

## Modeling Store Patronage: A Systematic Review

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Marketers always search for growing in store patronage. It is important for retailers to gain better understanding of their consumers. Precise improving store attributes could affect store patronage. Modeling a consumer shopping trip behavior will gain insight into these issues. The aim of this review consists of twofold: (1) to review store attributes and situational factors that impact on store patronage and (2) to review a predictive model to determine store patronage across retail formats. To establish this systematic review, the research aim and research questions are formulated; and then the mapping of the field of the study is defined. Next, the methodology shows how to select and evaluate the papers followed by the analysis and synthesis the data. Finally, the classification of evidence is shown. The findings show different dimensions of store patronage. Consumer demographics, store attributes and different situational influences are described. Finally, modeling approaches with their criticism are presented. Two major gaps could be filled in further research. First, multi-purpose shopping trips have not been considered extensively in store patronage models. Second, store formats have not been categorized by the bi-polar including size and physical development characteristics.

**Key words:** store patronage, shopping trips, retail format choice, store attributes, situational factors

**JEL classification:** L81, M31.

### 1. Introduction

Thailand has been one of the key emerging markets in Asia in recent decades. This has led to rapid growth in household consumption. In recent years, the pattern of consumers has dramatically changed due to the coming of modern trade firms, e.g. Tesco, 7-eleven.

Agriculture and Agri-Food Canada (2012) reports that traditional grocery retailers, e.g. wet market, food stall, share 62% of grocery sales; however, consumers are continuously shifting their shopping destination to modern and larger formats, e.g. hypermarkets, instead of small, independently owned grocers. In terms of non-store formats, Agriculture and Agri-Food Canada (2012) notes that internet-based retailing has taken off, but most internet retailing are non-food items. However, by the time a current search, Tesco has just operated the internet retail but its service area is within only urban areas in a few major cities.

Most Thai consumers, particularly those who live in upcountry, still visit wet markets to buy their fresh food products as they perceive that products sold at wet markets are fresh and cheaper (GAIN Report, 2004). The same source reports that Thai consumers frequently visit wet markets with an average of 18 visits per month, convenience stores at least 6 times a month, and 4 times a month for supermarket and hypermarket commitments. Even though the market share has fallen, traditional markets remain the largest portion of a food retailer. This occurs in many Asia countries, e.g. Taiwan, Hong Kong, India, and Indonesia (Agriculture and Agri-Food Canada, 2012).

From several database searches, academic publication relating to this issue is missing. Marketers always search for growing in store patronage. It is vitally important for retailers to gain a better understanding of their consumers. Several researchers (e.g. Carpenter & Moore, 2006; Reutterer & Teller, 2009) have found that different shopping needs associated with retail format choice. Precise improving store attributes could affect store patronage. Modeling a consumer shopping trip behavior will gain insight into these issues.

The aim of this review consists of twofold: (1) to review store attributes and situational factors that impact on store patronage and; (2) to review a predictive model to determine store patronage across retail formats.

The review is conducted using a systematic review approach (Denyer & Tranfield, 2009). It seeks to identify all the available evidence with respect to a defined field of a study. To conduct a systematic review, Denyer and Tranfield (2009) suggest that the research aim and research questions will be formulated; and then the mapping of the field of the study will be analyzed. Next, the methodology will

show how to select and evaluate the papers followed by the analysis and synthesis the data. Finally, the classification of evidence and the findings will be presented.

The focus study area is the intersection of three main fields including: (a) store patronage, i.e. retail format choice; (b) store attributes and consumer demographics; and (c) situational condition of shopping trips.

## **2. Methodology**

The main objective of this section is to construct a review protocol. The review process is “systematic, transparent and reproducible” to ensure that the outcomes will be minimized error and bias (Tranfield, Denyer, & Smart, 2003).

### **2.1. Review process**

In line with the proposition in the handbook by Denyer and Tranfield (2009), the systematic review is conducted as the following five steps:

- Research question formulation: by defining research aims, and developing research questions.
- Scoping the field of study: by mapping the field of the study.
- Study selection and evaluation: by producing a review protocol.
- Analysis and synthesis: by conducting a systematic search, extracting results and bringing them together in a logical way.
- Reporting and using the results: by classifying evidence and reporting findings.

### **2.2. Review protocol**

A review protocol comprises of a good search strategy which can efficiently find the relevant literature and minimizes an absence of an essential source. After the field of the study has been mapped, keywords and search strings are set up. These search strings are examined in various databases resulting in a limited number of articles (N=304), then these papers are screened by a title and an abstract for a relevant subject (N=37). Furthermore, other resources such as books, web sites, and addition references are included, and then duplicated documents are excluded from the list (N=94). Finally, the ultimate results consist of core papers (N=43), which are further investigated and reported in the findings, and partly related documents (N=51), which do not directly connect to the main field of study.

Keywords are derived from the result of the scoping study. Search strings are defined in order to identify the intersection of study areas; irrelevant results are excluded from these search strings. The search strings are applied in three selected databases: Business Source Premier, Emerald, and Science Direct. Although the rigorous search strategy was conducted, some papers may be overlooked because of too specific or do not match keywords defined by authors. Thus, the branching strategy has been employed when crucial information is included in the reference, in particular academic papers.

To choose relevant papers that address the research questions, inclusion and exclusion criteria will be applied when examines a title, and an abstract, and then scans through a full text. To evaluate the research papers, four assessment criteria are applied including journal ranking, literature review, outcomes, and contribution to knowledge. If papers are evaluated with low quality or not applicable in any criterion, they will be excluded from the review process.

To manage information extracted from the papers, data extraction form the core papers are kept in a database which easily helps to report statistics. Finally, the extracted data is brought together into a logical composition which is presented in the findings. The report is organized coherently with relevant information; arguments are made and the literature is criticized.

## **3. Classification of evidence**

This section provides an analysis of evidence after search methodology has been carried out. The classifications of the evidence are described by year, journal, store patronage dimension, consumer demographics and attribute, situational factor, and modeling approach.

### **3.1. Evidence by year**

The review papers indicate that there are a few studies before the year 1980 and during the period 1980s. The number of papers has increased considerably since the 1990s.

### **3.2. Evidence by journal**

Several studies come from four-star business journals such as Journal of Retailing, Journal of Marketing Research, and Marketing Science and from three-star journals such as Journal of business research, Journal of Marketing Management and European Journal of Operational Research. The most prevalent papers are from Journal of Retailing followed by Marketing Letters.

### **3.3. Evidence by store patronage dimension**

Store patronage can be operationalized by different aspects. The most frequent dimensions for store patronage are store format choice and store choice, respectively. Some studies, however, combine these terms with other dimensions such as frequency of store visiting and the amounts of money spending for shopping trips.

### **3.4. Evidence by consumer demographics and store attribute**

The most popular consumer demographics are income, household size, and education followed by age, children under age 6, expenditure, gender, home owner, hour worked, marital status, race, and working woman, respectively.

Store-related attributes can be grouped into service/convenience-related attributes and merchandise-related attributes. In terms of service/convenience-related attributes, distance or travel time from home is the most popular attribute followed by accessibility or parking availability close to the store, and pleasant atmosphere. The other attributes are friendly and helpful personnel, non-retail tenant mix, and short waiting time/queue at the checkout. A number of attributes: quickly get an item, crowding, parent and children facilities, cleanliness, infrastructural services, special events, security, and transport provided by store, occasionally present in the journal. Finally, after sales services, cost structure of retailers, inventory holding costs of consumers, membership fee, store attitude, and store image are rarely applied in the literature.

In terms of merchandise-related attributes, low prices and wide range of assortment are the most frequent attributes followed by high merchandise quality, and many discounts and special offers. Other attributes: product availability, price strategy, and opportunity to try/taste a sample are extant in the journal.

### **3.5. Evidence by situational factor**

Situational factors are temporal factors influencing the consumer behavior apart from customer demographic and store attributes. Shopping trip types are the most common situational factor which is often characterized as major and fill-in shopping trips. Some studies define these components by adding more specific definitions such as shopping primarily for price specials, and quick trips; or by dividing into particular time interval such as weekday, weekend, and month-end shopping trips.

### **3.6. Evidence by modeling approach**

Econometrics models, in particular logit models, are the most popular method to predict store patronage, whereas specific econometrics models such as hazard models, tobit models, probit models and poisson regression are often developed in a specific purpose in order to model store behavior. There are a number of studies employed an artificial neural network approach.

Most causal relationships among several variables are explored by structural equation modeling or confirmatory factor analysis, while the exploratory research is often clarified by the descriptive and inferential statistical approaches. In addition, some studies use multivariate statistical methods such as exploratory factor analysis and cluster analysis. A mixed method between qualitative and quantitative is also found. Finally, a meta-analysis has been used to determine significant attributes influencing store patronage from several previous studies.

## 4. Findings

### 4.1. Store patronage and its attributes

#### 4.1.1. Dimensions of store patronage

A term “patronage” can be characterized into several dimensions such as whether or not to shop, where to shop, how often visit, and how much to spend. Many studies use only one dimension to represent the store patronage. The most frequent dimension concerns where to shop or “store choice” while the other dimensions are often ignored.

A number of studies consider two dimensions to represent the store patronage. For example, Pan and Zinkhan (2006) regarded store patronage as two features: (1) store choice, and (2) frequency of visit. Peter T.L. Popkowski Leszczyc, Sinha, and Timmermans (2000) focused on a problem of deciding (1) where and (2) when to shop. E.J. Fox, Montgomery, and Lodish (2004) considered (1) the store choice and (2) expenditure across retail formats in their models.

#### 4.1.2. Consumer demographics

Consumer demographic affects store patronage as explanatory variables from a demand side (González-Benito, 2001). Crask and Reynolds (1978) found that frequent patrons of department stores tended to be younger, more educated, and had higher incomes compared to those attributes of non-frequent patrons. E.J. Fox et al. (2004) found that household size, income, and level of education influence store format choices across three formats: grocery stores, mass merchandisers, and drug stores.

#### 4.1.3. Store-related attributes

Location has been a key factor influencing the store patronage since the early studies by Reilly (1931) and Huff (1964). However, several researchers (e.g. Carpenter & Moore, 2006; E.J. Fox et al., 2004) argued that not only the location, but there are also other important factors affecting the store patronage.

Typically main attributes which influence store patronage such as location, pricing, promotion, accessibility, assortment, customer services, and atmosphere are often mentioned (e.g. Carpenter & Moore, 2006; Peter T.L. Popkowski Leszczyc & Timmermans, 2001).

Nielsen (2000) showed that a good value for money is the most important indicator. The literature shows that a number of attributes such as assortment, quality of products, convenience etc. can potentially be represented consumer services. Correspondingly, Briesch, Chintagunta, and Fox (2009) found that convenience, represented by travel distance, has a more effect on store choice than price and assortment. The costs incurred by consumers can be determined by the price of products and the use of time and money for travel to and from a retail store, which is a function of a location.

Solgaard and Hansen (2003) pointed out that the positioning of price play a more important role than that of products and brands. They indicated that price level, assortment and location were important factors for consumers' choice between major store formats, while quality and service did not distinguish between these formats. However, their study focused on only the major supermarket formats; small store formats were not included in their model. In terms of pricing strategy, Bell and Lattin (1998) observed that large basket shoppers prefer to shop at the store using every day low price (EDLP) formats, whereas small basket shoppers prefer high and low (HiLo) pricing strategy.

Seiders and Tigert (2000) showed that the primary reasons for customers supporting supercenters were low prices and range of product assortment compared to those of supporting traditional supermarket are more significant on location or, in some cases, product quality and assortment. However, E.J. Fox et al. (2004) indicated that frequency of promotion and product assortment were higher influential on store patronage than price.

Some researchers have found that not only store attributes and consumer demographics, but also other factors influence the retail format choice. Bhatnagar and Ratchford (2004) have shown that the optimality of different retail formats depended on membership fees, travel costs, consumption rates, perishability of products, inventory holding costs of consumers, and cost structures of retailers.

## 4.2. Situational influences

A number of studies (e.g. Bhatnagar & Ratchford, 2004; Carpenter & Moore, 2006) has been ignored situational influences; as a result, they cannot explain the store patronage behavior under several circumstances. Extensive evidence has shown that store patronage is highly dependent upon shopping situation. Many major retailers increasingly target customers according to the purpose of their shopping trips (Edward J. Fox & Sethuraman, 2006). Belk (1975) pointed out that situation variables influence significantly on consumer behavior. He utilized a stimulus-organism-response paradigm (Chisnall, 1994) which has been modified to split a stimulus part into an object and a situation. He showed an interaction between situations and products (beverage and meat) is higher than a main effect of situations or products alone. Solgaard and Hansen (2003) emphasized that researchers could depict the utility not only a function of store attributes, and personal characteristics, but also a situational consideration.

Situational influence is defined as “all those factors particular to a time and place of observation which do not follow from a knowledge of personal (intra-individual) and stimulus (choice alternative) attributes and which have a demonstrable and systematic effect on current behavior” (Belk, 1975:158). Another adds that “situational considerations are, finally, a function of the consumer’s awareness of events and/or the need to search for information that may affect his/her choice behavior” (Solgaard & Hansen, 2003:171).

A widely accepted scheme of situational dimensions is physical surroundings, social surroundings, temporal perspectives, task definition, and antecedent states (Belk, 1975). A task definition is defined by several researchers: “task definition is the reason the consumption activity is occurring” (Hawkins & Mothersbaugh, 2010:481); “task definition features a situation include an intent or requirement to select, ship for, or obtain information about a general or specific purchase” (Belk, 1975:159).

Several studies have shown the importance of situation influence to store patronage. Mattson (1982) criticized the use of individual difference variables to forecast store patronage and ignored situational factors. In his study, he pointed out the significance of two situational factors: time-pressured and shopping for gift or oneself; he implied that the situational variables could make a prediction of store patronage more accurately.

According to the theory of the allocation of time developed by Becker (1965), the opportunity costs (i.e., the time that would be used for other shopping trips or non-shopping activities) have a negative relationship with a consumer’s response to his/her purchases during shopping trips. For example, opportunity costs may be high for consumers on a fill-in shopping trip since the purpose of this trip is to quickly purchase for immediate consumption while the opportunity costs may be lower for consumers on a major shopping trip because a large amount of time is allocated to this trip. The theory of the allocation of time suggests that the opportunity costs of purchasing vary across different types of shopping trips.

### 4.2.1. Shopping trip types

Many researchers (e.g. Barbara E. Kahn & Schmittlein, 1992; Kollat & Willett, 1967) have categorized shopping trips as: “major shopping trips” and “fill-in shopping trips”. Information Resources Inc. (IRI, 2006) has categorized the shopping trips into four groups: “quick shopping trips”, “fill-in shopping trips”, “pantry stocking trips”, and “special purchase shopping trips”. IRI classification differs from others in that it specifies “quick shopping trips” as trips to meet an immediate need and typically result in purchases of one to three items with a ring of \$10, while “fill-in shopping trips” covers a broad range of product categories. “Pantry stocking trips” and “Special purchase shopping trips” are equivalent to the major shopping trips and the shopping primarily for price specials respectively in other classification system.

Major shopping trips require much time and effort because a large number of items are purchased to satisfy short and long-term needs (Barbara E. Kahn & Schmittlein, 1992; Kollat & Willett, 1967). Major shopping trips regularly conducted over a time period such as 1-2 weeks or 1 month and contributed to a significant share of a consumer’s grocery budget (Solgaard & Hansen, 2003; Walters & Jamil, 2003). Furthermore, the major shopping trips are better planned compared to fill-in shopping trips (Nordfalt, 2009).

Fill-in shopping trips meet more pressing product needs with less time and effort used by consumers compared to major shopping trips (Barbara E. Kahn & Schmittlein, 1992; Kollat & Willett, 1967). The fill-



in shopping trip is a trip to replenish perishable products that are frequently consumed. The fill-in shopping trips often buy fewer items and lesser amount of consumer's grocery spending compared to the major shopping trip (Walters & Jamil, 2003).

Shopping primarily for specials, often refer to "cherry-pickers" by practitioners, is a shopping trip when consumers visit a store for the main purpose of purchasing price specials offered by a vendor (Mulhern & Padgett, 1995).

Peter T.L. Popkowski Leszczyc and Timmermans (1997) observed that most consumers have patterns of grocery shopping trips involving more than one store. They found that while the majority of consumers tend to shop at two to five different stores, consumers often shopped and spent most money at one certain store. However, a substantial amount of switching occurred; in particular 50 per cent of fill-in trips were a switching trip. Barbara E. Kahn and Schmittlein (1992) examined a relationship between shopping trips and promotional tools: coupon, in-store display, and advertising in newspaper. They have shown that the likelihood of purchase related to whether the shopping trip was a major or fill-in trip. Moreover, to distinguish the types of shopping trip can assist to determine amounts of money spent on such shopping trips much accurately (B.E. Kahn & Schmittlein, 1989).

#### **4.2.2. Shopping trip purposes**

There has been a growth in one-stop shopping, because of an increase in variety of products and services at supermarkets (Messinger & Narasimhan, 1997). There also has been a shift from the number of household visiting grocery stores to that of visiting super centers in the recent years (A.C.Nielsen, 2002). This is particularly true today, where shopping malls have been increasing larger and customers have been increasing lack of time (Chebat, G elinas-Chebat, & Therrien, 2005). One reason for this trend is the need for consumers to optimize their time doing the shopping by: (1) making multi-purpose shopping trips, reducing the number of trips at a particular time period and merging purchases for different items, or (2) buying in a large number of items when makes a single-purpose shopping trip (Peter T. L. Popkowski Leszczyc, Sinha, & Sahgal, 2004).

A relatively new retail format such as a super center, which is commonly clustered in agglomerations, allows consumers to do single-stop multi-purpose shopping trips (Teller & Schnedlitz, 2012). Some retailers offer shoppers to perform activities other than grocery shopping by locating near to or inside of a shopping mall (Dellaert, Arentze, Bierlaire, Borgers, & Timmermans, 1998). The presence of the retail agglomeration which forming a cluster of heterogeneous stores provides consumers opportunity for multi-purpose shopping, while the presence of other grocery stores form a cluster of homogeneous retailers allows shoppers for comparison or cherry picking (Peter T. L. Popkowski Leszczyc et al., 2004).

The multi-purpose shopping trips have not been examined extensively. For example, Peter T. L. Popkowski Leszczyc et al. (2004) studied the effect of multi-purpose shopping on pricing and location strategy. Arentze, Oppewal, and Timmermans (2005) examined multi-purpose shopping trips to retail agglomeration affecting on consumer choice in terms of what to buy and where to buy. They found that agglomeration attracted not only multi-purpose but also single-purpose trips. However, their study considered the impact only on store choice; none of these have included other dimensions of store patronage such as amounts of money spent. The link between multi-purpose trips and retail patronage needs to be further explored.

#### **4.3. Modeling approaches**

In retail patronage context, exploratory research and descriptive research (Malhotra & Birks, 2007) often use basic statistical methods to describe their results (e.g. Carpenter & Moore, 2006) whereas causal research generally employ multivariate statistics or econometrics models such as linear regression models, logit models, and probit models (e.g. Peter T.L. Popkowski Leszczyc & Timmermans, 1997; Seetharaman et al., 2005). Several studies (e.g. Carpenter & Moore, 2006) use descriptive statistics to explain the relationship among consumer demographics, store attributes, and retail format choice. These methods give descriptive relationship; however, they do not have capabilities to "predict" retail patronage.

To predict retail patronage, researchers often employ several methods which can be classified into two streams: (1) modeling based on a spatial interaction theory and (2) approaches based on a random utility theory. Models of the first category are well known as "gravity models" which have been inspired

by the works of Reilly and Huff (Berman & Evans, 2007). These models predict consumer patronage based on (a) an attraction of stores, e.g. size of stores; and (b) an accessibility of stores, e.g. distance between stores and consumers' homes. These models have been criticized that they predict similar patronage when stores are the same size and distance although their attributes are different. However, Huff's model has been modified various extensions such as price, assortment, and service levels.

The second approaches are well known namely "discrete choice models" which are often determined store choice behavior. These models have been developed under an assumption of utility-maximizing behavior by decision makers, and is often known as the random utility theory (Train, 2003). The large number of studies utilized these approaches. For example, Peter T.L. Popkowski Leszczyc and Timmermans (1997) applied a probit model to simulate store-switching behavior whether customers made a repeat shopping or not. González-Benito (2001) used a logit model framework to study inter-format spatial competition of retail markets. Solgaard and Hansen (2003) developed a multinomial logit model to explain consumer's choice behavior between different supermarket formats. Reutterer and Teller (2009) used a multinomial logit model to identify store attributes that impact on store choice.

A number of researchers have developed their own specific econometrics models for the particular purpose of their studies. For example, Bhatnagar and Ratchford (2004) identify determinant factors affecting the retail format competition by building an analytically economic model. E.J. Fox et al. (2004) focused on store choice and expenditure across retail formats in their models. Peter T.L. Popkowski Leszczyc et al. (2000) developed a hazard model, where store choice is depended on the timing of shopping trips, to measure the effects of consumer characteristics on grocery store choice and switching behavior. Some studies applied a multi-method to predict store patronage. For example, Moutinho and Hutcheson (2007) indicated the combination of factor analysis, multinomial logistic regression and cluster analysis for modeling store patronage.

The gravity models, discrete choice models and analytic econometrics models have a limitation in that they have to pre-specify a functional form of the model. For instance, for the logit model, the stochastic component of the utility function is assumed to be an extreme value distribution; while that of the probit model is normally distributed (Train, 2003). Moreover, outputs from the discrete choice models are discrete variables only.

The regression models restrict to a number of assumptions (Hair & Anderson, 2010): specifically, the linearity of the relationship between dependent and independent variables, constant variance of the error terms, independence of the error terms, and normality of the error terms distribution. Besides, the regression models provide solely a continuous output. The structural equation modelling and confirmatory factor analysis seek to explain the relationships among multiple variables (Hair & Anderson, 2010). In doing so, they inspect the structure of interrelationships represented by a series of equations, like a series of linear regression equations. Consequently, the structural equation modelling and confirmatory factor analysis inherit the limitation from linear regression models, in which they offer only continuous outputs as opposed to discrete outputs.

## **5. Discussion and summary**

From the literature, the store patronage across retail format has not been studied extensively. At least, two major gaps could be filled in the further research. First of all, multi-purpose shopping trips have not been considered extensively in the store patronage models. To model store patronage without accounting for multi-purpose shopping behavior will limit the applicability of the model to the real world situation. Second, store formats have not been categorized by the bi-polar including (a) size and (b) physical development characteristics. The first dimension is categorized a store into: a small store format or a large store format; whereas the second one is considered whether a store is located individual or agglomeration.

It is anticipated that the proposed situational factor and classification criteria will gain insight into much understanding of store patronage behavior, in particular the store patronage between an individually located store format and an agglomerated store format.

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