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How does shopping duration evolve and influence buying behavior? The role of marketing and shopping environment

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ABSTRACT

This study investigates how promotional activities, mall size, and past shopping experiences affect customer shopping duration, and elucidates how shopping duration induces immediate, transient, and long-term effects on customer decisions of whether and how much to buy in the offline shopping mall format. We simultaneously model purchase incidence, purchase amount, and shopping duration to examine empirically the constructs' dynamic impacts. The proposed model is calibrated using six-year-long transaction data of 43,326 customers that patronize malls operated by a large retail firm. The results reveal that shopping duration leads to an immediate increase in the amount spent by customers in a given period. The transient effects of shopping duration on purchase incidence and amount are significantly positive. However, in the long term, while purchase frequency appears to increase with cumulative shopping duration, purchase amount is negatively affected. Further, shopping duration increases with the size of the mall visited and the level of promotion but tends to converge to a lower level in the long term. Managerial implications for effectively managing customer experience are discussed.

1. Introduction

The critical role of customer experience (CX) as a foundation for creating competitive advantages has been widely acknowledged by practitioners as well as academics (Lemon and Verhoef, 2016). Researchers suggest that a unique and favorable customer journey allows service differentiation (Keiningham et al., 2020) and enhances customer loyalty (Siebert et al., 2020). Anecdotal evidence indicates that many practitioners in the retail sector are endeavoring to design better experiential elements that generate appealing shopping experiences (CCAGM, 2019). The need to build excellent CX has intensified with the increase in customer journey complexity due to the growing number of touchpoints in multiple channels and media that customers use to interact with firms (Flavián et al., 2020; Verhoef et al., 2015). Burton, Gruber, and Gustafsson (2020) suggest that academics have yet to scrutinize the underlying mechanisms of CX and derive insights useful for solving related problems encountered by firms. One of the prioritized research directions is the identification of how CX evolves over time and how it induces dynamic changes in customer behavior (Becker and Jaakkola, 2020; Siebert et al., 2020).

In the literature, considerable effort has been devoted to delineating the consequences of CX on customer evaluations and behavior. Previous studies reveal that positive customer experiences evoke emotional responses such as fun, excitement, enjoyment, and escapism (Roschk and Hosseinpour, 2020). These positive responses have been found to strengthen customer satisfaction with a retailer's services (Sarantopoulos et al., 2019). Further, satisfying CX, when encountered frequently, can result in a customer's attitudinal loyalty to a brand or retailer (Khan et al., 2020; Pekovic and Rolland, 2020). Moreover, positive attitudes elicited during a buying process appear to affect customer buying behavior. In the retail context, delightful CX can induce attitudinal loyalty, typically measured as the intention to patronize a

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store or to disseminate favorable word of mouth (WOM), and behavioral loyalty manifested through an increase in customer spending, repurchase behavior, shopping duration, and purchase frequency (Bleier et al., 2019; Barari et al., 2020; Chalil et al., 2020).

Despite the large body of research, we note some limitations in the literature regarding several critical aspects. First, previous studies have primarily focused on the immediate or short-term behavioral impacts of CX (Becker and Jaakkola, 2020), thereby overlooking the extent to which the impacts may carry over to future shopping occasions. Meanwhile, theoretical studies postulate that current shopping experiences could affect customer buying behaviors in subsequent periods (Lemon and Verhoef, 2016; Verhoef et al., 2009). Thus, it is critical to provide empirical support for the prediction of such permanent effects. Second, although researchers have conceptualized CX as a dynamic construct (e.g., Lemon and Verhoef, 2016; Kranzbühler et al., 2018), few studies have empirically investigated how CX evolves over time (Verhoef et al., 2009). Consumer behaviorists have long indicated that customer satisfaction resulting from current CX affects their future expectations, shopping motivation, and evaluations (Mittal et al., 1999). However, it is currently unclear whether evaluations of CX would be stable in the long term or fluctuate regardless of past experiences. Therefore, empirical evidence on the dynamic nature of CX is particularly relevant to marketers in predicting their customers' future behavior. Third, examination of the effects of various stimuli, such as marketing activities and store environment, based on actual purchase history data is still sparse (Holmlund et al., 2020). Most studies use survey or experimental designs, where customer responses are typically elicited during a short period or under strictly controlled conditions. While such measurements can provide a snapshot of several CX aspects (Brakus et al., 2009), they tend to fail in capturing how customers adapt their behavior to diverse stimuli that continually change and interact (Becker and Jaakkola, 2020).

This study narrows the aforementioned gap in the literature. As CX is a broad concept, we focus on customer shopping duration, which is an important aspect of CX reflecting its nature and quality (Morrison et al., 2011; Wakefield and Baker, 1998; Yalch and Spangenberg, 2000). In particular, we address (1) how shopping duration leads to immediate, transient, and long-term changes in customer purchase frequency and spending, (2) to what extent the evolution of shopping duration over time is explainable by previous and cumulative shopping experiences, and (3) how these changes are affected by marketing (i.e., promotion) and shopping environment (i.e., shopping mall size) stimuli. Additionally, we examine the moderating effect of customer demographics on the shopping duration–buying behavior relationship. To this end, we employ a simultaneous equation model of purchase incidence, purchase amount, and shopping duration (e.g., Chalil et al., 2020), which is then calibrated using purchase history data of 43,326 customers who patronize several shopping malls during a six-year period.

The main contributions of this study to the literature on CX are threefold. First, it clarifies how shopping duration affects buying behavior at current and subsequent shopping journeys. The novel findings provide useful insights into how shopping duration alters firms' current and future revenues. Second, it delineates how shopping duration evolves as customers continue to buy from the same retailer. In particular, we demonstrate how the time spent by customers on shopping within a specific period depends on how much time they spent in a previous period and those accumulated from the first transaction. This finding not only deepens our understanding of customer learning behavior but also helps in better predicting future shopping behavior. Third, this paper provides empirical evidence of the significant effects of promotion and mall size on shopping duration and buying behavior. This is important because these stimuli are controllable by a retailer, and thus can be used to guide marketers to develop effective CX management.

2. Literature review

2.1. The CX concept and shopping duration

CX can be defined as non-deliberate, spontaneous responses and reactions to particular stimuli (Becker and Jaakkola, 2020). It pertains to a multi-dimensional construct involving the cognitive, emotional, sensorial, and social responses of a customer (Homburg et al., 2015; Lemon and Verhoef, 2016). In other words, CX concerns the way customers think, feel, sense, act, and interact in response to several cues encountered during a shopping journey (Keiningham et al., 2020). The valence of the responses moves along a continuum from a negative to a positive direction (Becker and Jaakkola, 2020). Thus, CX can be manifested in various forms, such as low-quality perceptions (negative cognitive response) and excitement (positive emotional response). The encounter with several stimuli can occur either directly during the course of purchase and consumption or indirectly through accidental exposures to a company's products, WOM conveyed by other customers, reviews, and advertising (Argo and Dahl, 2020; Chae et al., 2017;). A customer's reactions to certain stimuli are strictly subjective and entail a certain degree of involvement (Krishna, 2012). Therefore, different customers may exhibit different responses to the same stimulus.

The importance of an experiential cue in deriving customer responses varies depending on the business context. In the retailing context, relevant stimuli can be categorized into those encountered outside and inside a store. The former includes product or company-related information faced by customers before entering or after leaving a store (e.g., advertising and news reports). The latter comprises various in-store promotional activities, product assortments, retail atmosphere, and the store's facilities and location (Biswas, 2019; Sarantopoulos et al., 2019). These stimuli differ in the degree to which they can be controlled by a retailer. Verhoef et al. (2009) point out that firms should design and manage controllable stimuli to facilitate the creation of positive CX, the process of which is called CX management. In addition, the extent to which experiential stimuli affect customer responses has been reported to be contingent upon a number of customer traits, and situational and sociocultural factors. For example, customer responses to services and marketing stimuli are moderated by the industry and product types (Roschk et al., 2017; Li et al., 2021a).

In this study, we use shopping duration as a proxy for CX, which in our context refers to the time spent by a customer when visiting a mall. Specifically, we take the view that shopping duration is positively associated with CX quality. This operationalization is justifiable because shopping duration reflects several aspects of customer responses to various in-store stimuli. As suggested by Schmitt (1999), CX involves the emotional, cognitive, sensory, social, and behavioral responses of a customer during his/her shopping journey. A long shopping duration may signify positive sensory responses to appealing environmental cues such as comfortable music, decoration, lighting, and aroma (Roschk et al., 2017; Biswas, 2019). Shopping duration can also represent positive feelings such as pleasure and excitement (i.e., emotional responses) because customers tend to stay in a shopping area longer when they have such feelings (Wakefield and Baker, 1998). This would be more evident when pleasant or exciting shopping experiences lead to time distortion; that is, a situation in which a customer perceives that time passes more quickly than it actually does (Bridges and Florsheim, 2008). Shopping duration may also relate to cognitive responses because it can signify the extent of customers' engagement when making buying decisions (Brun et al., 2017). For example, a customer who perceives that a store provides accurate product information may spend more time evaluating products deliberately or searching for the best offerings. Furthermore, shopping duration may be associated with social responses such as when customers enjoy the time interacting with co-shoppers, socializing, and bonding with others while shopping (Gilboa et al., 2021; Yim et al., 2014).

Nevertheless, we also note that shopping duration may reflect a

negative experience when shopping is driven by utilitarian motives, which typically impel customers to efficiently accomplish buying-related tasks and find the best alternative products or services (Li et al., 2020). In this situation, a long shopping duration may represent an inefficient buying process, leading to unfavorable cognitive or emotional responses. Thus, the implication of shopping duration would be contingent upon the prominence of hedonic and utilitarian motives in driving customers to visit a store. Jones, Reynolds, and Arnold (2006) suggest that both motives are likely to exist in many shopping situations, rendering conflicting goals to be resolved by customers. This study considers shopping behavior within a shopping mall where hedonic motivation is likely to be more prominent than utilitarian motivation as various hedonic offerings and entertainment facilities are available (Arnold and Reynolds, 2003; Wakefield and Baker, 1998). Therefore, it is plausible to assume that shopping duration is positively associated with shopping experience in our context.

2.2. The consequences of CX

Customer responses elicited during a shopping journey result in several evaluative outcomes of CX quality (Becker and Jaakkola, 2020), which comprise customer satisfaction, attitudes, and the perceived quality of a firm or their products and services. For example, positive emotional responses such as fun, enjoyment, and excitement have been shown to enhance customer satisfaction (Li et al., 2021a). Puccinelli et al. (2009) argue that favorable cognitive responses stemming from the consumption of products or services provided by a retailer, along with positive sensorial responses evoked from a comforting retail atmosphere, can induce positive attitudes toward the retailer and the products they sell. Further, according to the Appraisal Tendency Framework (ATF; Lerner and Keltner, 2000), an individual's emotional state is likely to influence his/her judgment and choices. This suggests that positive cognitive, emotional, and sensory responses during a shopping trip can enhance a customer's perceived quality of the products sold by a retailer. It is also evident that satisfying CX increases customer intentions to repurchase a brand or patronize a retailer in future purchase occasions (Khan et al., 2020; Pekovic and Rolland, 2020).

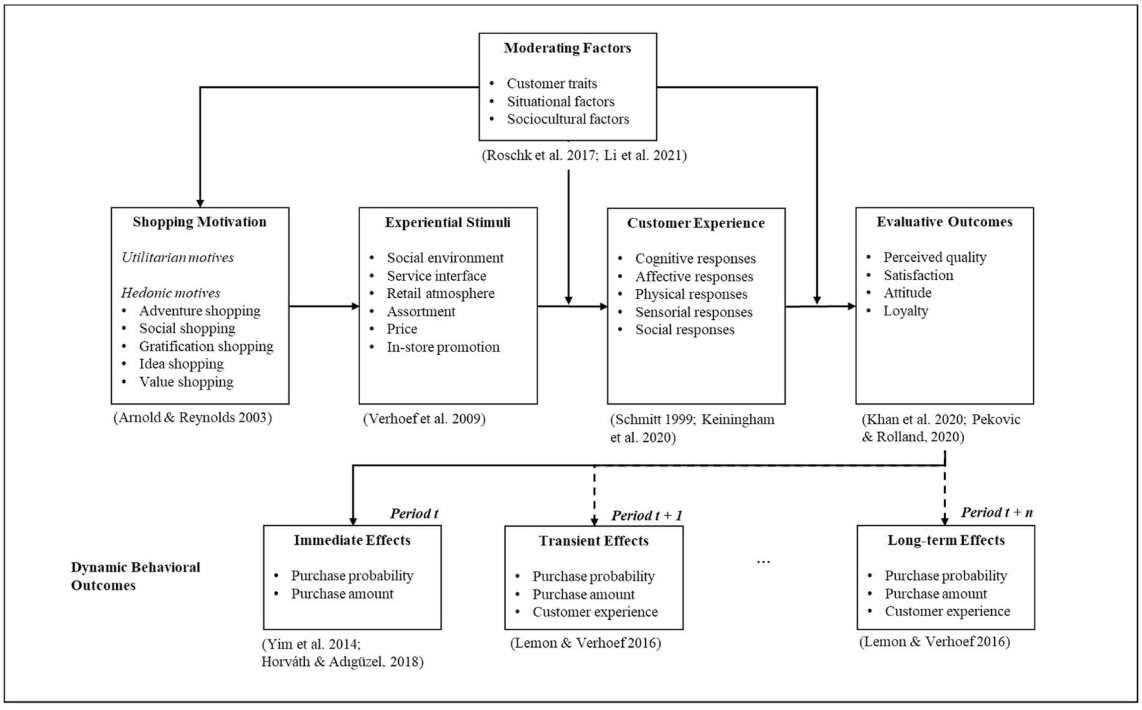
Customer evaluations of elicited responses eventually result in various behavioral outcomes, such as increased purchase frequency and average spending. Studies show that positive CX increases the likelihood of customers purchasing from the same seller (e.g., Khan et al., 2020), leading to an increase in future purchase frequency. Furthermore, the fulfillment of hedonic shopping motives has been shown to affect positively the amount customers spend while shopping (Horváth and Adı). This is the case because satisfying hedonic experiences can induce positive moods that prompt customers to engage in compulsive buying behavior. It should be noted that most empirical studies have been focused on the immediate behavioral impacts of CX. However, as previously discussed, recent developments in the literature suggest that CX is better viewed as a dynamic construct that evolves over time, depending on past customer experiences (Verhoef et al., 2009; Lemon and Verhoef, 2016; Becker and Jaakkola, 2020). This implies that current CX affects future CX and consequently, future buying behaviors.

We summarize our literature review on the process of CX in Fig. 1. As the figure shows, the process is initialized by the activation of a shopping motivation, followed by a customer encountering various stimuli that induce diverse responses. Subsequently, the elicited responses influence customer evaluations of the shopping journey, which eventually leads to behavioral changes in the current as well as future journeys.

3. Research framework and hypotheses

3.1. Research framework

This study is designed to address the research questions raised in the previous sections. We examine a case in the offline shopping mall context in China. The last decade has witnessed a decline in sales and profit growth of many firms in the country's retail industry, owing to the proliferation of online shopping channels (CCAGM, 2019). This trend has compelled retail operators to make a relentless effort to transform and upgrade their businesses to retain their customer base and simultaneously acquire new customers. The most popular transformation



Note: The dashed arrows represent relationships that remain underexplored.

Fig. 1. Summary of literature review on the customer experience process and its behavioral outcomes.

initiatives include the adoption of an omnichannel strategy, the development of private brands, the diversification of retail formats, and the provision of experiential facilities and services (CCAGM, 2019). Of these initiatives, the provision of experiential elements has involved mall owners' endeavor in allocating space for services such as family and child-related services, art and culture exhibitions, dining, and entertainment. Arguably, such allocations would depend on the size of a mall, where a larger mall would be able to allocate more spaces for experiential services. Despite these efforts, marketers have little understanding of how such experiential elements influence shopping duration and CX in general, and how they eventually alter customer buying behavior. Thus, we argue that the market condition is highly relevant to our research objectives. However, we believe that our findings could also apply to a more general context as a similar trend is observed for many shopping malls in other countries (Calvo-Porral and Lévy-Mangin, 2019; LeHew and Fairhurst, 2000).

We develop a conceptual model of our study, depicted in Fig. 2. Here, we illustrate the immediate, transient, and long-term impacts that shopping duration has on a hypothetical customer's buying behavior for n purchase periods. As the figure shows, the time customers spend shopping is expected to have a contemporaneous effect on purchase amount (Yim et al., 2014). The transient effect of the current shopping duration is captured by the link between the construct and purchase likelihood and spending in the subsequent period. The permanent effect of shopping duration is specified as the effect of cumulative shopping durations, defined as the sum of shopping durations since the period of initial purchase until the previous period, on buying behaviors (Ansari et al., 2008). We account for the dynamic nature of CX by assuming that the shopping duration at each purchase occasion is affected by its previous and cumulative values. We further anticipate the direct effect of promotion and mall size stimuli on buying behaviors, as well as their indirect effect through shopping duration. Finally, customer sex and age are anticipated to moderate the transient and long-term effects of shopping duration. Next, we hypothesize the direction of these relationships and provide relevant theoretical underpinnings.

3.2. Shopping duration

Evidence from prior studies suggests that shopping duration influences in-store purchases (Roschk et al., 2017). When customers spend more time shopping, they are more likely to be aware of their needs or wants because of higher exposure to various products and the opportunity to inspect them immediately (Becker and Jaakkola, 2020; Rook, 1987), leading to what is called "reminder" impulse purchasing (Kato and Hoshino, 2021). A longer shopping duration also increases customers' likelihood of encountering in-store promotional offerings that can prompt them to buy more products (Ailawadi et al., 2009; Verhoef et al., 2009). Researchers also indicate that shopping duration is closely related to hedonic shopping motivations, where customers pursue enjoyment, excitement, or fantasy while shopping (Yim et al., 2014). Hedonic shopping motives drive customers to be exposed to several stimuli to elicit positive moods, which have been shown to increase customer spending and unplanned purchase (Gilbride et al., 2015; Horváth and Adıgüzel, 2018; Sarantopoulos et al., 2019). In fact, empirical investigations that use data from surveys and experiments show that the time spent by customers on shopping increases their willingness to buy products from a focal retailer (Yim et al., 2014). Therefore, we expect to observe such immediate effects of shopping duration from purchase history data.

Hypothesis 1. The time spent shopping by a customer within a period positively affects the amount he/she spends in the same period.

A successful CX entails positive customer responses that result in satisfaction (Khan et al., 2020). The satisfaction derived from CX in a given period has been indicated to influence customers' future buying decisions (Wakefield and Baker, 1998). For example, Jones et al. (2006) point out that satisfied customers are likely to shop at a retailer again in a subsequent purchase occasion. These researchers further show that the effect of satisfaction on revisit intention is greater for individuals with strong hedonic motivation. Furthermore, Mägi (2003) finds that customer satisfaction leads to an increase in the amount that a customer spends at a focal store, relative to what he/she spends at competing stores. This causal relationship is supported by Netemeyer, Maxham III, and Lichtenstein (2010), who demonstrate that customer satisfaction resulting from excellent performances of store employees leads to the growth of future customer spending. As we have assumed that shopping duration in a shopping occasion reflects satisfying CX, we anticipate that it will positively affect the next period's purchase probability and spending of a customer.

Hypothesis 2. The time spent shopping by a customer within a period positively affects his/her probability of purchasing in the subsequent period.

Hypothesis 3. The time spent shopping by a customer within a period positively affects the amount he/she spends in the subsequent period.

Providing intense and satisfying experiences consistently across multiple journeys could induce attitudinal loyalty to a retailer (Homburg et al., 2017). Such favorable attitudes stem from the accumulation of positive sensory, emotional, social, and cognitive responses to various stimuli encountered by a customer at several touchpoints (Lemon and Verhoef, 2016; Dahana et al., 2019). Studies show that persistent attitudinal loyalty gives rise to behavioral loyalty, ultimately leading to an increase in purchase frequency and spending (Cachero-Martínez and Vazquez-Casielles, 2021). This indicates that positive CX is likely to produce long-term behavioral effects, for instance, a permanent shift of customers' purchase probability and purchase amount to a higher level. In our context, this relationship implies that cumulative shopping duration is anticipated to influence future purchase probability and purchase amount positively.

Hypothesis 4. A customer's shopping duration accumulated up to a period positively affects his/her purchase probability in the subsequent period.

Hypothesis 5. A customer's shopping duration accumulated up to a period positively affects his/her purchase amount in the subsequent period.

As suggested by Verhoef et al. (2009), current shopping experiences affect future shopping expectations, motivation, and evaluations. The basic premise is that positive emotional and cognitive responses during a shopping occasion carry over to subsequent customer journeys. This conjecture is based on findings from previous studies suggesting that individuals' satisfaction, moods, and attitudes tend to persist over multiple periods. For example, Mittal et al. (1999) find that customer satisfaction in a period is positively associated with the satisfaction level in the previous period. A longitudinal investigation by Venkatesh and Speier (1999) suggests that good moods have a positive short-term effect on individuals' motivation and intention to use new technology. Further, a field experiment by Bolton and Drew (1991) reveals that the current attitudes of customers toward a telecommunication service positively affect their attitudes in the subsequent period. These results suggest that customers tend to maintain satisfactory and exciting responses through multiple shopping journeys. We anticipate that positive emotional responses carried over to the subsequent period will motivate customers to stay longer at a shopping mall in that period because they are likely to affect a customer's CX evaluations favorably, as suggested by the ATF (Lerner and Keltner, 2000).

Hypothesis 6. The time spent shopping by a customer within a period positively affects his/her shopping duration in the subsequent period.

However, in the long-term, there seem to be some forces that dilute these carry-over effects that stem from customer learning and boredom.

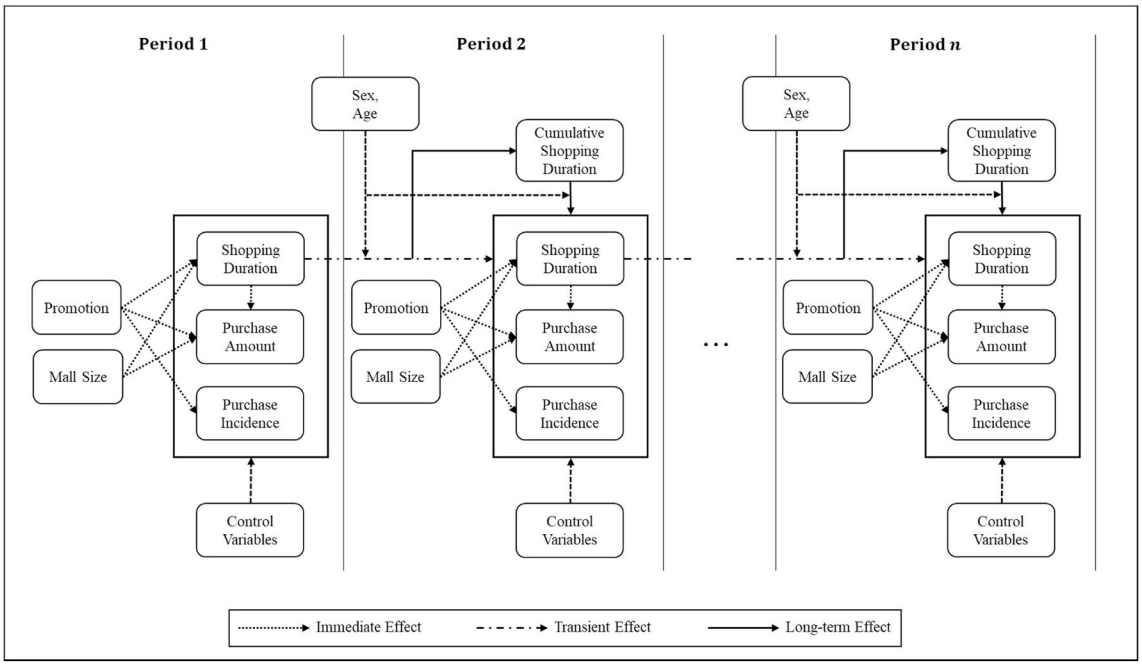


Fig. 2. Conceptual model.

As previously outlined, utilitarian and/or hedonic motives lead customers to go shopping. Utilitarian motives drive a customer to make purchases as efficiently as possible (Li et al., 2020), which becomes more feasible as customers accumulate experience. This is in line with the literature on consumer learning (e.g., Putrevu and Ratchford, 1997), which suggests that the stock of information and knowledge obtained from past shopping experiences improves customer productivity in dealing with purchase-related problems in the current period. Chang and Burke (2007) also provide evidence that customers with high product knowledge are likely to use various shopping aids provided by a retailer that help them shop more efficiently. In addition, customers may perceive shopping as becoming less attractive when they continue to encounter unchanged stimuli (Siebert et al., 2020). The optimum stimulation level theory contends that individuals' desire for excitement motivates them to engage in various behaviors (Steenkamp and Baumgartner, 1992). For example, Blut and Iyer (2020) shows that the pursuit of optimum stimulation prompts individuals to spend time exploring in-store stimuli. Thus, continuous patronage of a mall for an extended period may cause a decline in the perceived stimulation level, owing to frequent exposure to the same stimuli, which eventually lowers customer intention to spend a long time in the mall. In summary, we predict that these forces will balance out the positive effect of past CX on future shopping duration.

Hypothesis 7. A customer's shopping duration accumulated up to a period has no effect on his/her shopping duration in a subsequent period.

3.3. Promotion

Promotion is one of the most important stimuli that directly influence CX (Huang and Bai, 2021). Retailers use various promotional tools to induce store visits, increase current customer spending, and attract prospective customers (Li et al., 2021b). Promotion can evoke positive cognitive responses from potential customers by elevating transaction value (Sinha and Verma, 2020). Previous studies also indicate that promotion can elicit noncognitive responses such as excitement and pleasure (e.g., Huang and Bai, 2021). Arnold and Reynolds (2012) propose that shopping can be triggered by motives such as browsing, looking for discounts, and bargain hunting (i.e., value shopping). Fulfilling such motives generates enjoyment and enhances a customer's self-esteem. These hedonic benefits lead customers to engage in recreational shopping, which generally entails longer shopping duration (Gilboa et al., 2021). Hence, we hypothesize the following relationship[1]

Hypothesis 8. In-store promotional activities have an immediate positive effect on shopping duration.

3.4. Mall size

The critical role of store environment cues in influencing CX has gained considerable attention in the literature (Baker et al., 2002; Kawaguchi et al., 2020). In this study, we focus on the impacts of the size of a shopping mall visited by customers. A large mall typically sells a wide variety of merchandise and food, provides various entertainment outlets, and offers convenient rest areas and parking facilities. A wide assortment of stores facilitates recreational shopping that drives customers to explore products, resulting in feelings of excitement that can increase customer willingness to stay longer at a mall (Wakefield and Baker, 1998). Entertainment facilities may also enhance customers' approach behavior by providing services that help them release stress or escape from daily routines (Grimmer, 2021). A wide variety of restaurants provides greater opportunities for customers to spend time socializing with friends and bonding with others, leading to a longer shopping duration (Brown, 2020). In addition to its effect on customers' willingness to stay, we also anticipate a direct effect of mall size on customer spending. As suggested by Gupta et al. (2009), shopping at a large store may evoke a customer's compulsiveness, which increases his/her likelihood of engaging in impulse buying; thus, customers are anticipated to spend more money when shopping at a larger mall.

Hypothesis 9. The size of a mall visited by a customer positively affects his/her shopping duration.

Hypothesis 10. The size of a mall visited by a customer positively

[1] We do not develop any hypothesis regarding the effect of promotion on buying behaviors, as ample evidence that validates the behavioral impacts of this variable exists (see, e.g., Ailawadi et al., 2009).

affects the amount he/she spends on shopping.

4. Model development

In this section, we describe an econometrics model used to test empirically the hypotheses developed in the previous section. There are three dependent variables in the proposed model: purchase incidence, purchase amount, and shopping duration, which are aggregated on a monthly basis. We use a probit framework for the purchase incidence model. Let y^*_{1it} denote a latent utility obtained by customer i if he/she purchases in month t, specified as follows:

$$y^*_{1it} = \beta_0 + \beta_1 Prom_t + \beta_2 Lagdur_{it} + \beta_3 Cumdur_{it} + \beta_4 Male_i \times Lagdur_{it} + \beta_5 Male_i \times Cumdur_{it} + \beta_6 Age_{it} \times Lagdur_{it} + \beta_7 Age_{it} \times Cumdur_{it} + \beta_8 Male_i + \beta_9 Age_{it} + \beta_{10} Nyear_t + \varepsilon_{1it}. \quad (1)$$

The variable *Prom* represents promotional activities, which is measured as the proportion of stores that implement price promotions in each month. *Lagdur* is the shopping duration of a customer in the previous month. This variable is included as a measure of shopping duration's transient effects. *Cumdur* refers the log of cumulative shopping duration, starting from a customer's initial purchase up to the previous month. This variable represents the long-term effect of shopping duration (Ansari et al., 2008). Thus, the transient and long-term impacts of shopping duration on purchase probability are captured by parameters β_2 and β_3. The variables *Male* and *Age* represent a customer's gender and age, respectively. *Male* is a binary indicator of whether a customer is a male. Note that *Age* depends on t, as our analysis spans a six-year period of customer purchases. The interaction terms in the equation reflect the moderating effect of the demographic variables on the relationship between shopping duration and purchase incidence. *Nyear* is a dummy variable for the month that coincides with the Chinese New Year, which is included to control for a potential spike in demand during the month. The last term, ε_{1it}, denotes a random error.

The probability that customer i purchases in month t is assumed to increase with the purchase utility y^*_{1it} (Manchanda et al., 1999). However, we do not observe purchase utility directly from the data. Rather, we observe whether a customer makes a purchase in each month. Let d_{it} be an indicator function that takes the value of one if customer i purchases in month t and zero otherwise. Then, the above assumption can be written as follows:

$$d_{it} = \begin{cases} 1, & y^*_{1it} > 0 \\ 0, & y^*_{1it} \le 0 \end{cases} \quad (2)$$

We employ a type II Tobit model for the purchase amount because the data are left-censored at zero. Let y_{2it} denote the observed purchase amount of customer i in month t, which takes a positive value if a purchase occurs in that period, and equals zero if otherwise. In this specification, we define a latent variable y^*_{2it} that represents the censoring mechanism, which is given by:

$$y_{2it} = \begin{cases} y^*_{2it}, & y^*_{1it} > 0 \\ 0, & y^*_{1it} \le 0 \end{cases}, \quad (3)$$

where the variable y^*_{2it} is allowed to take a negative value when no purchases occur in the corresponding period. Thus, we can regress y^*_{2it} on certain independent variables to examine the dynamic effect of shopping duration on purchase amount. Specifically, the purchase amount model is given as follows:

$$y^*_{2it} = \gamma_0 + \gamma_1 Prom_t + \gamma_2 Msize_{it} + \gamma_3 Lagdur_{it} + \gamma_4 Cumdur_{it} + \gamma_5 Male_i \times Lagdur_{it} + \gamma_6 Male_i \times Cumdur_{it} + \gamma_7 Age_{it} \times Lagdur_{it} + \gamma_8 Age_{it} \times Cumdur_{it} + \gamma_9 Male_i + \gamma_{10} Age_{it} + \gamma_{11} Nyear_t + \varepsilon_{2it}. \quad (4)$$

The independent variables in this model are the same as those in the purchase incidence model except that now we include a variable $Msize_{it}$, which is defined as the size of the mall visited by customer i in month t, measured in square kilometers. Similar to the purchase incidence model, the transient and long-term effects of shopping duration on purchase amount are captured by parameters γ_3 and γ_4, and ε_{2it} denotes a random error.

The model for shopping duration is specified in the same manner because the variable is also left-censored at zero. That is, we observe a positive shopping duration if a customer purchases in a given period and observe a zero value otherwise. Thus, denoting shopping duration of customer i in month t and the corresponding latent variable respectively by y_{3it} and y^*_{3it}, the relationship can be expressed as follows.

$$y_{3it} = \begin{cases} y^*_{3it}, & y^*_{1it} > 0 \\ 0, & y^*_{1it} \le 0 \end{cases}. \quad (5)$$

The model for y^*_{3it} is given by:

$$y^*_{3it} = \delta_0 + \delta_1 Prom_t + \delta_2 Msize_{it} + \delta_3 Lagdur_{it} + \delta_4 Cumdur_{it} + \delta_5 Male_i \times Lagdur_{it} + \delta_6 Male_i \times Cumdur_{it} + \delta_7 Age_{it} \times Lagdur_{it} + \delta_8 Age_{it} \times Cumdur_{it} + \delta_9 Male_i + \delta_{10} Age_{it} + \delta_{11} Nyear_t + \varepsilon_{3it}. \quad (6)$$

In this model, the evolution of shopping duration over time is captured by parameters δ_3 and δ_4. Similar to the previous two models, the last term in equation (6) denotes a random error. We assume that the random errors $\varepsilon_{it} = (\varepsilon_{1it}, \varepsilon_{2it}, \varepsilon_{3it})'$ follow a multivariate normal distribution with mean $0 = (0, 0, 0)'$ and covariance matrix Σ.

5. Data description

We applied the model above to transaction data provided by a large developer operating multiple shopping malls in China. The original dataset includes the purchase history of a large number of customers recorded from May 2013 to March 2019. We selected those who provided complete information on sex and age. Further, as we want to trace the customers' shopping experiences from their initial purchases, we narrowed down the sample to those who subscribed for mall membership after May 2013. The final sample size used in our empirical analysis is 43,326, of which 27,510 (63.50%) are women. The number of shopping trips made by these customers during the observation period is 626,661. Table 1 shows the sample's descriptive statistics. The composition of age between male and female customers is similar, where those aged between 20 and 30 years old make up more than 40% of the sample. However, female customers appear to shop more frequently than their male counterparts. Male customers shopped, on average, 12.14 times ($SD = 24.16$), while female customers, 15.77 times ($SD = 27.43$) during the data period. For the purchase amount, customers of both genders spent, on average, an almost equal amount for each shopping occasion.

The data encompass customer purchases in eleven shopping malls operated by the firm. A large portion of the customers shopped only in one mall, while a few others shopped in nine malls. On average, the customers visited 2.45 malls during the observation period. Table 2 shows the size of the malls, along with the number of stores within each of them for some of the main categories of products and services. As can see from the table, there are significant differences in the malls' size, where the largest mall is more than four times the size of the smallest one. As expected, the number of stores in the categories is somewhat

Table 1
Descriptive statistics of the sample.

	Men (n = 15816)		Women (n = 27510)	
	Sample size	Percentage	Sample size	Percentage
Age				
<20	755	4.77%	1590	5.78%
20–30	6668	42.16%	12688	46.12%
30–40	4742	29.98%	7405	26.92%
40–50	3330	21.05%	5262	19.13%
50–60	282	1.78%	496	1.80%
>60	39	0.25%	69	0.25%
Purchase frequency				
<10	11801	74.61%	18366	66.76%
10–20	2399	15.17%	4937	17.95%
20–30	913	5.77%	2156	7.84%
30–40	397	2.51%	1166	4.24%
>40	306	1.93%	885	3.22%
Monthly purchase amount (CNY)				
<1000	7862	49.71%	12764	46.40%
1000–2000	4592	29.03%	8345	30.33%
2000–3000	1644	10.39%	3278	11.92%
3000–4000	677	4.28%	1415	5.14%
4000–5000	338	2.14%	657	2.39%
>5000	703	4.44%	1051	3.82%

Table 2
Mall size and number of stores for main categories.

Mall ID	Mall Size (m^2)	Men's Clothing	Women's Clothing	Shoes and Bags	Sports and Outdoor	Restaurants
Mall 1	184342	62	70	42	54	30
Mall 2	64595	35	33	29	27	16
Mall 3	60977	44	40	32	28	25
Mall 4	56763	37	55	23	25	16
Mall 5	49674	58	56	43	34	13
Mall 6	45540	45	60	37	35	13
Mall 7	43408	43	51	25	26	20
Mall 8	41859	37	50	23	23	7
Mall 9	41229	21	27	9	22	6
Mall 10	39523	30	43	28	32	9
Mall 11	39132	27	34	10	10	6

Notes: The number of stores reflect the latest status of the data.

positively correlated with the malls' size.

As is typical with purchase history data, we cannot observe the shopping duration directly from our data. However, the data provide detailed information on purchasing time for each customer at every store where he/she made purchases. Shopping duration was measured as follows. First, we computed the average elapsed time between two consecutive purchases at different stores for each customer. If a customer purchased at a single store in a shopping trip, his/her shopping duration in the respective trip was set to equal this average value. If a customer made purchases at more than one store, his/her shopping duration was measured as the difference between the check-out times at the latest and the first stores plus his/her average inter-store shopping duration, to account for the time elapsed until the first purchase. Fig. 3 shows the scatter diagrams depicting the relationships between duration-related variables and the monthly purchase amount. The figure shows a moderate positive correlation between monthly shopping duration and monthly purchase amount ($r = 0.55$, $p < 0.00$). Similarly, the shopping amount also appears to be positively correlated with the lagged shopping duration ($r = 0.32$, $p < 0.00$). However, the relationship between the amount and log cumulative duration is less obvious from the figure. We note that this model-free evidence should be interpreted with caution because it may not reflect the true relationships between the variables, as it does not account for the effect of other key variables (i.e., promotion, mall size, and customer demographics). We report the estimation results of the proposed model in the next section.

6. Results

We estimated the proposed model using a Markov chain Monte Carlo simulation. First, we set some diffused but proper prior distributions for the unknown parameters: β, γ, δ, and Σ. Then, we generated the latent dependent variables $(y^*_{1it}, y^*_{2it}, y^*_{3it})$ from their corresponding univariate conditional distributions: $\pi(y^*_{1it})\,\pi(y^*_{2it}|y^*_{1it})$, and $\pi(y^*_{3it}|y^*_{1it}, y^*_{2it})$. Subsequently, we developed a seemingly unrelated regression system and employed a Gibbs sampler to simulate a chain of random draws of the unknown parameters. The simulation was conducted by generating 10,000 random draws from the full conditional posterior distribution of each parameter (Rossi et al., 2012), the last 5000 of which were retained to summarize the posterior distributions. We confirmed the convergence of the chain by visually inspecting its fluctuation for the last 5000 iterations and by conducting a difference of means test (Geweke, 1992).

6.1. Results for the covariance matrix

First, we discuss the results for the covariances among the dependent variables. To facilitate interpretation, we computed the correlations among these variables based on the estimates of Σ (see Table 3). The significance of these parameters is assessed by inspecting whether the corresponding highest probability density interval (HPDI) includes zero. We confirmed that all correlations are significant at HPDI 95%. The correlation between shopping duration and the purchase amount is significant, with a positive value ($\rho_{32} = .20$).[2] Even though this is not a strong correlation, the positive sign suggests that customers tend to spend more money when shopping for a longer time. This result provides support for Hypothesis 1.[3] Further, it is also intriguing to observe a weak yet positive correlation between shopping duration and purchase incidence($\rho_{31} = .11$). Although we did not hypothesize this relationship, the result suggests that the greater the likelihood of a customer engaging in shopping, the longer he/she would stay at a mall. This might be because those who are more likely to make purchases in a given period consider a larger variety of products to buy, leading them to spend more time, as there are more buying tasks to be completed. The correlation between purchase incidence and the purchase amount is also statistically significant ($\rho_{32} = .11$), suggesting that those with a high probability of making a purchase tend to spend a large amount of money.

6.2. Results for the purchase incidence model

We show the estimation results for the purchase incidence, purchase amount, and shopping duration models in Table 4. For the purchase incidence model, the results show that promotional activities increase the purchase probability in each period ($\beta_1 = 0.06, \mathrm{SD} = 0.00$) The estimate of lagged shopping duration is also significant and has a positive

[2] Note that ρ_{jk} denotes the correlation between ε_{jit} and ε_{kit}.

[3] We test Hypothesis 1 based on the correlation between shopping duration and purchase amount (e.g., Powers et al., 1991) because it is difficult (if not impossible) to calibrate the causality between the variables from our dataset, owing to potential reverse causality from purchase amount to shopping duration.

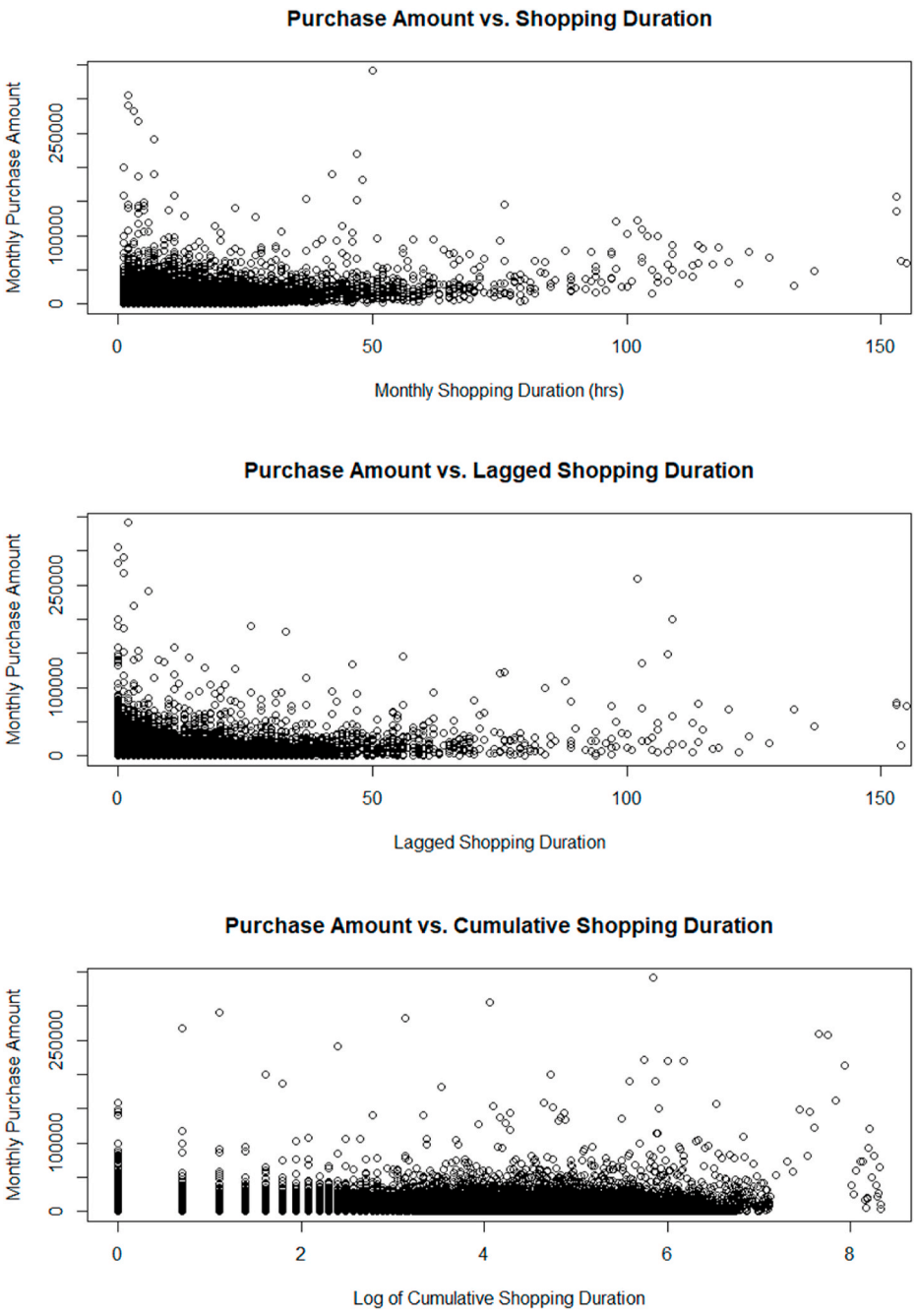


Fig. 3. Shopping duration and purchase amount.

Table 3
Correlation matrix computed from the estimate of.Σ

	Purchase Incidence	Purchase Amount	Shopping Duration
Purchase Incidence	1.00		
Purchase Amount	0.11	1.00	
Shopping Duration	0.11	0.20	1.00

Note: All correlations are significantly different from zero at 95%.

sign $(\beta_2 = 0.14, \text{SD} = 0.00)$. The result suggests that shopping duration in a given period increases the likelihood of a customer purchasing in the subsequent period, which supports Hypothesis 2. Similarly, the effect of cumulative shopping duration is significantly positive $(\beta_3 = 0.16, \text{SD} = 0.00)$, suggesting that shopping duration has a positive permanent effect on shopping frequency. Thus, we accept Hypothesis 4. For the effects of the demographic variables, we observe significant estimates of sex $(\beta_8 = -.07, \text{SD} = .01)$ and age $(\beta_9 = -.01, \text{SD} = .00)$, indicating that female (younger) customers are likely to shop more frequently than their male (older) counterparts. Further, the moderating role of these demographic variables appears to be not significant, except that the effect of cumulative duration is more remarkable for older customers. Additionally, the results for the New Year dummy is not significant, indicating there are no behavioral changes during this period.

6.3. *Results for the purchase amount model*

For the purchase amount model, customers appeared to spend less

Table 4
Estimation results.

	Purchase Incidence		Purchase Amount		Shopping Duration	
	Post Mean	Post SD	Post Mean	Post SD	Post Mean	Post SD
Intercept	−1.27	0.01	−815.15	80.94	−3.65	0.03
Immediate effect						
Prom	0.06	0.00	−55.58	10.27	0.02	0.00
Msize			28.46	3.06	0.03	0.00
Transient effect						
Lagdur	0.14	0.00	434.20	33.00	0.78	0.01
Long-term effect						
Cumdur	0.16	0.00	−372.67	54.67	−0.28	0.01
Moderating effect						
Male:Lagdur	*0.00*	*0.00*	−33.26	2.34	0.02	0.00
Male:Cumdur	*−0.00*	*0.00*	36.51	3.71	0.04	0.01
Age:Lagdur	*0.00*	*0.00*	−2.65	0.13	−0.01	0.00
Age:Cumdur	0.00	0.00	26.33	4.19	0.01	0.00
Control variables						
Male	−0.07	0.01	−67.96	7.56	−0.13	0.02
Age	−0.01	0.00	−84.13	5.42	−0.04	0.00
Nyear	*−0.00*	*0.00*	*12.43*	*7.59*	*0.00*	*0.01*

Note: Post Mean and Post SD refer to the posterior mean and standard deviation of the parameters calculated from the retained random draws. Non-significant results at 95% are presented in italic.

money during promotion periods ($\gamma_1 = -55.58,\ SD = 10.27$), probably because they tended to buy products at discounted prices or merely browsed promoted products without buying. By contrast, the effect of mall size is positive and significant ($\gamma_2 = 28.46,\ SD = 3.06$), suggesting that customers are likely to increase their spending when shopping at a larger mall. This leads to the acceptance of Hypothesis 10. The coefficient of lagged shopping duration is also positive and significant ($\gamma_3 = 434.20,\ SD = 33.00$), suggesting that an increase in the previous shopping duration leads to an increase in the current purchase amount, which supports Hypothesis 3. However, the effect of the shopping duration is not likely to persist over multiple periods, as signified by the negative sign of the cumulative duration's parameter estimate ($\gamma_4 = -372.67,\ SD = 54.67$). This implies a downward shift in customers' spending as their shopping experience accumulates, which does not support Hypothesis 5. Further, the estimates of sex ($\gamma_9 = -67.96,\ SD = 7.56$) and age ($\gamma_{10} = -84.13,\ SD = 5.42$) are both significant and have negative signs. Thus, male (older) customers tend to spend less money than their female (younger) counterparts. The moderating effects of these variables are also significant, where the positive effect of lagged shopping duration is more evident for female ($\gamma_5 = -33.26,\ SD = 2.34$)and younger ($\gamma_7 = -2.65,\ SD = 0.13$)customers. By contrast, the negative effect of cumulative shopping duration is weaker for these customers ($\gamma_6 = 36.51,\ SD = 3.71; \gamma_8 = 26.33,\ SD = 4.19$). As in the purchase incidence model, we find that the effect of the New Year dummy is not significant ($\gamma_{11} = 12.43,\ SD = 7.59$).

6.4. Results for the shopping duration model

The results for the shopping duration model reveal that promotional activities lead customers to stay longer at a mall, as the parameter estimate of the promotion variable is significantly positive ($\delta_1 = 0.02, SD = 0.00$). Thus, Hypothesis 8 is supported. Similarly, mall size also has a significant positive effect ($\delta_2 = 0.03, SD = 0.00$), suggesting that customers tend to spend more time when shopping at a larger mall, which supports Hypothesis 9. Regarding the evolution of shopping duration, we observe that the effect of lagged shopping duration is positive and significant ($\delta_3 = 0.78, SD = 0.01$). This implies that if a customer spends a long time shopping in a given period, he/she is likely to do so in the subsequent period, which supports Hypothesis 6. However, the long-term effect of past shopping durations appears to contradict our prediction. Although we did not expect the effect to be significant, the estimate of cumulative shopping duration is negative and significant ($\delta_3 = -0.28, SD = 0.01$), indicating that shopping duration declines as customers accumulate shopping experiences. This means that Hypothesis 7 is not supported. Looking at demographic variables, we find that the results are significant and have negative signs for both sex ($\delta_9 = -0.13, SD = 0.02$) and age ($\delta_{10} = -0.04, SD = 0.00$). Thus, after controlling for other variables, female (younger) customers are more inclined to spend time shopping than their male (older) counterparts. We further observe the significant moderating effects of these variables. The effect of lagged shopping duration is more (less) pronounced for male (older) customers ($\delta_5 = 0.02, SD = 0.00; \delta_7 = -0.01, SD = 0.00$). By contrast, the effect of cumulative shopping duration is less evident for male and older customers ($\delta_6 = 0.04, SD = 0.01; \delta_8 = 0.01, SD = 0.00$). Finally, similar to the previous two models, we find that the New Year dummy is not significant. We summarize our hypothesis-testing results in Table 5 below.

7. Discussion and implications

7.1. Summary of key findings

This study addresses three critical CX-related issues that remain underexplored in the literature. First, we explain how shopping duration induces contemporaneous, transient, and long-term effects on purchase probability and spending. Using shopping duration as a proxy for CX, we confirm that this variable is positively associated with the amount spent by a customer in the same shopping trip, which is consistent with previous studies' findings derived from survey and experiment data (Wakefield and Baker, 1998; Yim et al., 2014). The results further reveal that the time a customer spends in one period increases his/her likelihood of purchasing and purchase amount in the subsequent period. This is a novel finding because almost no study has empirically demonstrated the transient effect of shopping duration on buying behaviors, notwithstanding some indications that current satisfaction could favorably affect satisfaction in a subsequent period and eventually enhance repeat purchases and spending (Netemeyer et al., 2010). Regarding the long-term impacts, the results appear somewhat different from what we have predicted. While purchase frequency tends to increase as customers accumulate shopping experiences, their spending is likely to converge to a lower level. We conjecture that this might be because of the "stickiness" of customer budget, as suggested by the mental accounting theory (Thaler, 1985). The theory posits that people budget money into mental accounts for several expense categories. Accordingly, they would track past purchases and adjust current

Table 5
Summary of hypotheses testing results.

Hypothesis	Independent Variable	Dependent Variable	Predicted Direction	Observe Direction	Result
Hypothesis 1	Shopping duration	Purchase amount	(+)	(+)	Supported
Hypothesis 2	Lag shopping duration	Purchase incidence	(+)	(+)	Supported
Hypothesis 3	Lag shopping duration	Purchase amount	(+)	(+)	Supported
Hypothesis 4	Cumulative shopping duration	Purchase incidence	(+)	(+)	Supported
Hypothesis 5	Cumulative shopping duration	Purchase amount	(+)	(−)	Not supported
Hypothesis 6	Lag shopping duration	Shopping duration	(+)	(+)	Supported
Hypothesis 7	Cumulative shopping duration	Shopping duration	n.s.	(−)	Not supported
Hypothesis 8	Promotion	Shopping duration	(+)	(+)	Supported
Hypothesis 9	Mall size	Shopping duration	(+)	(+)	Supported
Hypothesis 10	Mall size	Purchase amount	(+)	(+)	Supported

purchase amounts to avoid overspending (or underspending) on the respective categories (Heath and Soll, 1996). In our context, the increase in purchase frequency resulting from cumulative shopping duration might have motivated customers to adjust their spending downward, so as to maintain their budget.

The second issue we address is how past experiences determine the way shopping duration evolves over time. On the premise that a long shopping duration represents satisfactory CX, we anticipated that the time spent shopping by a customer in a given period would positively affect the shopping time in the subsequent period. Our study provides empirical evidence supporting this prediction. This result is in line with previous studies suggesting that positive emotional responses (i.e., moods) and evaluation outcomes (i.e., satisfaction and attitudes) tend to persist over multiple shopping journeys (Bolton and Drew, 1991; Mittal et al., 1999; Venkatesh and Speier, 1999), which in turn drives customers to make positive judgments and responses (Han et al., 2007). This explicitly means that the previous shopping duration motivates customers to stay longer at a mall on the current shopping trip. We further predicted that shopping duration would have no long-term effect on future shopping duration, owing to customer learning (Putrevu and Ratchford, 1997) and boredom (Siebert et al., 2020). However, the results reveal that cumulative shopping duration results in a decline in current shopping duration. We conjecture that this might be because the reduction of shopping duration caused by customer learning and boredom surpasses the possible increase of this variable that results from positive experiences.

The third key finding of this study concerns the contemporaneous effect of marketing and in-store stimuli. For the former, we focus on the impact of promotional activities on shopping duration. While considerable effort has been devoted to delineating the effect of promotion on buying behavior (Ailawadi et al., 2009), we have little understanding of how this stimulus influences in-store experiences. Our empirical results show that promotional activities lead customers to stay longer at a mall but do not always induce additional purchases. Instead, customers are likely to spend less money during promotional periods despite their longer shopping duration. This is probably because promotional activities evoke excitement, which drives customers to browse the promoted products for pleasure, but they do not necessarily end up buying (Bloch and Richin, 1983). Further, we measure in-store stimuli by mall size and find that customers tend to spend more time and money when shopping at a larger mall. The positive association between mall size and shopping duration may stem from the fact that a large mall typically provides diverse product assortments and entertainment outlets that attract customers to stay longer (Wakefield and Baker, 1998). Thus, by examining customer behavior in several malls with different sizes, we provide robust evidence for the effect of store environment stimuli on CX. We interpret the positive impact of mall size on purchase amount as a consequence of the increasing likelihood of impulse buying accruing when customers visit a large mall (Gupta et al., 2009).

7.2. Theoretical implications

Our investigation provides novel insights into how CX influences customer behavior in the long-term. Although the extant literature has revealed that successful CX leads to an increase in customer purchases, most studies primarily focus on the short-term consequences of CX. Therefore, little is known about how future behavior is influenced as customers accumulate their experiences. In this regard, this study demonstrates that the long-term effect of shopping duration on buying behaviors is subject to customers' budget constraints. That is, a trade-off exists between purchase frequency and purchase amount in the long-term, where customers reduce their spending in each shopping occasion to balance out the excess in expenditures that result from increased purchase frequency. This adjustment implies that although an increase in shopping duration positively influences purchasing behaviors in the short-term, the magnitude of the effect dissipates in the long term as the budgets allocated by customers to several categories seem to be less susceptible to a change in the variable.

The results regarding the evolution of shopping duration are also worth noting. As previously described, an increase in shopping duration leads to a temporary positive carry-over effect. However, the permanent effect appears to be negative, suggesting that shopping duration would converge to a lower level as customers continue their patronage. Such a permanent effect would not be a threat to a mall's owner if it is caused by an increase in shopping efficiency, which is a consequence of customer learning. However, it would be a severe problem if it has resulted from a decline in the stimulation level of a mall's environment, as perceived by the customers. In this case, the downward shift of shopping duration may signify a reduction in customer satisfaction, which could eventually damage customer loyalty.

7.3. Managerial implications

Shopping mall operators have been exerting relentless efforts to enhance their customers' shopping experience (CCAGM, 2019). Creating a delightful experience involves the provision of family-related stores, art and culture exhibitions, entertainment, dining, and technology-driven services. By delighting their customers with these in-store stimuli, retailers believe that they would gain returns on their investment in CX management. Such beliefs did not arise without reason, as academic literature has provided ample evidence that pleasant and exciting shopping experiences reinforce customer loyalty and enhance purchase frequency and spending (Khan et al., 2020). However, we argue that these findings should be carefully considered because they are mostly derived by studies that focus on the immediate or short-term effects of CX. Our study's results indicate that the effect of shopping duration would not be the same in the long-term because customers' budget seems to be less affected by the change in this variable. Thus, the improvement of CX would lead to increases in purchasing behaviors only up to a certain level (i.e., customers' budget constraint),

beyond which revenues from customers would be unchanged.

Thus, the primary implication of this study is that decisions to invest marketing resources in activities that enhance CX should be based on a firm's knowledge of their customers' budget. A mall's owner should make sure that the costs to manage CX do not exceed the amount allocated by customers to several product categories. Therefore, it is critical to predict the maximum amount that customers would spend in a given period, which can be done by inferring from customer spending based on their purchase history. Further, given that the revenues obtained from managing current customers' experiences are limited by their budgets, firms may need to consider developing experiential elements to appeal to prospective customers. This can be done by encouraging current customers to disseminate positive messages through WOM about the quality of their experience to potential customers. A recent study by Siqueira et al. (2020) shows that customers are likely to engage in WOM if a firm facilitates excellent cognitive, emotional, social experiences.

8. Conclusions, limitations, and future research

This study investigated the dynamic impacts of shopping duration on customer buying behaviors. The results provide novel insights into how this construct affects purchase probability and spending in the long-term, which have not been examined empirically in the extant literature. This study also clarified the dynamic pattern of shopping duration by showing how customer experience within a shopping period is affected by past experiences, and how it becomes stable in future purchase occasions. Moreover, this study also provides new findings regarding the direct effect of promotional activities and mall size on buying behaviors, as well as the stimuli's indirect effect through shopping duration.

Despite its critical contributions to the CX literature, this study has some limitations. First, we only examined the effects of shopping duration in the offline retail context. Thus, it is unclear how our findings would apply to different contexts such as the online and omnichannel retail markets. In particular, it is essential to investigate how CX in one channel spills over to another. Second, our measurement of shopping duration, may not capture all aspects of the shopping experience. Future research may need to address this issue by complementing purchase history data with survey data to get a more comprehensive measure of CX. Our measurement might also be subject to validation issue as we did not observe the actual shopping duration from the data. Future research can deal with this measurement problem better through the adoption of technologies such as global positioning system (GPS) and iBeacon that allow firms to capture the time at which individual customers enter or leave a shopping area. Third, we argue that it is also essential to explore the dynamic impacts of CX in different sectors, such as service, tourism, and business-to-business markets, which are beyond the scope of this study. Finally, we did not account for the influence of competition due to data limitations. However, to compete effectively with other firms, it is important for practitioners to know how CX affects their customers' behavior with respect to competitors.

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