tr>
<tr>
<td>Chao &amp; Spillan (2010) (United States and Taiwan); 138 SME managers (U.S.); 151 SME managers (Taiwan)</td>
<td>Market Orientation --&gt; Performance</td>
<td>MARKOR Kohli, Jaworski, &amp; Kumar (1993); and subjective competitive business performance.</td>
<td>Structural Equation Modeling</td>
<td>A significantly positive link between responsiveness and performance was found, but not with intelligence generation or intelligence dissemination.</td>
</tr>
<tr>
<td>Citation (Context, Sample)</td>
<td>Model</td>
<td>Key Measures</td>
<td>Method</td>
<td>Key Finding</td>
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<tr>
<td>---------------------------</td>
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<tr>
<td>Kara, Spillan, &amp; DeShields (2004) (United States); 148 Not-for profit organizations (86% were SMEs)</td>
<td>Market Orientation --&gt; Performance measured by funding support</td>
<td>MARKOR Kohli, Jaworski, &amp; Kumar (1993)</td>
<td>Structural Equa- tion Modeling</td>
<td>The model was confirmed and a strong association between market orientation and funding performance was found.</td>
</tr>
<tr>
<td>Dubihlela &amp; Dhu-rup (2015) (South Africa); 273 SME owners</td>
<td>Market Orientation --&gt; Business Performance</td>
<td>MARKOR Kohli &amp; Jaworski (1993)</td>
<td>Structural Equa- tion Modeling</td>
<td>Positive MO--&gt; Performance confirmed is positively associ- ated (.65, significant at .001); Barriers found to negatively impact market orientation (-.22 significant at .05).</td>
</tr>
<tr>
<td>Gaur, Vasudevan, &amp; Gaur (2011) (India); 315 firms, CEOs at Indian SMEs</td>
<td>market orientation --&gt; manufacturing performance with turbulence moderators in an emerging economy</td>
<td>Narver &amp; Slater (1990) for market orientation components; Jaworski &amp; Kohli (1993) for competitive intensity; Miller &amp; Freisen (1982) and Gatignon &amp; Xuereb (1997) for firm resources; and Cua, KcKone, &amp; Schroeder (2001) for manufacturing performance.</td>
<td>Hierarchical Re- gression Analysis</td>
<td>A positive link is found be- tween market orientation sub- dimensions; customer orienta- tion and inter-functional coordi- nation, and manufacturing per- formance. Competitive intensity (turbulence) acts as a modera- tor.</td>
</tr>
<tr>
<td>Gellynck, Banterlek Kuhn, Carraresi, &amp; Stranieri (2012) (United Kingdom); 118 food producers</td>
<td>Market Orientation --&gt; Performance, Product and distribution Innovation. MARKOR Kohli and Jaworski (1993)</td>
<td>Measures were developed during the study based on Narver &amp; Slater (1990) for market orientation components. Distribution Innovation following Knight (2000); Laforet (2008)</td>
<td>K-means Cluster Analysis</td>
<td>Four firm clusters are identified ranging from those that hold a market orientation (n=49) to that that do not (n=10). Generally, firms in clusters that demon- strate greater market orientation possess stronger managerial skills and practices.</td>
</tr>
<tr>
<td>Ghanavati (2014) (Iran); 392 industrial SME executives (n=56 small firms; n=336 medium firms)</td>
<td>Market Orientation and Culture --&gt; Customer and Financial Performance</td>
<td>Narver &amp; Slater (1990) for market orientation components; Organizational Culture Index- Wal- lach (1983); Customer performance is conceptualized as performance which can be enhanced through continuous relationship between a cus- tomer and an enter- prise; Financial performance- financial ratios related to sales growth, profit, market share, and return on investment (ROI).</td>
<td>Structural Equa- tion Modeling</td>
<td>Market Orientation was signifi- cantly related to customer performance (.76), but not financial performance (.12). Corporate culture and market orientation were significantly related (.51). Customer performance fully mediated the relationship be- tween Market Orientation/ Corporate Culture and financial performance.</td>
</tr>
<tr>
<td>Kara, Spillan, &amp; DeShields (2005) (United States); 153 SME managers</td>
<td>Market Orientation --&gt; Performance measured by profit, sales, and ROI achievement</td>
<td>MARKOR Kohli, Jaworski, &amp; Kumar (1993); and self-reported performance.</td>
<td>Structural Equa- tion Modeling</td>
<td>The model was confirmed and a strong association between market orientation and performance, including profit, sales and ROI.</td>
</tr>
<tr>
<td>Citation (Context, Sample)</td>
<td>Model</td>
<td>Key Measures</td>
<td>Method</td>
<td>Key Finding</td>
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<td>---------------------------</td>
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</tr>
<tr>
<td>Keskin (2006) (Turkey); 157 SME managers</td>
<td>Market orientation, firm innovativeness, and firm learning orientation --&gt; firm performance; Market Orientation --&gt; innovation while mediated by firm innovativeness; Mark orientation --&gt; learning orientation</td>
<td>Market orientation is measured by both MARKOR (Kohli &amp; Jaworski 1993) and Narver &amp; Slater (1990) scales; Learning-orientation, firm performance and innovativeness scales were adapted from Calantone et al., (2002)</td>
<td>Structural Equation Modeling</td>
<td>Market orientation is significantly associated with learning orientation but not innovativeness or performance suggesting full mediation. Learning orientation is significantly associated with innovativeness which the leads to performance as predicted.</td>
</tr>
<tr>
<td>LaForet (2008) (United Kingdom); 60 manufacturing SMEs CEOs</td>
<td>Strategy Orientation and market orientation--&gt; Innovation Orientation cross-tabbed by Miles and Snow typology (Defenders/Prospectors)</td>
<td>Strategic Orientation by O'Regan &amp; Ghobadian (2005); market orientation is measured by author's original scale; Innovation Orientation by product, process and organizational culture</td>
<td>Between group analysis</td>
<td>Findings not conclusive or fully reported.</td>
</tr>
<tr>
<td>Low, Chapman, &amp; Sloan (2007) (Australia); 73 Manufacturing Managers</td>
<td>Competitive Environment --&gt; Innovativeness; Competitive Environment --&gt; Market Orientation; Market Orientation --&gt; Innovation; Innovation --&gt; Performance; Market orientation --&gt; Performance.</td>
<td>Market Orientation by Slater &amp; Narver (1994); Innovation-the innovativeness subscale by Covin &amp; Slevin (1989); Financial Performance- profit and loss, and self-reported statements, balance sheets (ROI, new product success, gross margin, asset turnover, inventory turnover)</td>
<td>Correlation Analysis</td>
<td>Significant negative correlation between firm innovativeness and ROI. Innovation and Market Orientation each have a positive correlation with firm performance.</td>
</tr>
<tr>
<td>Matanda &amp; Ndubisi (2009) (Zimbabwe); 244 produce suppliers.</td>
<td>Customer and Competitor Orientation, and Inter -functional Coordination --&gt; perceived value creation --&gt; marketing and financial performance.</td>
<td>Market Orientation (Narver &amp; Slater 1990); perceived value creation items were self-created via manager interviews. Performance was based on self-reported data.</td>
<td>Structural Equation Modeling</td>
<td>Customer orientation enhances perceived value creation. Competitor orientation, and inter-functional coordination are negatively associated with perceived value creation.</td>
</tr>
<tr>
<td>Mokhtar, Yusoff, &amp; Ahmad (2014) (Malaysia); 140 SME CEOs and marketing managers</td>
<td>Customer focus, market intelligence, market dissemination, and responsiveness each --&gt; organizational performance.</td>
<td>MARKOR Kohli &amp; Jaworski (1993); adapted Gray, Matear, Boshoff, &amp; Matheson (1998) and Narver &amp; Slater (1990) for customer focus; performance measures were developed during the study.</td>
<td>Multiple Regression</td>
<td>Market intelligence and responsiveness were not found to be significant indicators of firm performance, while customer focus and market dissemination were.</td>
</tr>
<tr>
<td>Nwokaw (2008) (Nigeria); No Data is collected</td>
<td>Market orientation (using customer focus, competitor focus, and interfunctional coordination --&gt; sales growth, profitability, and market share. Mediation and moderation is anticipated from government policy and industry context.</td>
<td>No Data is collected</td>
<td>Theory</td>
<td>Fails to theorize a significant relationship between market orientation and business performance without moderation.</td>
</tr>
<tr>
<td>Citation (Context, Sample)</td>
<td>Model</td>
<td>Key Measures</td>
<td>Method</td>
<td>Key Finding</td>
</tr>
<tr>
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<tr>
<td>Reijonen &amp; Komppula (2010) (Finland); 215 firms for a survey and 8 in-depth interviews in the tourism, plastics and metals, and information and communication industry.</td>
<td>No specified model. RQs include how market orientation is adopted among SMEs; how market orientation relates to success of SMEs and which capabilities are required for such success.</td>
<td>50 self-modeled items were used to measure the importance of specific business practices</td>
<td>ANOVA across industries.</td>
<td>Customer orientation, human resources, and market intelligence were important indicators of success in each industry. SMEs tend to emphasize customer orientation.</td>
</tr>
<tr>
<td>Renko, Carsrun, Brannback, &amp; Jalankan (2005) (Finland); 118 between three data collections of biotechnology (pharmaceutical) firms.</td>
<td>Industry (push) versus market (pull) influence on the innovation &gt; Market Orientation relationship</td>
<td>Measures were developed during the study.</td>
<td>Thematic Interviews; Descriptive statistics</td>
<td>The findings are generally associated with practices that are common among small firms which need to innovate more to obtain a market orientation within a unique highly specialized set of high-tech SMEs.</td>
</tr>
<tr>
<td>Rhee, Park, &amp; Lee (2010) (South Korea); 354 CEO/Senior Managers of SME firms</td>
<td>Market and Entrepreneurial Orientations --&gt; Learning Orientation --&gt; Innovativeness --&gt; Performance</td>
<td>Market Orientation (Slater &amp; Narver 1990); Entrepreneurial Orientation (Hult, Hurley, &amp; Knight, 2004); Learning Orientation (Slater &amp; Narver 1995); Innovativeness (Hurley &amp; Hult 1998); Performance-relative performance of profitability, sales growth, and market share.</td>
<td>Structural Equation Modeling</td>
<td>Model is generally supported with strong findings for key relationships. Firm and size are weakly associated with learning organization. In non-hypothesized finding both market and entrepreneurial orientations are found to be significantly associated with Innovativeness.</td>
</tr>
<tr>
<td>Seilov (2015) (Kazakhstan); 318 SME entrepreneurs</td>
<td>Customer and Competitor Orientations lead to Entrepreneurship Orientation</td>
<td>Competitive orientation and Customer orientation: Miller (1983), Covin &amp; Slevin (1989)</td>
<td>Multiple Regression</td>
<td>Customer Orientation --&gt; Entrepreneur Orientation is confirmed, .603, sig. .05; Competitor Orientation --&gt; Entrepreneur Orientation is confirmed, .597, sig. .05.</td>
</tr>
<tr>
<td>Serna, Guzman, &amp; Castro (2013) (Mexico); 286 Manufacturing Managers</td>
<td>Customer Orientation, Competence Orientation and Inter-functional Coordination --&gt; Innovation</td>
<td>Narver &amp; Slater (1990) for market orientation components; Pinzón (2009) management innovation; the Oslo Manual (OECD 2005) for product and process innovation.</td>
<td>Structural Equation Modeling</td>
<td>Significant relationships are found for market orientation components (customer, competence, and inter-functional coordination) and Innovation Orientation.</td>
</tr>
<tr>
<td>Siddique (2013) (United Arab Emirates); 120 SMEs</td>
<td>Negative impact of limited resource infrastructure, undifferentiated competition, short-term planning, contentment with status quo, legal environment, size, and age.</td>
<td>MARKOR Kohli &amp; Jaworski (1993); independent variable measures were developed during the study.</td>
<td>Qualitative case followed by survey work. Bivariate correlation then multiple regression is used to assess variable relationships.</td>
<td>Significant negative association is found with each independent variable and market orientation while company size and age fail to be significant.</td>
</tr>
</tbody>
</table>
SUPPLEMENTAL APPENDIX REFERENCES


Howard Penetration Affect Local B&M Retailers

Mora

INTRODUCTION
Earlier predictions foretold the demise of retailers through the empowerment of producers and consumers, who would be in increasingly more direct contact with each other (Angelides 1997). The economics of intermediation though, i.e., retailers introducing contact efficiency by reducing the costs of matching supply and demand, persists and multiplies in a world with an incremental number of product and service offerings. Thus, intermediation remains a necessity even in electronic marketplaces, as the rise of online retailers such as Amazon illustrates. Furthermore, thirty years into the Internet age consumers have not massively migrated to online, as online sales remained 11.1% of the US retail commerce in 2019 (Statista 2020), even as the recent COVID-19 pandemic may push these numbers further up, and intermediation still rules off-line transactions. The development of the online channel has proven to be more of a supplement than a substitute to bricks-and-mortar (B&M) or physical stores (Biyalogorsky and Naik 2003, Weltevrenden and Boschma 2008, Wolk and Skiera 2009, Liu et al., 2018), which is likely valid regardless of the size and location of a retailer. For instance, smaller, local retailers may make use of multichannel strategies, and in particular the online channel, as it lowers the costs of promoting product and service offerings while expediting commercial transactions (Doherty and Ellis-Chadwick 2010). Larger retailers may enjoy these advantages as well and, additionally, further capitalize on their more advanced logistics to broaden their local offerings even as the products are physically away. As both smaller, local retailers, and larger, likely non-local retailers with national and global scope are capitalizing on the Internet, it is uncertain which players benefit the most. For local B&M retailers, is Internet a blessing or a curse?

This is an important problem because of its potential managerial and policy implications. For instance, if Internet penetration hurts diversity and number of business establishments, then the smaller players that make the marketplace more numerous and diverse are being out-competed by technically sophisticated behemoths, and should develop alternative off-line strategies, e.g., focus on fostering store traffic, developing face-to-face relationships. If, on the contrary, Internet penetration boosts diversity and numerosity of business establishment, it would imply that the performance of smaller players is being disproportionally enhanced as compared to that of larger players. In that scenario, on-line strategies should be viewed as prime tools in strategy-making and tactical implementation.

HOW INTERNET PENETRATION AFFECTS LOCAL B&M RETAILERS

JOSÉ-DOMINGO MORA, PH.D., University of Massachusetts Dartmouth

Is Internet a blessing or a curse for local bricks-and-mortar (B&M) retail? The present research studies the effects of Internet penetration on two metrics of industry structure of B&M retailers, namely intensity per capita and diversity of retail establishments, over 149 retail formats in 64 counties in New England. These data enter a system of simultaneous equations, where intensity and diversity of retail establishments are endogenous dependent variables. It is found that Internet penetration is a driver of B&M retail diversity, therefore favoring specialists that tend to be smaller and local over generalists that tend to be larger and non-local. Thus, even as Internet access and benefits are available to businesses regardless of size, smaller B&M players seem to be more able to channel those rewards. Furthermore, given recent societal trends, it is possible that consumers are leveraging the Internet to channel their support of local businesses. An important implication of our results is that local governments should promote Internet infrastructure to help support local retailers and benefit consumers through both, broader product arrays and stronger local economies.

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Policy-wise, local governments would have a better compass to help them decide on efforts to promote and subsidize infrastructure projects.

This problem is addressed by statistically modeling data on Internet penetration and retail sector characteristics, available from the United States Census Bureau (2017) at the county level, specifically for 94 counties in the New England region. Consistent with the narrative on the existence of a digital divide further separating have-nots from have-haves, Census data show that there exists significant variation in the degree of penetration of the Internet over counties. These “digital inequalities” generate enough variability to allow for model estimation. As socio-economic county-level data, such as household income and retail characteristics, are also available from the Census, it is possible to control for their potentially confounding effect on the two retail characteristics of interest. Specifically, the present research empirically models the impact of Internet on the following metrics, which describe the structure of the local retailing industry: a) retail diversity (as entropy) and b) retail intensity (as number of establishments per person), while controlling for potentially confounding variables, and for the mutual effect of those two metrics on each other. Diversity is an entropy measure of the distribution of retailers by class. Smaller diversity of retail formats implies that generalists—likely bigger non-local chains, e.g., supercenters—tend to dominate the local marketplace, whereas larger diversity implies that specialists—likely local businesses, e.g., specialty stores—play a more significant role. The second descriptor of industry structure is retail intensity, the ratio of retail options to demand, which is captured as stores per capita. Higher retail intensity implies better consumer access to offerings and more intense competition—likely from smaller players—on the supply side.

The study findings show that Internet penetration is a driver of B&M retail diversity, and therefore favors smaller, local players. The study finds no effect of Internet penetration on retail intensity (as stores per capita), which points to the limitations of Internet as a tool to overcome structural constraints on local economic growth.

BACKGROUND

Company Adoption of Internet

The extant literature provides consistent evidence linking the adoption of Internet to enhanced firm performance over a broad range of firm characteristics. First, both the speed at which retail firms adopt Internet as a communication channel, and the speed at which they develop electronic commerce alliances have positive effects on firm performance, measured as Tobin’s q (Lee and Grewal 2004). Beyond adoption and speed of adoption, the incorporation of more advanced features in company websites also predicts management’s perception of firm performance (Drennan and McColl-Kennedy 2003). As firms advance toward more comprehensive Internet strategies, measures of self-perceived firm performance (among managers) significantly improve as well (Weltevreden and Boschma 2008). In fast-growing companies, more complex patterns of use of online media positively co-vary with firm revenues (Mora and Barnes 2011). At one rather advanced level of Internet adoption, i.e., as a fully developed distribution channel of digitalized music, the effect on sales is shown to be very positive, whereas cannibalization of the traditional channel by the online channel remains negligible (Biyalogorsky and Naik 2003). In sum, these studies provide clear evidence that adoption, speed of adoption, and degree of sophistication in the implementation of Internet tools positively affects actual or perceived firm performance, measured with a number of validated metrics.

Importantly, the adoption of Internet-based tools and media has become ever more expedite, as technological developments have made progress in addressing the main drivers of such adoption. A study of Internet adoption by retailers conducted in the United Kingdom 17 years ago (Doherty et al. 2003) identified ten factors predicting higher degrees of company website functionality. Among those, the main drivers were management’s strategic readiness, the availability of infrastructure inside the firm, the costs associated to the Internet channel, and the degree of target consumer’s adoption of Internet. The authors of the present study posit that the first three factors have been largely addressed since 2003 by the increasing
availability of web development firms. The number of such firms grew at a 6.6% annually between 2014 and 2019 in the US, to more than 75 thousand (IBIS World 2019). A second enabler of adoption of Internet tools is the increasing availability of server capacity for hosting websites, which has resulted as well in lower costs for companies (Ribeiro 2012). In parallel with these two developments, the number of consumers using the Web has grown dramatically, to 76% in the USA in 2016 (Roser et al. 2020). The main barriers for adoption of Internet identified by Doherty et al. (2003) have been significantly eroded over an interlude of a decade and a half.

Thus, not only Internet provides tangible benefits for the adopting companies, the adoption of Internet-based tools and media has become less costly and less complex. Importantly, these two phenomena seem to benefit firms across the board, although it seems unlikely that every type of company would benefit equally. One interesting divide over which to explore potential differences in Internet adoption is company size, specifically because of the critical role played by small and medium enterprises (SMEs) in developed economies. For instance, in the member countries of the Organization for Economic Cooperation and Development, SMEs constitute 99% of all commercial firms and create more than 50% of the economic value (OECD 2019). It is thus interesting to elucidate the influence of Internet penetration on smaller players as compared to larger ones. Local B&M retailers are a subset of SMEs. Unfortunately, none of the studies cited in this section, nor those found in an extensive literature search, compare the effect of the adoption of Internet, or the degree of sophistication in its use, between smaller and larger firms.

MEASURING FIRMS, BIG AND SMALL

Metrics of industry structure (e.g., number of players, degree of concentration) are useful indicators of how SMEs in general, and local B&M retail in particular, fare in relation to larger companies. The present research looks at two broad descriptors of the structure of the retail industry, which are termed retail intensity and diversity. Retail intensity is the number of retail establishments per one-thousand people at the county level. It reflects the number of retailers an average consumer “faces” in their county, hence the term intensity. Diversity is the variety of retail formats over a number of NAICS categories or retail formats (e.g., supermarkets, bakeries, meat stores) “faced” by the average consumer in a county. Diversity is conceptually the opposite of industry concentration. A well-known and widely used measure of concentration is the Herfindahl index, which has a relatively simple formulation: it is the summation of the squared shares of market sales by firm, and varies between very close to zero (never gets to zero) and 1, with 1 representing a market with one single player holding 100% of sales. This infinitely concentrated market would have zero diversity. Note that the Herfindahl index could have been used in our research, as it measures the opposite of diversity. The proposed measure of diversity, the Shannon entropy (Shannon 1948) has a number of advantages, though, over the Herfindahl index. It varies between zero and a potentially infinite number, with larger values representing higher diversity. Within its compact formula (see below) this index considers, and increases with, both the number of classes in a system (number of retail formats) and how equitably distributed is the sum total of the elements in the system (number of retail establishments) over those classes (retail formats). These properties of the Shannon index are known in the ecology literature as numerosity and equitability. Thus, a market with 10 retail formats (higher numerosity) is bound to be more diverse than a market with 5 retail formats (lower numerosity). Furthermore, a market with 100 stores uniformly distributed in 10 retail formats (high equitability) is more diverse than a market also with 100 stores and 10 retail formats, but where 2 of the retail formats capitalize 50 of the stores (low equitability).

Thus, larger values of Shannon entropy in the present study are for counties with more retail formats and total number of establishments more evenly distributed over those retail formats. More retail formats imply larger number of specialized stores, e.g., meat stores and bakeries as opposed to only supermarkets.
RESEARCH QUESTIONS

The researchers posit that B&M retailers tend to be local, and that larger retailers, e.g., national store chains, tend to be non-local. In terms of benefiting from the Internet as an innovation, online resources help lower the costs of disseminating information and completing transactions, effectively lowering barriers to entry for smaller competitors, but also providing both larger competitors and smaller competitors with cost advantages. Larger players may further benefit from the Internet as they are able to invest in logistics that help expand their local assortments, e.g., customers ordering online items not kept in stores for in-store pick-up. Should the balance of this complex array of forces favor bigger players, one should expect that Internet penetration hurt both intensity and diversity of retail. Vice versa, if the balance favors smaller players, both intensity and diversity of retail should increase with Internet penetration. As this underlying balance is unknown, it is asked:

RQ1: How does Internet penetration influence diversity of B&M retail establishments in US counties?
RQ2: How does Internet penetration influence intensity of B&M retail in US counties?

MEASURES AND STATISTICAL MODEL

The present research investigates whether the diversity of retail formats ($Diversity_c$) and the intensity of retail outlets ($Intensity_c$) in county $c$ are predicted by the penetration of Internet in that county. $Diversity_c$ is operationalized as the Shannon entropy (Shannon 1948) over NAICS industry codes, as follows:

$$Diversity_c = - \sum_{k=1}^{K} p_{ck} \log(p_{ck})$$ (1)

where $p_{ck}$ is the proportion of all retail establishments in county $c$ belonging in the $k$-th retail format (5-digit NAICS codes corresponding to store formats, such as supermarkets and meat stores). $Intensity_c$ is operationalized as the ratio of total number of retail establishments in the county to the population in the county. Diversity and intensity are not independent from each other, they positively co-vary ($r = .74$) arguably as a result of a mutual causation relationship. All else being equal, an increase in retail intensity (stores per capita) pushes potential entrants to new corners of the retail landscape, thus increasing diversity. In the opposite causal direction, increasing diversity improves the chances of success for new ventures, thus increasing intensity. For this reason, $Diversity_c$ and $Intensity_c$ are endogenous variables that need to be modelled simultaneously using a system of equations (Greene 2010).

The antecedents of $Diversity_c$ are presented now. The first one is, as in RQ1, Internet penetration ($Internet_c$). Second, the size of the county’s and the state’s economies (vector $ECONOMY_c$) which are both expected to positively co-vary with retail format diversity. Third, population density ($Pdensity_c$) should positively co-vary with number of consumer needs and, therefore, with the number of possible market segments, yielding a more diverse retail sector as population density increases. Fourth, average business size per county ($Bsize_c$) should negatively affect the diversity of county retail as larger retail establishments (e.g., department stores, super centers) tend to comprehend increasingly larger arrays of product categories, allowing them to better fight smaller specialists. Fifth, higher levels of consumer resources, as captured by personal income ($Income_c$), should tend to

$$Diversity_c = \beta_0 + Internet_c \cdot \beta_1 + \beta_2 \cdot ECONOMY_c + Pdensity_c \cdot \beta_3 + Bsize_c \cdot \beta_4 + Income_c \cdot \beta_5 + \epsilon_c$$ (2a).

expand consumer needs, therefore having a positive influence on diversity of the retail sector. Lastly, one must consider the fact that the per capita density of retail stores ($Intensity_c$) puts competitive pressure on businesses, which should result in active efforts on the side of firms to differentiate their offerings, thus positively influencing retail diversity. Hence, The antecedents of $Intensity_c$ are presented now.

RQ2 asks if $Intensity_c$ is affected by Internet penetration...
penetration ($Internet_c$). Other possible antecedents of $Intensity_c$ are similar to those in (2a). A larger economy, both county- and state-level ($ECONOMY_c$) should lead to higher retail density. Population density ($Pdensity_c$) should reduce retail intensity. Larger business

$$Intensity_c = \gamma_0 + Internet_c \gamma_1 + \gamma_2^{'2}$$

$$ECONOMY_c + Pdensity_c \gamma_3 + Bsize_c \gamma_4 +$$ (2b).

$Income_c \gamma_5 + Diversity_c \gamma_6 + \nu_c$

establishments ($Bsize_c$) should reduce the density of retail establishments, as larger stores tend to be generalists (i.e., carrying wider assortments). Also, more resourceful consumers (higher income, $Income_c$) should be able to demand more diverse items and thus positively affect $Intensity_c$. Finally, more diverse offerings ($Diversity_c$) should further drive demand and, hence, increase $Intensity_c$. Therefore, Equations (2a) and (2b) form a simultaneous system with two endogenous variables, $Intensity_c$ and $Diversity_c$, where errors $\epsilon_c$ and $u_c$ are assumed as normally distributed, and allowed to be correlated. The estimation of the system proceeds via iterated three-stage least squares, using all covariates in both equations as instruments, as in Greene (2010, p. E-508). To make the system identifiable, it is necessary to use an additional instrument for one of the endogenous variables on the right side of either of these equations.

**DATA AND SAMPLE**

The present study covers the states in the New England region of the United States, namely Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. Most data were collected from the Census’ online database (United States Census Bureau n.d.), specifically the following:

a) Number of retail establishments and number of retail employees per county $c$ and retail format $k$, c. 2017. The number of categories of retail format, $K$, varies between 5 and 149 NAICS codes (5-digit level) per county, as well. These are the terms that enter the Shannon equation (1).

b) Population per county c. 2017, or the estimates based on data 2010-2015 (the Census reports these estimates for sparsely populated counties).

c) Average income per county c. 2017, or the estimates based on data 2010-2015.

d) Internet penetration per county c. 2017 or 5-yr. estimates based on data 2010-2015.

The remainder of the data, specifically state gross domestic product c. 2017, comes from the Bureau of Economic Analysis, United States Department of Commerce (n.d.). Table 1 presents the correlations between the model variables. An additional variable used as an instrument for diversity by county ($Diversity_c$) in equation (2b) is population size by county,

$$Population_c (P_{Diversity_c,Population_c} = .63).$$

As said in the Model section, using this instrument is necessary to make the system identifiable.

The number of counties in New England is 68 but only 64 enter the estimation sample due to lack of data for the counties Essex and Grand Isle in Vermont, and the fact that the Dukes and Nantucket counties in Massachusetts are maritime islands with intense touristic activity and, therefore, atypical retail structures.

**RESULTS AND DISCUSSION**

Model estimates are shown in Table 2. Model fit improves considerably for retail diversity when Internet penetration enters as a covariate, and remains roughly unchanged for retail intensity. Therefore, model 2 is a better description of the data than model 1.

Model 2 estimates in Table 2 reveal that Internet penetration is a major driver of retail diversity (RQ1), with an estimate that is close to that of business size in terms of absolute value. Thus, the lowering of barriers to entry for smaller businesses, as a result of Internet penetration, outweighs the lowering of costs for big competitors for the same reason. Smaller retailers—mostly local—make use of the Internet to challenge big players and the effect of this strategy is larger than the gains of larger competitors in terms of lower costs.

Internet penetration, though, does not affect retail intensity (RQ2) (the negative sign of the
This is possibly due to the limited ability of Internet to help businesses expand demand, a necessary condition for retail intensity to increase. Demand has a number of unobserved institutional, geographic, and labor constraints that limit the effect of the competitive devices available through the Internet. These unobserved determinants of demand, and hence retail intensity, likely underlie the relatively smaller fit of the retail intensity equation (adj-

*Population size is used as an instrument for Shannon entropy when the latter is an endogenous covariate.*
$R^2=.536$, as compared to the retail diversity equation (adj-$R^2=.876$).

The endogenous estimates for intensity and diversity in model 2, Table 2, reveal that even as retail intensity positively drives retail diversity (.202), the effect of the latter on the former has a negative sign and a magnitude that is more than eight times larger in absolute value (-1.754). This implies that a larger local retail sector opens up opportunity for specialists, but specialization—i.e., smaller and more focused retail establishments—tends to reduce to an even larger extent the ability of competitors to grow local demand and, therefore, the size of the local retail sector.

The size of the economy has the expected positive effects in both intensity and diversity of the retail sector, but it is important only at the county level; state-level effects are one or two orders of magnitude smaller and non-significant. These results attest to the critical role that local factors, as stated above, play in shaping the structure of local retail. The size of business establishments has a negative effect on both intensity and diversity, as expected, and consistent with reports in the literature (Crowley and Stainback 2019). Larger retailers are likely reducing the number of establishments as they exclude smaller competitors whose main strategy is specialization (Ficano 2013), e.g., Wal-Mart superstores capture business from grocers, hardware stores, and many other specialists, thus reducing intensity and diversity of retail formats.

The demand-side variables population density and household income have negligible effects on both DVs. Even when the two variables for the size of the economy are dropped from the regression equations (results not shown), population density and household income show no effect on either intensity or diversity. This implies that it is the size of the aggregate population and their aggregate income what drives retail intensity and diversity.

**CONCLUSIONS AND IMPLICATIONS**

Smaller, likely more specialized B&M retailers benefit from Internet access, arguably because Internet enables both firms and consumers to, respectively, lower customer acquisition costs and expedite access to a more varied assortment of offerings. Whether this is the result of enhanced e-commerce transactions, enhanced access to information, or both, remains an empirical question to be answered by future research. What seems certain is that the balance of the underlying factors at play, i.e., Internet both reducing costs (which helps both large and small players) and lowering entry barriers (which favors smaller players) tends to disproportionately help smaller, likely local specialists, as compared to larger players. This implies that the value of one-stop-shopping solutions offered by larger players, which deliver a convenience benefit, does not offset the value of accessing a wider variety of offerings stemming from shopping around over a larger set of retailers. Consumers seem willing to spend more of their time and effort as a means to widen their options.

Yet another explanation to consider is that some consumers may proactively support local businesses as a matter of principle, and use the Internet to this aim. Supporting local businesses is a societal trend revealed by commercial researchers both at the country level, i.e., people buying products manufactured in their own country, and the small locality level, i.e., people buying more from local producers and retailers. Globally, 27% of consumers support patronizing local retail outlets (Angus and Westbrook 2020), whereas in the United States a recent survey conducted by Comscore for UPS showed that 93% of consumers said they shopped at local retailers, with 40% citing “support local businesses” as a rationale for this behavior (UPS 2015). Furthermore, service seems to emerge as a potential differentiator favoring small businesses: “Consumers are responding to the unique merchandise, easy-to-shop formats and personal service that come with mom-and-pop retail stores.” (Gustafson 2016)

Another alternative explanation to our findings is that small vs. big retailers may tend to differ in their choice of location, e.g., downtown or the inner city vs. more remote locations. Hence, location would become an unobserved covariate that could potentially bias model estimates. This factor is unlikely to affect the outcome of the models though because the data...
are collected at the county level and counties enforce zoning by town or city area. Zoning implies, among other things, forbidding commerce from setting operations outside specific areas; it has grown, among other factors, out of home owners’ concern with property value, and it has had an important impact on business: zoning has led to spatial agglomeration (Datta and Sudir 2013). Thus, there tend to be commercial districts in cities and towns all over the USA, which reduce choice of location for retailers, thus increasing the likelihood that small and large operations share locations. Developers of shopping centers tend to choose one or two big retailers as anchor stores, but the remaining tenants occupying the majority of stores may end up being small businesses. For instance, the largest developer of street shopping malls in the USA, Kimco, created in 2012 a program to attract small businesses, consisting of one year of free rent and other incentives; four years later, the program was in place in 19 states (Gustafson 2016).

The implications of our findings for public policy are important. Furthering Internet penetration emerges from this research as a means to foster consumer choice above and beyond what electronic commerce arguably does. Furthermore, Internet penetration seems to have a measurable effect on the ability of local B&M to compete with larger retailers. Thus, states and counties should further stimulate investment in broadband services as a means to both increase consumer welfare and strengthen local economies.

Implications for managers come from several directions. First, indirectly through the actions policy makers may take based on the present study and similar research. Specifically, by stimulating broadband access at the county level, policy-makers would be boosting the competitive capabilities of local and regional firms that have a hard time competing with larger national retailers, which also own brands with considerable equity. Second, managers and owners of local and regional firms should make their case before stakeholders, such as local government and local business associations, to push for expanded access to broadband. Business associations, for instance, could lobby local authorities and Internet service providers to this aim. Third, local businesses in counties where Internet penetration is already high should become ever more sophisticated users of Internet’s commercial capabilities. For instance, by advancing from having a website just as a means to display offerings, to enabling online ordering and record customer feedback. In an increasingly on-line world, competing with big brands demands leveraging advantages, such as being local by fully developing the on-line channel.

LIMITATIONS

A limitation of the present study is that it does not account for the adoption of mobile technologies. It is likely the case that Internet penetration co-varies with penetration of mobile services and applications performing similar functions than Internet-based digital media. This being the case, the estimate for Internet penetration could be biased upward, but it would still capture the impact of information technologies broadly considered on retail diversity. The key finding of the study stands regardless of this limitation; whatever their technological underpinnings, i.e., Internet or mobile technologies, digital media and other virtual capabilities are impacting local B&M retailers in a positive manner.

The study was conducted in counties of the six states in the New England region. It would be beneficial to expand the geographic scope of future studies, not only in the USA but elsewhere in the world.

REFERENCES


CONSUMER SEARCH FOR NUTRITION INFORMATION WHEN EATING IN RESTAURANTS
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With the average consumer eating in restaurants more than four times per week, and the need to combat the increase in obesity, heart disease, and diabetes, consumers need to choose healthier foods when eating out. Healthy choices require nutrition information to be provided and framed in a manner that is understandable to consumers. This study investigates the consumer characteristics, such as health consciousness, preventive health behaviors, perceived nutrition knowledge, self-efficacy, and body image and the impact these characteristics have on the desire for nutrition information. Also investigated is the preferred framing of this nutrition information when eating out. The results of this study indicate consumers desire expanded nutrition information, although they do not necessarily prefer to select the healthiest food. Compared to the other consumer characteristics, body image was the only consumer characteristic that had limited impact on the desire for nutrition information and the framing of this nutrition information.

INTRODUCTION

Americans are inundated with news reports about the increase in obesity, heart disease, and diabetes. Many consumers take the grim news to heart and attempt to eat healthier diets or those foods that the consumers believe contribute positively toward their health (Conway, 2018). More than 71% of consumers believe they could eat healthier and 44% of consumers consider the ingredients in the foods and beverages they consume (Conway, 2018). Consumers’ diets, and studies assessing those diets, must include not only the food consumed at home, but also the food consumed in restaurants. Eating in restaurants is big business; the average consumer eats in restaurants 4.2 times per week (Hamm, 2020). For example, individual consumers in the United States aged 45-54, spent an average of $4,157 per year eating out (Lock, 2019). Considering the amount of food that is consumed at restaurants, consumers need to know and understand the nutritional value of all food consumed, including at a restaurant.

For many years, research on healthy eating and the provision of nutrition information focused on food purchased for home consumption (see, for example, Klopp & McDonald, 1981, Putnam, 1993, Buda & Zhang, 2000, and Chien-Huang, Hung-Chou, & Sheng-Hsien, 2011). Eating nutritious foods and sales of these food products are estimated to reach $811.82 billion by 2021 (Shahbandeh, 2019). Although food manufacturers have been required to provide nutrition information on their products for decades in order to communicate with, and inform consumers about the product’s nutrition information, only recently has nutrition information become readily available for food items ordered in restaurants. National regulations were included with the passage of the Affordable Care Act in 2014 and were implemented in 2018 (see VanEpps, Roberto, Part, Economos, & Bleich, 2017, and Food and Drug Administration, 2020). This legislation states that restaurants and similar food establishments with 20 or more locations must disclose the number of calories of the menu item. Information regarding specific nutrients, such as total fat, saturated fat, trans fat, cholesterol, sodium, total carbohydrates, sugars, fiber, and protein must be made available upon request. Additional information that must be included, similar to the information that is displayed on the Nutrition Facts panel on food purchased for home consumption, includes:

1) a written indication that the information is available upon request, and
2) that for general nutrition advice, 2,000 calories a day is used, but individual calorie needs may vary, are to be displayed (Food and Drug Administration, 2020).
Since the proposal and implementation of legislation requiring that nutrition information be made available to consumers at restaurants, research has studied the need for (and the use of) nutrition information at restaurants. Research regarding nutrition labeling on menus includes impact on consumer purchase intentions, healthiness of a menu item, and use of the nutrition information on food selection (see Auchincloss, Giridhar, Leonberg, Ricchezza, Glanz & Schwarz, 2013; Burton & Creyer, 2004; and Burton, Tangari, Howlett & Turri, 2014). Additional prior research investigates the impact of restaurant nutrition labeling on healthy eating behaviors (Roseman, Joung, Choi & Kim, 2017) and the use of nutrition information at restaurants between locations where the consumers had to request the information and locations where the nutrition information was found on the menu (Vanderlee, White, & Hammond, 2019).

Also, the potential impediments to restaurant menu labeling initiatives (Burton & Kees, 2012) and the impact of consumers’ view of restaurants when nutrition information is provided (Berry, Burton, & Howlett, 2018) have been investigated. Research focusing on the impact of nutrition labeling in restaurants on menu selection and findings regarding the choice of eating healthier has produced mixed results (see Auchincloss et. al., 2013; Droms Hatch, 2016).

Research investigating the consumer characteristics and the framing of the nutrition message on menu item selection has been modest. This limited research has investigated the framing of the nutrition messages based on health consciousness, nutrition information on the menu, and purchase intentions (Dipietro, Remar, & Parsa, 2016); health consciousness and understanding the experiential and behavioral effects and how these effects will impact the restaurant via repatronage and positive word of mouth (Jin, Line, & Lee, 2017); the role of self-efficacy on the impact of message framing (Van’t Riet Werrij, Nieuwkamp, de Vries, & Ruiter, 2013); and self-efficacy and the level of consumption of fast food (Akindutire & Konwea, 2013). Although McGeown (2019) suggested the provision of calorie information at restaurants may negatively impact eating disorders, neither the use of nutrition information based on body image nor preventive health behaviors have been investigated when eating at restaurants. Thus, the focus of this study is to investigate the following research questions:

1. Do the consumer characteristics impact the use of nutrition information on menu selection when eating in restaurants?
2. Do the consumer characteristics impact the preference for the framing of the nutrition information on restaurant menus?

In seeking the answers to these questions, this research indicates both theoretical and practical insight into determining which consumer characteristics impact the use of nutrition information. This paper proposes a model to investigate whether these consumer characteristics impact the use of nutrition information and the preference for the type of framing for this nutrition information. This research adds to the literature by looking at the consumers themselves and how these characteristics impact the use of the information and menu selection.

**THEORETICAL BACKGROUND**

Marketers have long been interested in predicting consumer behavior. The theory of planned behavior (TPB) explains the concept that behavior intention leads to the actual behavior (Fishbein & Ajzen, 1975; Ajzen, 1991). According to these authors, the behavior intention, or motive to adopt a particular behavior, is formed by the consumers’ attitude toward the behavior, subjective norms, and perceived behavioral controls. Since TPB was proposed, it has generated more than 60,000 citations; it is considered one of the most widely used theories in research (Tornikoski & Maalaoui, 2019), including its successful application to nutrition choices (Switzer, Briley, Roberts-Gray, Hoelscher, Harrist, Staskel, & Almansour, 2011).

The two main criticisms of TPB are 1) it may not be sufficient or fully explain consumer intention and actions, and 2) it may not consider habitual behavior. In response to these criticisms, Ajzen (2011) states that TPB allows for predictors to be added, as long as they are behavior-specific and habitual behavior may be
considered a background factor in the formation of the attitude or intention, but past behavior does not always lead to the same decision.

This paper is using behavior-specific measures of attitudes toward the behavior, subjective norms, and perceived behavior control, as shown in Figure 1, and the framing of the nutrition message to lead to the use of nutrition information when eating out. Regarding the first criticism of TPB, this paper does not claim these measures fully explain the intention to use nutrition information when eating out; however, it is a useful starting point for this exploratory study. Further research will clarify and extend the model. Regarding the second criticism of TPB, habitual behaviors are beyond the scope of this paper.

**Attitude Toward the Behavior**

Attitude toward the behavior is developed by the consumer’s beliefs and values that a particular behavior will produce certain outcomes. An attitude is a summary evaluation that is stored in a person’s memory. Stored evaluations are used to guide behavior in response to a stimulus (Cohen & Reed, 2006); thus, stored attitudes are used to trigger a response to a decision-making opportunity. One question is simply: what reasons create the attitude the consumer uses in order to determine what item to select on the menu when eating in restaurants?

Consumers in general use some nutritional information on the menu and may alter their choices based on that information when eating out (Auchincloss, et. al., 2013). Literature suggests several attitudinal and behavioral characteristics specific to the domain of making health-related life choices related to food in general and eating out in particular (Sweitzer, et. al., 2011). Although the constructs of health consciousness and preventive health behaviors may overlap, they measure two different ideas. Health consciousness is the consumers’ general attitude toward health and preventive health behaviors are the consumers’ behavioral intention toward health. Reflected in Figure 1, health consciousness and health preventive behaviors are cited within the framework of TPB (Sweitzer, et. al., 2011). Therefore, this study seeks to investigate whether a person’s

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**FIGURE 1:**
Conceptual Model

- **Attitude Toward Behavior**
  - Health Consciousness
  - Preventive Health Behaviors

- **Subjective Norms**
  - Body Image

- **Perceived Behavioral Controls**
  - Self-efficacy
  - Perceived Nutrition Knowledge

- **Framing of Nutrition Message**

- **Use of Nutrition Information on the Menu**
health consciousness or engagement in health preventive behaviors create one’s attitude toward the behavior in the context of the reasoning used by the customer to use the nutrition information for the selection of a particular food item when eating in restaurants.

Health consciousness is defined as the awareness one has toward health concerns and the degree to which these concerns are incorporated into the consumer’s daily activities (Jayanti & Burns, 1998). Kraft and Goodell (1993) note that health-conscious consumers engage in a ‘wellness-oriented’ lifestyle, which includes a set of personal activities, interests, and opinions related to one’s health (p. 18). These authors note that health conscious consumers integrate behaviors, such as eating healthy foods, both at home and in restaurants, and exercising regularly, incorporating preventive health behaviors, or actions people do in order to enhance or maintain health, in order to improve or maintain their quality of life. Therefore, these consumers are proactive and engage in preventive health behaviors, rather than relying on medications to correct the negative consequences of their behavior. Thus, health-conscious consumers indicate an attitude toward health, while engagement in health behaviors indicates an action toward health. Consumers engaging in health prevention measures believe their actions impact their health status and by engaging in healthful behaviors, their status of health will be at its optimal level (Kraft & Goodell, 1993).

These measures indicate the attitude consumers have toward obtaining or retaining a positive health status, and thus, forming the behavior toward the intention to eat healthy, as the presence of health consciousness and engagement in health prevention measures can be considered overt acts of concrete goals (Kraft & Goodell, 1993; Jayanti & Burns, 1998). As a consequence of this high level of health consciousness, these consumers are more likely to engage in general preventive health care measures, including the desire to select a healthier menu item when eating in restaurants. Consumers who are health conscious and engage in health prevention measures desire to arrive at the correct solution (Kraft & Goodell, 1993). In addition, since these consumers want to select the correct food, or the food that is most likely to help them achieve the goal of being healthy, they will use the nutrition information on the menu to select healthier foods.

\[ \text{H1a}: \text{Consumers with higher levels of health consciousness are more likely to use nutrition information on the menu.} \]

\[ \text{H1b}: \text{Consumers who engage in health prevention measures are more likely to use nutrition information on the menu.} \]

**Subjective Norms**

The second component of the theory of planned behavior is subjective norms. Subjective norms, according to Fishbein and Ajzen (1975), are the consumer’s perception regarding how others think the consumer should behave, the social situation surrounding the behavior, and how this impacts one’s behavior. Theorists have often believed that behavior is motivated and driven by emotions (Passyn & Sujan, 2006). Emotions lead to actions and attainment of goals.

Prior research regarding emotions and food consumption includes investigating one’s thoughts and feelings before and after consumption. With regard to food consumption, women have been found to be more concerned with physical appearance, weight and dieting, and restrained eating behavior (see Spangenberg & Sprott, 2006). Subjective norms include how others think they should behave. Although not all consumers are influenced by others the same way or to the same degree, research has shown that a person who is susceptible to a particular influence under one condition will likely be susceptible to influence under other conditions (see Bearden, Netemeyer, & Teel, 1989). When investigating food choice behavior, Thompson, Haziris, and Alekos (1994) found that beliefs about the outcome and the likelihood that the choice resulted in the given outcome determined the consumer’s attitude, which in turn determined the behavior. Body image is considered a subjective norm, as this construct includes emotions, perceptions, and cognition as it pertains to appearance, body shape and size (Cash & Fleming, 2002). Prior research
indicates that social situations influence eating behavior with regard to body image, and can be considered subjective norms (see Barroso, Peters, Johnson, Kelder & Jefferson, 2010; Higgs & Thomas, 2016; Mostafavi-Darani, Daniali, & Azadbakht, 2013). Therefore, this study investigates body image as a subjective norm and influences the use of nutrition information on the menu.

In this study, body image is how one views oneself, and the emotions attached to this viewpoint as body image can be positive or negative. Studies have shown links between body image and health and the emotions that one’s body image manifested via their behaviors (Mostafavi-Darani et. al., 2013). Body image, according to the Merriam-Webster medical definition is a “subjective picture of one’s own physical appearance established both by self-observation and by noting the reactions of others” (Merriam Webster, n.d.). Body image is a complex topic, including the assessment (cognitive) aspect and the feelings (emotional) aspects of the body. Body image describes how people evaluate their appearance, as well as the impact on psychosocial functioning of their body (Cash & Fleming, 2002; Cash, Theriault & Aniss, 2004). Consumers’ body images shape their view of self, influencing attitudes, life activities, and relations with others (Bak-Sosnowska & Urban, 2017).

Most research regarding body image has been focused on body image disturbances, or those negative body images that create mental health problems (Scheffers, van Duijn, Bosscher, Wiersma, Schoevers & van Busschbach, 2017). When connected to eating behavior, the research of body image has focused on negative body images, such as disease states (McClelland, Holland & Griggs, 2015), obesity (Gouvela, Frontini, Canavarro & Moreira, 2014), and eating disorders (Chaudhari, Tewari, Banka, Kumar & Saldanha, 2017). However, there have been no studies investigating the attitude a person has toward their body image and the impact of positive body image on use of nutrition information on menu selection when eating in restaurants.

Thus, the following hypothesis is posited:

$H_2$: Consumers with positive body image are more likely to use nutrition information on the menu.

**Perceived Behavioral Control**

The third component of the TPB is perceived behavioral control. Perceived behavioral control, according to Ajzen (1991), is the consumer’s perception regarding the ease or difficulty the consumer has of performing the behavior due to uncertainty, context, and information biases. The strength of the perceived behavior control then influences the consumer’s intention to perform a particular behavior. Ajzen (1991) concludes that consumers are more likely to perform the desired behavior when they perceive that they have the necessary resources, knowledge, and opportunities in order to perform the behavior. Resources that the consumer draws from are those internal resources that determine whether or not the consumer believes he or she can make the decision, how important it is for the consumer to make the ‘right’ decision, the consumer’s belief about the riskiness of making the ‘wrong’ decision, and how the consumer makes a decision in general. Self-efficacy, according to Ajzen (1991) is identical to perceived behavioral control and will be used as a measure for this construct in the current study. Fila and Smith (2006) found, as a measure of perceived behavioral control, nutrition knowledge, or how much one knows about nutrition, was correlated to the intention to eat healthy and to overcoming the barriers to eating healthy. Aboulnasr (2013) found that consumers’ food choices and consumption were improved when nutrition labels were read and used. Thus, this study will also use perceived nutrition knowledge, or how much one believes they know about nutrition, to measure this construct.

Self-efficacy is defined as people’s judgments of their own competence to complete a specific task (Peterson & Arnn, 2005, p. 7). Self-efficacy differs from self-confidence and self-esteem causing the ‘can do’ belief to thoroughly impact the person’s thoughts, motivation, and actions. Self-efficacy is the basis of one’s ability to bring about control and to produce the desired results, thus impacting
the goals people set for themselves, in that the goals are perceived to be attainable and brings about the actions required to meet these goals (Bandura, 1986).

Self-efficacy has been studied relating to several variables, including gender, computer technology use, career selection, substance abuse, sports anxiety, and staff development (Peterson & Arnn, 2005). However, self-efficacy has not been studied when determining the use of nutrition information when eating in restaurants. Since self-efficacy in and of itself cannot determine eating behavior, as everyone eats and everyone believes they are capable of selecting food and eating, in this context, self-efficacy must be regarded in the belief that one can ‘stick with a healthy diet’ and can choose healthy foods when eating out.

Increased information increases knowledge and knowledge is power. Yet people often eat what they know, what they are used to eating, or what they like to eat, but do not always know the nutritional evaluation of what they are eating. Prior research found that consumers who read labels believe they have an excellent or good knowledge of nutrition (Shine, O’Reilly & Sullivan, 1997) and the use of nutrition labels was positively related to increased levels of knowledge (see Szykman, Bloom & Levy, 1997; Burton, Garretson, & Velliquette, 1999). Burton and Creyer (2004) found that nutrient value estimates, disease risk perceptions, source credibility judgments, attitudes, and purchase intentions are affected by the provision of nutrition information, the presence of a health claim, and the nutrition frame or context in which the menu item is presented. Research has also investigated nutrition knowledge and the use of nutritional food labels (see Drichoutis, Lazaridis, & Nayga, 2006). Thus, consumer’s perception of their nutrition knowledge and consumer’s self-efficacy should have an effect on consumer’s use of nutrition information when eating in restaurants. Therefore, the following hypotheses are posited:

H₃a: Consumers with higher levels of perceived nutrition knowledge are more likely to use nutrition information on the menu.

H₃b: Consumers with higher levels of self-efficacy are more likely to use nutrition information on the menu.

Framing of the Nutrition Message

The preference for the framing of the nutrition message, or how the consumer wants to receive the message, may also sway the consumers’ use of the nutrition information on the menu. Prior research has found that greater awareness regarding the benefits of good nutrition results in healthier eating habits of Americans (Putnam, 1993). Since calories are the only nutrition requirement to be on the menu, this study seeks to determine if there are other ways to frame this message to benefit consumers.

When investigating the framing of the nutrition message, results have been mixed. For example, Droms Hatch (2016) found that few consumers used the available nutrition information, yet the preference for selecting menu items was for taste rather than nutrition quality, while Auchinelloss, et. al. (2013) found that the use of nutrition information resulted in a decrease in calories, sodium, and saturated fat consumption. These researchers, however, neither investigated consumer characteristics in conjunction with the use of the nutrition information, nor the framing of the nutrition information.

Do consumers want calorie-only information? Research findings focusing on Millennials indicate that while product images on a restaurant menu have a negative influence on selection, calorie information alone has mixed results (Gala, Rippé, Dubinsky, & Favia, 2018). However, this research did not measure the consumer’s nutrition knowledge, so the impact of knowledge regarding framing preferences was not investigated. This current study seeks to investigate if the consumer’s nutrition knowledge impacts the preference for framing of the information. A consumer with a greater amount of nutrition knowledge, health consciousness, and higher engagement in health prevention measures would know what the information entails (see Kraft & Goodell, 1993; Jayanti & Burns, 1998). Thus, the more knowledgeable the consumer, it is supposed the more specific the information desired. This research proposes that these consumers are
more likely to prefer calorie-only information and the following hypotheses are suggested:

\( H_{4a} \): Consumers with higher levels of health consciousness are more likely to prefer calorie-only nutrition information.

\( H_{4b} \): Consumers who engage in health prevention measures are more likely to prefer calorie-only nutrition information.

\( H_{4c} \): Consumers with higher levels of perceived nutrition knowledge are more likely to prefer calorie-only nutrition information.

Calories are considered specific information, yet there may be additional nutrition information consumers might prefer when using nutrition information on menus. An extension of the calorie-only nutrition information, or a second type of framing, would include expanded nutrient information. Since, attitude toward the behavior measures could be considered overt acts of concrete goals, a consequence of a high level of health consciousness, engagement in health prevention behaviors is the consumer’s desire to arrive at the correct solution by selecting the correct food, or the food that that is most likely to help them achieve the goal of being healthy (Kraft & Goodell, 1993; Jayanti & Burns, 1998). Consumers with higher levels of perceived nutrition knowledge may prefer additional nutrition information, as it may provide a more complete understanding of the nutritional value of the food, versus calorie-only information. Thus, these consumers will desire the inclusion of nutrition information to be framed specifically and include not only calorie information, but also additional nutrient information, including specific amounts of fats, protein, carbohydrates, sugars, and vitamins and minerals, to name a few. This research explores whether consumers with higher levels of health consciousness, engagement in preventive health behaviors, and perceived nutrition knowledge prefer this nutrition message framing. Therefore, the following hypotheses are suggested:

\( H_{4d} \): Consumers with higher levels of health consciousness are more likely to prefer expanded nutrition information.

\( H_{4e} \): Consumers who engage in health prevention measures are more likely to prefer expanded nutrition information.

\( H_{4f} \): Consumers with higher levels of perceived nutrition knowledge are more likely to prefer expanded nutrition information.

A third type of framing is expressive information, such as the terms light or lean, which may be used in descriptors of the menu item (also referred to as menu expressive). Research found that consumers had a more positive perception of meat labeled 75% lean as compared to meat labeled 25% fat (see Donovan & Jalleh, 1999; Levin & Gaeth, 1988). Balasubramanian and Cole (2002) found consumers are more likely to look for recognizable words, such as light, healthy, reduced, and lean, rather than specific nutrient information, such as fat, fiber, or cholesterol. Van ’t Riet et. al. (2013) found that for those high in self-efficacy, gain-framed messages, such as stressing the benefits of engaging healthy behaviors, resulted in positive attitudes toward healthy eating. These messages are more expressive and consumers may perceive these terms as more understandable. Thus, this study proposes that consumers high in self-efficacy will prefer expressive terms. Consumers with high body image evaluate their appearance, which influences activities such as food selection. These consumers process this information cognitively and use terms that are understandable (Bak-Sosnowska & Urban, 2017; Cash, Theriault & Aniss, 2004; Cash & Fleming, 2002, and Cash, Theriault & Aniss, 2004). Based on this prior research, this study suggests that:

\( H_{4g} \): Consumers with higher levels of self-efficacy are more likely to prefer expressive nutrition information on the menu.

\( H_{4h} \): Consumers with higher levels of body image are more likely to prefer expressive nutrition information on the menu.

**METHODOLOGY**

A sample was administered by SurveyMonkey via an online survey. The target population was adult residents of the United States.
SurveyMonkey Audience Service contacted and recruited respondents from their panels (SurveyMonkey, 2020a), who are typically joining the panels for charity, sweepstakes, or credits redeemable for gift certificates (SurveyMonkey, 2020b). They are demographically diverse and, according to SurveyMonkey, are highly likely to provide reliable responses (SurveyMonkey, 2020a). A total of 613 consumers accessed the link to the survey, of which 17 refused to take the study (responded with a ‘no’ to the consent question) and 42 opted-out before completing the survey, resulting in 554 usable surveys, or a 90.4% completion rate. Since it is unknown how many total consumers were contacted by the SurveyMonkey Audience Service, the response rate cannot be determined.

To determine the consumer’s level of health consciousness (Jayanti & Burns, 1998), engagement in health prevention measures (Kraft & Goodell, 1993), perceived nutrition knowledge (Moorman & Matulich, 1993), self-efficacy modified for health care issues (Jayanti & Burns, 1998), and BodyQ, a scale of attitude toward body image (Cash & Fleming, 2002) and other previously validated scales were used. Each measure used summative scales as developed by the original authors. When needed, slight wording modifications were made to adapt the scale to the current context of eating out. Health consciousness, perceived nutrition knowledge, self-efficacy, and body image used a four-point Likert scale anchored by strongly disagree (1) to strongly agree (4). Preventive health behavior used a three-point Likert scaled anchored by never (1) to always (3). The scales’ items and their loadings, along with the summary of the scales, number of items, and Cronbach’s alpha, are found in Table 1. Summative scores were then obtained for each scale following the original design by their respective authors. These summative scores were used when conducting the correlation analysis. The median values for each scale were determined and are found in Table 1. A median split was performed on each of the scale scores, whereby consumers were placed in either a high category or low category for each of the scales. Independent sample t-tests were performed to test the hypotheses to determine the group differences using the median splits.

**RESULTS**

The correlations between health consciousness, self-efficacy, preventative health behaviors and perceived nutrition knowledge, the preferences for expanded nutrition information, expressive nutrition information, and the number of calories have moderate to strong correlation values of .117 to .741 (p < .001 for all). Such correlations are rather expected, since all constructs center around health-related attitudes and behaviors and it follows that the preferences for expanded nutrition information, expressive nutrition information, and calorie information are correlated.

The results of the t-tests for the hypotheses, along with the information on the means and standard deviation in each subgroup, are found in Table 4. As seen in Table 4, the t-tests are significant for every hypothesis except for those hypotheses regarding body image. The data neither supported the hypothesis that consumers with positive body image are more likely to use nutrition information on the menu (H2) nor the hypothesis that they prefer expressing information on the menu (H4h). Although significant, the correlation between body image and health consciousness is very small (.092, p = .030). However, analysis of body image and the attempt to exercise was found to be correlated (.345, p = .000). Thus, these consumers may be focusing on exercise rather than nutrition.
## TABLE 1: Summary of Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of items</th>
<th>Cronbach’s alpha</th>
<th>Factor Loadings</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health Consciousness (Kraft &amp; Goodell, 1993)</strong></td>
<td>5</td>
<td>0.75</td>
<td></td>
<td>3.00</td>
</tr>
<tr>
<td>I am concerned about my drinking water quality.</td>
<td></td>
<td></td>
<td>0.545</td>
<td></td>
</tr>
<tr>
<td>I usually read ingredients on food labels.</td>
<td></td>
<td></td>
<td>0.667</td>
<td></td>
</tr>
<tr>
<td>I read more health-related literature than I did 3 years ago.</td>
<td></td>
<td></td>
<td>0.718</td>
<td></td>
</tr>
<tr>
<td>I am interested in information about my health.</td>
<td></td>
<td></td>
<td>0.796</td>
<td></td>
</tr>
<tr>
<td>I am concerned about my health all the time.</td>
<td></td>
<td></td>
<td>0.730</td>
<td></td>
</tr>
<tr>
<td><strong>Preventive Health Behaviors (Jayanti &amp; Burns, 1998)</strong></td>
<td>11</td>
<td>0.81</td>
<td></td>
<td>2.18</td>
</tr>
<tr>
<td>Eat a well-balanced diet</td>
<td></td>
<td></td>
<td>0.639</td>
<td></td>
</tr>
<tr>
<td>See your dentist for regular checkups</td>
<td></td>
<td></td>
<td>0.364</td>
<td></td>
</tr>
<tr>
<td>Eat fresh fruits and vegetable</td>
<td></td>
<td></td>
<td>0.511</td>
<td></td>
</tr>
<tr>
<td>Reduce amount of salt in your diet</td>
<td></td>
<td></td>
<td>0.588</td>
<td></td>
</tr>
<tr>
<td>Watch the amount of fat you consume</td>
<td></td>
<td></td>
<td>0.711</td>
<td></td>
</tr>
<tr>
<td>Pay attention to your sugar intake</td>
<td></td>
<td></td>
<td>0.704</td>
<td></td>
</tr>
<tr>
<td>Pay attention to the amount of red meat you eat</td>
<td></td>
<td></td>
<td>0.699</td>
<td></td>
</tr>
<tr>
<td>Cut back on snacks and treats</td>
<td></td>
<td></td>
<td>0.646</td>
<td></td>
</tr>
<tr>
<td>Avoid food with additive and preservatives</td>
<td></td>
<td></td>
<td>0.707</td>
<td></td>
</tr>
<tr>
<td>Get enough rest and sleep</td>
<td></td>
<td></td>
<td>0.439</td>
<td></td>
</tr>
<tr>
<td>Reduce stress and anxiety</td>
<td></td>
<td></td>
<td>0.398</td>
<td></td>
</tr>
<tr>
<td><strong>Perceived Nutrition Knowledge (Moorman &amp; Matulich, 1993)</strong></td>
<td>2</td>
<td>0.87</td>
<td></td>
<td>3.00</td>
</tr>
<tr>
<td>The more I learn about nutrition, the harder it seems to choose (Reversed)</td>
<td></td>
<td></td>
<td>0.710</td>
<td></td>
</tr>
<tr>
<td>I know a lot about nutrition</td>
<td></td>
<td></td>
<td>0.710</td>
<td></td>
</tr>
<tr>
<td><strong>Self-efficacy (Jayanti &amp; Burns, 1998)</strong></td>
<td>4</td>
<td>0.72</td>
<td></td>
<td>3.00</td>
</tr>
<tr>
<td>I usually make an attempt to eat a well-balanced diet</td>
<td></td>
<td></td>
<td>0.824</td>
<td></td>
</tr>
<tr>
<td>I usually make an attempt to exercise regularly</td>
<td></td>
<td></td>
<td>0.800</td>
<td></td>
</tr>
<tr>
<td>In the long run, people who take care of themselves stay healthy</td>
<td></td>
<td></td>
<td>0.628</td>
<td></td>
</tr>
<tr>
<td>In general, I do things that make me healthy</td>
<td></td>
<td></td>
<td>0.865</td>
<td></td>
</tr>
<tr>
<td><strong>Body Image (Cash &amp; Fleming, 2002)</strong></td>
<td>6</td>
<td>0.94</td>
<td></td>
<td>2.50</td>
</tr>
<tr>
<td>I feel positive towards my body</td>
<td></td>
<td></td>
<td>0.868</td>
<td></td>
</tr>
<tr>
<td>My body is not perfect, but I like it.</td>
<td></td>
<td></td>
<td>0.841</td>
<td></td>
</tr>
<tr>
<td>I am happy with my body</td>
<td></td>
<td></td>
<td>0.907</td>
<td></td>
</tr>
<tr>
<td>I think my body is attractive</td>
<td></td>
<td></td>
<td>0.884</td>
<td></td>
</tr>
<tr>
<td>I feel good about my body when I am naked.</td>
<td></td>
<td></td>
<td>0.883</td>
<td></td>
</tr>
<tr>
<td>I have the body I want</td>
<td></td>
<td></td>
<td>0.846</td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 2: Demographic Characteristics of Responders

<table>
<thead>
<tr>
<th>Category</th>
<th>n</th>
<th>Percent</th>
<th>Category</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 20</td>
<td>11</td>
<td>1.9</td>
<td>no HS</td>
<td>10</td>
<td>1.8</td>
</tr>
<tr>
<td>20-29</td>
<td>100</td>
<td>17.7</td>
<td>High School or GED</td>
<td>53</td>
<td>9.4</td>
</tr>
<tr>
<td>30-39</td>
<td>102</td>
<td>18</td>
<td>Some college</td>
<td>135</td>
<td>23.9</td>
</tr>
<tr>
<td>40-49</td>
<td>93</td>
<td>16.4</td>
<td>Bachelor’s</td>
<td>174</td>
<td>30.7</td>
</tr>
<tr>
<td>50-59</td>
<td>98</td>
<td>17.3</td>
<td>Some graduate</td>
<td>29</td>
<td>5.1</td>
</tr>
<tr>
<td>60-69</td>
<td>82</td>
<td>14.5</td>
<td>Master’s</td>
<td>84</td>
<td>14.8</td>
</tr>
<tr>
<td>70 and over</td>
<td>49</td>
<td>8.7</td>
<td>Some post gradu-</td>
<td>21</td>
<td>3.7</td>
</tr>
<tr>
<td>Missing</td>
<td>51</td>
<td>9.1</td>
<td>ate</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below $10,000</td>
<td>54</td>
<td>9.5</td>
<td>White</td>
<td>416</td>
<td>73.5</td>
</tr>
<tr>
<td>$10,000-$19,999</td>
<td>49</td>
<td>8.7</td>
<td>African-American</td>
<td>28</td>
<td>4.9</td>
</tr>
<tr>
<td>$20,000-$29,999</td>
<td>46</td>
<td>8.1</td>
<td>Hispanic</td>
<td>38</td>
<td>6.7</td>
</tr>
<tr>
<td>$30,000-$39,999</td>
<td>54</td>
<td>9.5</td>
<td>Asian/Pacific Islander</td>
<td>23</td>
<td>4.1</td>
</tr>
<tr>
<td>$40,000-$49,999</td>
<td>46</td>
<td>8.1</td>
<td>Other</td>
<td>27</td>
<td>4.8</td>
</tr>
<tr>
<td>$50,000-$59,999</td>
<td>47</td>
<td>8.3</td>
<td>Missing</td>
<td>34</td>
<td>6</td>
</tr>
<tr>
<td>$60,000-$69,999</td>
<td>43</td>
<td>7.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$70,000-$79,999</td>
<td>38</td>
<td>6.7</td>
<td>Gender:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$80,000 and above</td>
<td>147</td>
<td>26</td>
<td>Male</td>
<td>251</td>
<td>44.3</td>
</tr>
<tr>
<td>Missing</td>
<td>42</td>
<td>7.4</td>
<td>Female</td>
<td>280</td>
<td>49.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Missing</td>
<td>35</td>
<td>6.2</td>
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</tbody>
</table>

### TABLE 3: Correlation Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Consciousness</td>
<td>554</td>
<td>3.01</td>
<td>.550</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
<td>.504</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>554</td>
<td>2.97</td>
<td>.557</td>
<td>.449</td>
<td>**</td>
<td>.391</td>
<td>.400</td>
<td>.302</td>
<td>.231</td>
<td>.246</td>
<td>.250</td>
<td>.260</td>
</tr>
<tr>
<td>Preventative Health Behaviors</td>
<td>554</td>
<td>2.18</td>
<td>.383</td>
<td>.399</td>
<td>**</td>
<td>.391</td>
<td>.400</td>
<td>.302</td>
<td>.231</td>
<td>.246</td>
<td>.250</td>
<td>.260</td>
</tr>
<tr>
<td>Perceived Nutrition Knowledge</td>
<td>552</td>
<td>2.66</td>
<td>.772</td>
<td>.391</td>
<td>**</td>
<td>.400</td>
<td>.302</td>
<td>.231</td>
<td>.246</td>
<td>.250</td>
<td>.260</td>
<td>.270</td>
</tr>
<tr>
<td>Body Image</td>
<td>550</td>
<td>2.49</td>
<td>.820</td>
<td>.093</td>
<td>.355</td>
<td>.286</td>
<td>.231</td>
<td>.231</td>
<td>.231</td>
<td>.246</td>
<td>.270</td>
<td>.302</td>
</tr>
<tr>
<td>Wish to use info</td>
<td>537</td>
<td>2.88</td>
<td>.928</td>
<td>.266</td>
<td>**</td>
<td>.246</td>
<td>.230</td>
<td>.146</td>
<td>.082</td>
<td>.382</td>
<td>.292</td>
<td>.637</td>
</tr>
<tr>
<td>Menu expanded</td>
<td>540</td>
<td>2.54</td>
<td>.824</td>
<td>.380</td>
<td>**</td>
<td>.298</td>
<td>.289</td>
<td>.200</td>
<td>.082</td>
<td>.382</td>
<td>.292</td>
<td>.637</td>
</tr>
<tr>
<td>Menu expressive</td>
<td>539</td>
<td>2.58</td>
<td>.746</td>
<td>.331</td>
<td>**</td>
<td>.273</td>
<td>.271</td>
<td>.169</td>
<td>.096</td>
<td>.292</td>
<td>.637</td>
<td>.561</td>
</tr>
<tr>
<td>Menu calories</td>
<td>540</td>
<td>2.78</td>
<td>.880</td>
<td>.313</td>
<td>**</td>
<td>.271</td>
<td>.266</td>
<td>.172</td>
<td>.083</td>
<td>.391</td>
<td>.742</td>
<td>.561</td>
</tr>
</tbody>
</table>

* *p ≤ 0.05
** *p ≤ 0.01
Based on consumer characteristics seen in Table 4, the following results were found to be significant (all of the results have p-values ≤ 0.015):

- Health conscious consumers were found to use nutrition information (supporting hypothesis H_{1a}), prefer calorie-only information (supporting hypothesis H_{4a}), and are more likely to prefer expanded information (supporting hypothesis H_{4d}).
- Consumers who engage in health prevention measures were found to use nutrition information (supporting hypothesis H_{1b}), prefer calorie-only information (supporting hypothesis H_{4b}), and are more likely to prefer expanded information (supporting hypothesis H_{4e}).

### TABLE 4: T-test Results

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Group/n:</th>
<th>Mean</th>
<th>SD</th>
<th>T-value</th>
<th>Df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>H_{1a}: Consumers with higher levels of health consciousness are more likely to use nutrition information on the menu.</td>
<td>High/228: 3.158</td>
<td>2.663</td>
<td>0.891</td>
<td>6.312</td>
<td>532</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/306: 2.663</td>
<td>0.899</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{1b}: Consumers who engage in health prevention measures are more likely to use nutrition information on the menu.</td>
<td>High/255: 2.620</td>
<td>2.511</td>
<td>0.863</td>
<td>4.897</td>
<td>522</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/282: 2.511</td>
<td>0.962</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{2a}: Consumers with positive body image are more likely to use nutrition information on the menu.</td>
<td>High/252: 2.810</td>
<td>0.823</td>
<td></td>
<td>1.495</td>
<td>535</td>
<td>0.135</td>
</tr>
<tr>
<td></td>
<td>Low/282: 2.936</td>
<td>0.861</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{2b}: Consumers with higher levels of perceived nutrition knowledge are more likely to use nutrition information on the menu.</td>
<td>High/172: 2.721</td>
<td>2.483</td>
<td>0.840</td>
<td>3.058</td>
<td>530</td>
<td>0.002*</td>
</tr>
<tr>
<td></td>
<td>Low/360: 2.483</td>
<td>0.838</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{3a}: Consumers with higher levels of self-efficacy are more likely to use nutrition information on the menu.</td>
<td>High/329: 2.742</td>
<td>0.767</td>
<td></td>
<td>6.478</td>
<td>531</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/204: 2.275</td>
<td>0.873</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4a}: Consumers with higher levels of health consciousness are more likely to prefer calorie-only nutrition information.</td>
<td>High/229: 3.039</td>
<td>2.578</td>
<td>0.834</td>
<td>6.211</td>
<td>535</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/308: 2.578</td>
<td>0.864</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4b}: Consumers who engage in health prevention measures are more likely to prefer calorie-only nutrition information.</td>
<td>High/229: 3.039</td>
<td>0.834</td>
<td></td>
<td>4.025</td>
<td>525</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/308: 2.578</td>
<td>0.864</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4c}: Consumers with higher levels of perceived nutrition knowledge are more likely to prefer calorie-only nutrition information.</td>
<td>High/172: 2.936</td>
<td>2.706</td>
<td>0.832</td>
<td>2.851</td>
<td>530</td>
<td>0.005*</td>
</tr>
<tr>
<td></td>
<td>Low/360: 2.706</td>
<td>0.891</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4d}: Consumers with higher levels of health consciousness are more likely to prefer expanded nutrition information.</td>
<td>High/229: 2.860</td>
<td>2.302</td>
<td>0.815</td>
<td>8.217</td>
<td>535</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/308: 2.302</td>
<td>0.751</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4e}: Consumers who engage in health prevention measures are more likely to prefer expanded nutrition information.</td>
<td>High/298: 2.681</td>
<td>2.376</td>
<td>0.801</td>
<td>4.294</td>
<td>525</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/229: 2.376</td>
<td>0.821</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4f}: Consumers with higher levels of perceived nutrition knowledge are more likely to prefer expanded nutrition information.</td>
<td>High/172: 2.669</td>
<td>2.483</td>
<td>0.824</td>
<td>2.432</td>
<td>530</td>
<td>0.015*</td>
</tr>
<tr>
<td></td>
<td>Low/360: 2.483</td>
<td>0.821</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4g}: Consumers with higher levels of self-efficacy are more likely to prefer expressive nutrition information on the menu.</td>
<td>High/329: 2.711</td>
<td>2.374</td>
<td>0.697</td>
<td>5.182</td>
<td>530</td>
<td>0.000**</td>
</tr>
<tr>
<td></td>
<td>Low/203: 2.374</td>
<td>0.776</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H_{4h}: Consumers with higher levels of body image are more likely to prefer expressive nutrition information on the menu.</td>
<td>High/255: 2.550</td>
<td>2.610</td>
<td>0.728</td>
<td>8.97</td>
<td>533</td>
<td>0.370</td>
</tr>
</tbody>
</table>
Consumers with self-efficacy were found to use nutrition information (supporting hypothesis H₃b), prefer calorie-only information (supporting hypothesis H₄b), and are more likely to prefer expressive information (supporting hypothesis H₄g).

• Consumers with perceived nutrition knowledge were found to use nutrition information (supporting hypothesis H₃a), prefer calorie-only information (supporting hypothesis H₄c), and are more likely to prefer expanded nutrition information (supporting hypothesis H₄f).

DISCUSSION AND CONCLUSION

Eating out is an activity that occurs frequently. This research addresses a gap in the literature by investigating whether consumers with higher levels of health consciousness, preventive health behaviors, perceived nutrition knowledge, self-efficacy, and body image, use the nutrition information on the menu and have preferences for the framing of that information than consumers with lower levels of these constructs when eating out. This study indicates that consumers with higher levels of the consumer characteristics measured, except for body image, do use nutrition information when eating out and do not have a particular preference for the framing of that information, thus the inclusion of nutrition information on the menu is of benefit to these consumers in order for them to select the menu item, whether it be healthy or unhealthy, with full knowledge.

The measured consumer characteristics, such as health consciousness, health prevention measures, perceived nutrition knowledge, and self-efficacy appear to impact the desire for expanded nutrition information and the desire to have this information on the menu. Body image does not impact the desire to use nutrition information nor the desire to have this information on the menu. The results of the correlation analysis indicate that although consumers high in health consciousness, preventive health behaviors, self-efficacy, and perceived nutrition knowledge prefer nutrition information, there is no single preference regarding how this information should be framed. Thus, the indication is that consumers will interpret any information, regardless of how it is presented. Therefore, the calorie amounts currently provided on the menu appear satisfactory as these consumers do not express a specific preference for how the nutrition information is presented. However, this does not imply consumers actually understand the information as more than one-third of the respondents (39.2%), when asked if they knew a lot about nutrition, responded with disagree or strongly disagree. It is possible that this lack of understanding impacts the acceptance of calorie only information and, although not investigated, if nutrition knowledge and understanding increased, the desired framing of the information may change.

The implications of this study are that it confirms that the mandatory legislation of providing consumers with nutrition information when eating out is useful, yet the framing of this nutrition information is not as important. Since consumers did not express a strong preference for a specific type of message, the required calorie information on the menu may be adequate. However, the nutrition labeling laws do not allow restaurants to select only those “healthy” or “lower calorie” menu items to be labeled. Thus, by providing this calorie information on all menu items, restaurants may have to change their menu offerings, how they prepare an item, or the portion size of the item, since consumers may not select the very high calorie items when they are confronted with this information. To policy makers desiring to reinforce healthy attitudes, this paper seeks to encourage the provision of nutrition information at all restaurants, and not only those larger chain restaurants that are impacted by the current legislation. Additionally, policy makers may consider adding an educational component allowing them to accurately interpret the nutrition information as it appears on the menu. To a marketing educator, this paper provides a basis to discuss marketing concepts, such as consumer behavior, impact of legislation of marketing, marketing ethics, and consumer bill of rights.

Limitations of this study include self-reported data. The exploratory nature of the study may have omitted characteristics that may also contribute to the explanation regarding the use of nutrition information when eating out.
Future research lies in several directions. First, it might be very useful to refine the scales themselves. One multidimensional scale would be beneficial for future research. Future research could also include conducting the study in a restaurant where the consumer would actually have to eat the food selected, as well as evaluating the social situation and occasion for the meal. An in-depth study of underlying factors and moderating effects could provide interesting explanations and normative prescriptions. For example, ascertaining underlying health conditions and the impact on the menu selection, as well as their typical diet, should be investigated. It would be of interest to conduct cross-cultural studies comparing the attitudes of the US consumers with those in other countries. Additionally, the consumer’s overall normal eating behavior should be investigated to determine if the meal eaten out is similar to a meal eaten at home, or consistent with their normal diet.

REFERENCES


Consumer Search for Nutrition Information... 

since diagnosis. *Quality of Life Research*, 24 (12), 2939-2943.


