

DYNAMIC IN-STORE DECISION MAKING

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DYNAMIC IN-STORE DECISION MAKING

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For my daughter Amelia,
your curiosity inspires my curiosity.

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SUMMARY

Much of our current understanding of how consumers shop for goods and services is based on cross-sectional analyses of end-of-trip variables (e.g., basket composition, total spending) that has largely assumed purchase behavior is constant over the course of a shopping trip (Bell et al. 2010), however research has begun to demonstrate how an initial purchase can influence a subsequent purchase decision (Dhar et al. 2007; Khan & Dhar 2006; Vohs et al. 2008). This suggests shopping behavior may not only vary throughout a shopping trip, but rather is specifically influenced by when a purchase decision occurs within a shopping trip (Bettman, Luce, and Payne 1998). Furthermore, as technology now allows retailers to track, target, and engage customers at any point within a shopping experience (Clifford & Hardy 2013), research is critically needed to understand how a consumer's decisions may vary within a shopping trip. I build on this foundation through two essays that show how and why a consumer's in-store purchasing behavior is influenced by both the decisions they have made and the decisions they will make.

The first essay demonstrates that a consumer's relative spending—the price of an item, relative to the prices of the other items in the same product category—evolves nonlinearly over a single shopping trip. As research has demonstrated the manner in which consumer categorize and track their spending influences their subsequent spending (Health & Soll 1996; Thaler 1980; 1985), I examine these spending patterns for both budget and nonbudget shoppers. Budget shoppers—consumers who shop with an explicit and consequential budget in mind (Bliss 1988; Thaler 1999)—evaluate their in-store

spending against a different reference point than nonbudget shoppers (Heath and Soll 1996; Prelec and Loewenstein 1998). These unique reference points are expected to give rise to distinct patterns in relative spending.

The second essay examines whether and how encountering promotions in-store, but temporally in advance of the promoted product, influences a consumer's redemption decision. Specifically, by building on temporal framing (Chandran & Menon 2004) and attitude accessibility literature (Fitzsimons & Morwitz 1996, Morwitz & Fitzsimons 2004), I suggest that promotions received before and temporally separated from the promoted product may actually be more effective, and more likely to be redeemed, than traditional shelf promotions. Throughout four studies, I demonstrate that temporal promotions – promotions presented to consumers inside the store, but before the customer actually reaches the promoted product – alter the information consumers think about when making the purchase decision. This amplifies their evaluation of the promoted brand, subsequently influencing the likelihood a promotion will be redeemed.

CHAPTER 1

INTRODUCTION

Eighty-five percent of leading retailers rate self-service customer-facing technologies—such as smart shopping carts and smartphones—as one of the top opportunities for increasing consumer satisfaction and revenue (Rosenblum 2007). These technologies allow brick-and-mortar stores to track, target, and engage their customers based on their in-store location and purchase behavior (Clifford & Hardy 2013). In addition to allowing shoppers to track their in-store spending (Nelson 2008), these technologies also help improve customer satisfaction by offering targeted promotions, recommending complementary products, and allowing customers to pay without entering the checkout line (e.g., Hui, Inman, Huang, & Suher 2013; Senne 2005a; Van Ittersum, Wansink, Pennings, & Sheehan 2013). Retailers' ability to optimize their in-store targeting efforts with these technologies will in part depend on understanding how shopping behavior evolves over the course of the entire shopping trip.

Much of our current understanding about how consumers shop for goods and services is based on cross-sectional analyses of end-of-trip variables (e.g., basket composition, spending), which has largely assumed spending behavior is constant over the course of a shopping trip (Bell et al. 2010). However, as we know that preferences and choices are constructed at the moment of choice (Bettman et. al. 1998) research has begun to explore how previous purchase decisions influence present and future purchase decisions. For example, previous purchase decisions influence the chance of a consumer purchasing additional items (Dhar et al. 2007a; Vohs et al. 2008), the visceral nature of next purchase (Khan & Dhar 2006), and a consumer's ability to regulate their future spending (Vohs & Faber 2007). Additionally, research suggests that consumer decisions are processed contingently on their stage of the shopping trip, such that consumers are

more abstract and uncertain of the shopping goals at the beginning of a shopping trip (Lee & Ariely 2006). Furthermore, specific purchasing behaviors, such as unplanned purchasing, occur dynamically, based on a shopper's previous decisions (Stilley, Inman, & Wakefield 2010a). This past research motivates two important research questions. First, given the variety of consumer domains that involve more than just two or three consecutive decisions (i.e., grocery shopping), how do past decision influence a consumer's present and future decisions in a longer string of purchase decisions? Second, do the number of decisions a consumer has left to make influence a how preferences and choices are constructed? In my dissertation, I build on this foundation with two essays that examine the sequential dynamics of consumers' purchasing behavior within a single shopping trip.

In my first essay, I examine how a consumer's relative spending evolves over the course of a single shopping trip. Retailers' ability to optimize their tracking, targeting, and store layout efforts will in part depend on understanding how shoppers' relative spending—the price of an item, relative to the prices of the other items in the same product category—evolves throughout an individual shopping trip. Furthermore, building on recent insights into the unique spending behaviors of budget and nonbudget shoppers (Van Ittersum et al. 2013), I examine these trends for consumers shopping either with or without a budgetary constraint. I propose that budget and nonbudget shoppers evaluate their spending against unique reference points, which drives these distinct patterns in relative spending. Thus, differentiating between budget and nonbudget shoppers is expected to yield a more descriptive and predictive account of how and why a shoppers' relative spending evolves throughout a shopping trip.

As customer-facing and tracking technologies become more prevalent, retailers can intercept consumers during their shopping trip with customized promotional offers (Clifford & Hardy 2013). Understanding how the relative spending evolves throughout a shopping trip, allows retailers to time promotional offers when shoppers are more price

sensitive and relative spending is low. I take it one step further in my second essay by examining whether and how the time between the promotional offer and the purchase decision that involves the promoted product influences the redemption likelihood. Specifically, building upon temporal framing (Chandran & Menon 2004) and attitude accessibility literature (Fitzsimons & Morwitz 2004), I propose that these temporal promotions – promotions offered in-store, but temporally separated from the promoted product – may be more effective and persuasive than more traditional promotions encountered alongside the product. Specifically, I propose that encountering the promotion before the purchase decision essentially divides the redemption decision into two separate temporal frames: (1) a frame in which shoppers initially evaluate the promotion and the promoted product and (2) another frame in which shoppers evaluate all of the information and alternatives available in a product category and make their ultimate purchase decision. This means that the evaluations shoppers make when they arrive at the ultimate purchase decision for the promoted product are influenced by the evaluations they made when they encountered the temporal promotion.

My research offers the following contributions. First, my first essay demonstrates that shoppers' relative spending evolves nonlinearly and distinctly for budget and nonbudget shoppers. To the best of my knowledge, this is the first work to examine how consumer spending systematically varies over an extended series of spending decisions, such as a weekly grocery-shopping trip. Second, the differences in relative spending between budget and nonbudget shoppers are shown to be driven by unique patterns in the pain of paying experienced while shopping, a result of evaluating their spending against distinct reference points (Heath and Soll 1996; Prelec & Loewenstein 1998; Soster, Gershoff, & Bearden 2014). Third, this research is the first to document how the pain of paying evolves throughout a major shopping trip for both budget and nonbudget shoppers. Finally, by amplifying shoppers' pain of paying via real-time spending feedback, the nonlinearity in relative spending is shown to increase.

The second essay contributes to literature on promotions (Blattberg, Briesch and Fox 1995; Chandon, Wansink & Laurent 2000), temporal framing (Chandran & Menon 2004) and attitude accessibility (Fitzsimons & Morwitz 2004). First, this is the first research to demonstrate that promotions encountered before the actual purchase decision may be more effective than those encountered with the purchase decision. Second, I show that temporal promotions bias the manner in which consumers make their ultimate purchase decision involving the promoted product by altering the amount and type of information available and manner in which that information is evaluated. Third, this research adds to literature on attitude accessibility by demonstrating that promotions implicitly activate thoughts of the promoted product, making those thoughts more accessible in the ultimate purchase decision, which polarizes a shopper's initial attitude towards the product.

CHAPTER 2

IN-STORE SPENDING DYNAMICS

Eighty-five percent of leading retailers indicate that engaging their customers during the shopping trip—using smartphones, smart shopping carts, or other customer-facing technologies—is one of their top business opportunities (Rosenblum 2007). In order to optimally engage customers at any point during their shopping trip, it is important to have a better understanding of how their in-store spending decisions may evolve while shopping (Clifford and Hardy 2013). This enhanced understanding allows retailers to offer customized and timely promotions, optimally design store and shelf layouts, recommend complementary products, and present relevant product information (Hui et al. 2013; Senne 2005; Van Ittersum et al. 2013).

Much of our current understanding about in-store spending behavior is based on cross-sectional analyses of end-of-trip variables (e.g., basket composition, total spending). This approach implicitly assumes that spending behavior is constant over the course of a shopping trip (Bell, Corsten, and Knox 2010; Inman, Winer, and Ferraro 2009). However, recent research has begun to demonstrate that the in-store spending behavior is dynamic—earlier spending decisions have shown to influence (1) the likelihood of purchasing additional items (Dhar, Huber, and Khan 2007; Vohs et al. 2008), (2) the visceral nature of subsequent purchases (Khan and Dhar 2006), and (3) a shopper’s ability to regulate their future spending (Vohs and Faber 2007). Furthermore, shoppers have been shown to process product and price information differently

depending on how many decisions shoppers have already made during their shopping trip (Lee and Ariely 2006).

In this essay, I integrate both paradigms and examine how shoppers' spending decisions evolve throughout a single major shopping trip—shopping trips involving more than 10 purchases (Kahn and Schmittlein 1992). To examine shoppers' in-store spending behavior, I examine their relative spending—the price of the purchased item, relative to mean price of the product category. Specifically, I am interested to know how shoppers' inclination to purchase a relative expensive (e.g., Coca Cola) or cheap (e.g., a store brand cola) alternative in a given product category (e.g., cola) evolves throughout a shopping trip. This relative spending measure allows us to examine shoppers' spending behavior across multiple and diverse spending decisions, allowing for different and random sequences of decisions, while controlling for absolute price differences between categories.

As research has demonstrated the manner in which consumers categorize and track their spending influences their subsequent spending (Heath & Soll 1996; Thaler 1980; 1985), I examine the spending patterns of both budget and nonbudget shoppers. Budget shoppers—consumers who shop with an explicit and consequential budget in mind (Bliss 1988; Thaler 1999)—evaluate their in-store spending against a different reference point than nonbudget shoppers (Heath and Soll 1996; Prelec and Loewenstein 1998). The unique reference points are expected to drive these distinct patterns in relative spending. Thus, differentiating between budget and nonbudget shoppers is expected to yield a more descriptive and predictive account of how and why a shoppers' relative spending evolves throughout a shopping trip.

This work makes four important contributions. First, this research demonstrates that shoppers' relative spending evolves nonlinearly and distinctly for budget and nonbudget shoppers. To the best of my knowledge, this is the first work to examine how consumer spending systematically varies over an extended series of spending decisions, such as a weekly grocery-shopping trip. Second, the differences in relative spending between budget and nonbudget shoppers are shown to be driven by unique patterns in the pain of paying experienced while shopping, a result of evaluating their spending against distinct reference points (Heath and Soll 1996; Prelec & Loewenstein 1998; Soster, Gershoff, & Bearden 2014). Third, this research is the first to document how the pain of paying evolves throughout a major shopping trip for both budget and nonbudget shoppers. Finally, by amplifying shoppers' pain of paying via real-time spending feedback, the nonlinearity in relative spending is shown to increase.

The remainder of this paper is organized as follows. First, building on the pain of paying and budgeting literature (Prelec and Loewenstein 1998; Rick et al. 2008; Thaler 1985), I theorize how spending decisions of budget and nonbudget shoppers evolve throughout a shopping trip. Next, I present a series of laboratory and field studies that provide empirical support for the proposed theoretical account. Finally, the theoretical contributions, limitations, and opportunities for future research are discussed.

In-Store Spending Dynamics

Traditionally, marketing and economic models implicitly assume that a shopper's spending evolves linearly throughout a shopping trip (Bell et al. 2010). This assumption suggests that a shopper's relative spending—the price of the purchased item, relative to mean price of the product category—on each subsequent item is constant; shoppers

consistently select a relatively expensive or inexpensive item from a product category. While variations may exist—a shopper may favor certain items that are relatively expensive, but opt for more inexpensive items in other categories—it is generally presumed that spending dynamics are modest (Wakefield and Inman 2003). This implies that shoppers make the same spending decision regardless of when this decision is made during the shopping trip.

Research has recently demonstrated, however, that the in-store spending behavior is dynamic—after making one spending decision (1) shoppers are more likely to purchase additional items (Dhar, Huber, and Khan 2007; Vohs et al. 2008), (2) a shopper may alter the visceral nature of the next purchase (Khan and Dhar 2006), and (3) shoppers may be less able to control their future spending (Vohs and Faber 2007). For instance, Kahn and Dhar (2006) demonstrate that an early spending decision that activates a positive self-concept may next license the purchase of a self-indulgent product. Furthermore, shoppers have also been shown to make different spending decisions and process product and price information differently depending on how far they have progressed into their shopping trip (Lee and Ariely 2006). This may explain why unplanned purchases are more prevalent during the later stages of a shopping trip (Gilbride, Inman, and Stilley 2015).

Although research has shown that one spending decision can influence subsequent decisions (Dhar et al. 2007; Vohs and Faber 2007), these effects have predominantly been studied in sequences of only two or three spending decisions. However, the influence of one decision on the next may vary depending on when they occur within a longer sequence of decisions (Gilbride et al. 2015; Thaler 1980; 1985). Thus, shoppers' spending may vary as a function of the number of purchase decisions they have made during a

shopping trip. The purpose of this research is to examine how shoppers' relative spending evolves throughout a major shopping trip. That is, although past research suggests that (nonbudget) shoppers' proclivity to spend may vary between consecutive decisions (Dhar et al. 2007; Vohs and Faber 2007), no empirical evidence exists to show how spending varies in sequences longer than two or three decisions.

In studying a shopper's relative spending, I differentiate between budget and nonbudget shoppers for two reasons. First, the in-store spending experience differs between budget and nonbudget shoppers. That is, although both shoppers may have an idea of how much they are spending, the unique manner in which budget and nonbudget shoppers categorize and track their spending, and the rigidity of those categories, has a significant and unique impact on their spending decisions (Heath and Soll 1996; Larson and Hamilton 2013; Thaler 1985; Van Ittersum et al. 2013). Most notably, the reference points used by both shoppers to evaluate their spending while shopping differ. While nonbudget shoppers evaluate their spending cumulatively against their reference point of zero dollars at the start of their shopping trip (Prelec and Loewenstein 1998; Thaler 1985), budget shoppers evaluate their spending against their budget (Heath and Soll 1996). Differentiating between budget and nonbudget shoppers will thus account for some important customer-level heterogeneity and allows for a richer and more rigorous examination of the dynamic in-store spending behavior of shoppers. Second, consumers who shop with an explicit budget in mind make up a large and important part of

consumer behavior.¹ Understanding the intricacies of spending behavior for different shoppers allows both retailers and policymakers to create better initiatives for their constituents, such as targeted marketing promotions. Following existing research, I assume that budget shoppers optimally allocate their financial resources and maximize their utility by spending their entire allocation without exceeding it (Heath and Soll 1996; Hymans and Shapiro 1976; Thaler 1985).

Understanding Relative Spending Patterns

The main proposition of this research is that the relative spending of shoppers evolves nonlinearly throughout a major shopping trip. Moreover, the pattern in relative spending is expected to differ between budget and nonbudget shoppers. These propositions follow from theories on pain of paying (Prelec and Loewenstein 1998) and budgeting (Heath and Soll 1996; Thaler 1985). Extant research has demonstrated that the manner in which shoppers categorizes their spending affects how consumers consider and evaluate their spending decisions (Thaler 1980, 1985). I elaborate below.

Nonbudget Shoppers

Derived from mental accounting research, Prelec and Loewenstein (1998) assert that shoppers experience an immediate negative psychological response towards spending money, known as the pain of paying (Loewenstein and Lerner 2003).

Consumers experience a negative reaction when merely considering their spending or the

¹ Approximately one-third of American households shop with a grocery budget to manage their household expenses (Van Ittersum, Pennings, and Wansink 2010)

price of potential purchases (Knutson et al 2006). This immediate psychological response to spending helps consumers to regulate their spending by evaluating the present cost against the future benefits (Prelec and Loewenstein 1998). Thus, as shopper's experience more pain, they attempt to minimize the extent of pain they are experiencing by purchasing relatively inexpensive products (Knutson et al 2006, Rick et al. 2008).

Nonbudget shoppers experience their cumulative spending as a total loss, suggesting that they use the zero dollars (i.e., not spending anything) at the start of the shopping trip as their reference point when evaluating spending while shopping (Prelec and Loewenstein 1998; Thaler 1985). The pain of paying experienced while shopping thus accumulates with each sequential spending decision as a function of the total amount already spent (Kivetz 1999; Prelec and Lowenstein 1998). Thus, pain of paying is a function of both the relative and the absolute change in spending (Kahneman et al. 1993). Stated differently, the pain of paying is higher when spending \$4 versus \$2, but this difference is more profound when you already spent \$10 as opposed to \$70 (Thaler 1985; Kahneman and Tversky 1979). Accordingly, I expect the pain of paying to increase in a concave manner.

The nonlinear evolution in pain of paying is expected to yield a nonlinear pattern in relative spending for nonbudget shoppers. With pain of paying increasing as a function of absolute spending levels, nonbudget shoppers are expected to reduce their relative spending to minimize the increase in pain experienced (Knutson et al 2006, Rick et al. 2008). Then, as they begin to perceive each individual spending decision to marginalize relative to the total amount already spent, spending becomes relatively less painful, in response to which nonbudget shoppers are expected to increase their relative spending

again. Accordingly, the relative spending of nonbudget shoppers is expected to evolve in a convex pattern.

Budget Shoppers

As budget shoppers use their budget as a reference point to evaluate their in-store spending, the experienced pain of paying is expected to evolve differentially (Heath and Soll 1996; Spiller 2011). At the start of the shopping trip, budget shoppers are motivated to control their spending to stay within budget (Van Ittersum et al. 2013). However, with most of their budget still intact, budget shoppers will experience little pain of paying. Actually, referencing Sinclair Lewis's character George Babbitt, Heath and Soll (1996) suggest that budget shoppers have the rare ability to feel both poverty and wealth. For instance, after spending only \$10, shoppers with a \$60 budget may feel a sense of wealth as they still have \$50 left to spend. This suggests that instead of experiencing pain of paying, budget shoppers may actually experience a sense of wealth early in the shopping trip (Heath and Soll 1996). This entices them to increase their relative spending early in the shopping trip (Rick et al. 2008). However, as the shopping trip progresses and the available spending room decreases, their sense of wealth reduces and the pain of paying becomes more dominant (Soster, Gershoff, and Bearden 2014). In response, budget shoppers are expected to reduce their relative spending. Accordingly, budget shoppers' relative spending is expected to evolve in a concave pattern.

To empirically demonstrate how and why shoppers' relative spending evolves over the course of a shopping trip, I conducted a series of laboratory and field studies. Study 1 provides an initial demonstration of the spending dynamics of budget and

nonbudget shoppers. Study 2 offers evidence for the use of budgets as reference points and their subsequent effect on spending dynamics. Study 3 demonstrates how pain of paying evolves uniquely for budget and nonbudget shoppers throughout the shopping trip and provides mediational support for how pain of paying drives spending dynamics. Finally, in studies 4 and 5, I examine the robustness of my findings in two field experiments, while manipulating instead of measuring the pain of paying (study 3).

Study 1:

The Spending Dynamics of Budget and Nonbudget Shoppers

Design and Procedure

One hundred and eleven paid online participants ($M_{age}=35.8$; 50.5% Male) from Amazon's Mechanical Turk participated in a major computer-simulated grocery-shopping task. Participants were first presented with a pretested shopping list (listed in Appendix A) containing 16 product categories (e.g. bread, 1 loaf). For each product category on their shopping list, participants were presented with a choice set consisting of two product options: one lower-priced option and one higher-priced option. For each option in each choice set, a picture of the product, the unit size, and the price was presented. After participants selected an alternative for that product category, the next choice set was displayed on the screen. Furthermore, as the primary focus of this research was to examine the evolution of spending throughout a single shopping trip, the purchase decisions were randomly presented to participants. Thus, each participant was presented with a unique sequence of purchase decisions to eliminate any effect that might be attributed to a particular sequence of or relationship between specific products.

The study was a mixed design with budget (no budget vs. budget) as a between-subjects experimental factor and the sequence of spending decisions as a within-subject factor. Participants were randomly assigned to one of the two budget conditions. Participants in the budget condition were asked to shop with a budget of \$60 (“Imagine that your budget for this shopping trip is \$60”). The total price of only buying the 16 inexpensive options was \$49.50, and the total price of purchasing the 16 expensive options was \$70.50. Their budget was \$60, the average of these two totals. To make the budget consequential and thus effective (Thaler 1999), budget shoppers were informed that they would have to solve several 3-digit math problems if they breached their \$60 budget. Participants in the nonbudget condition were merely asked to shop for the items on their shopping list as if they were making spending decisions in a grocery store.

Measures

Each spending decision was recoded into a relative spending value. A participant’s relative spending is an index that was calculated by dividing the price of the selected product by the average price for the product category.

Results

Consistent with existing research (Van Ittersum et al. 2012), budgets are an effective tool to regulate one’s spending ($M_{\text{Budget}} = 0.90$ vs. $M_{\text{Nonbudget}} = 0.97$; $F(1,109) = 23.95$; $p < 0.001$, $\eta_p^2 = .180$)². In line with premise of this research, shoppers’ relative

² One participant in the budget condition spent more than \$60. As his spending behavior did not influence the results, I kept him in analysis.

spending over the course of the shopping trip was analyzed using a repeated measures analysis. A significant quadratic interaction between a shopper's spending decisions (either 1st, 2nd, 3rd, etc.) and their budget condition suggests that shoppers' relative spending throughout the shopping trip evolves differently for budget versus nonbudget shoppers ($F(1,109) = 16.47; p < 0.001, \eta_p^2 = .131$) (see figure 2.1). Separate planned quadratic contrasts for each budget condition were significant, indicating that the relative spending evolves quadratically for both budget ($F(1, 51) = 18.87; p < 0.001, \eta_p^2 = .270$) and nonbudget shoppers ($F(1, 58) = 4.27; p < 0.05, \eta_p^2 = .069$).

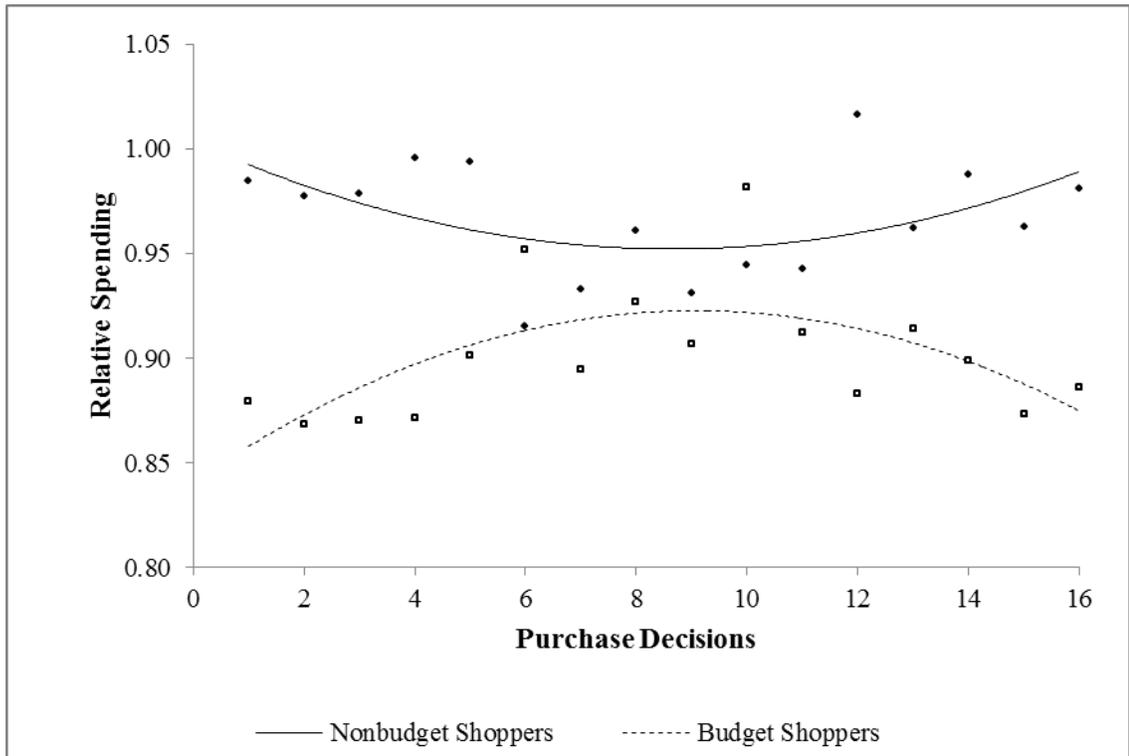


FIGURE 2.1:

STUDY 1: RELATIVE SPENDING OF BUDGET AND NONBUDGET SHOPPERS THROUGHOUT A SHOPPING TRIP

In order to validate and expand upon the results from the repeated measures analyses, the relative spending of budget and nonbudget shoppers were analyzed in separate regression analyses that included both linear (x) and quadratic terms (x^2) for each individual spending decision. Consistent with expectation, the results show that the quadratic pattern is convex for nonbudget shoppers ($\beta_{\text{PurchaseDecision}} = -.28, p < .05$; $\beta_{\text{PurchaseDecision}}^2 = .28, p < .05$), whereas it is concave for budget shoppers ($\beta_{\text{PurchaseDecision}} = .48, p < .01$; $\beta_{\text{PurchaseDecision}}^2 = -.46, p < .01$). For both budget and nonbudget shoppers, the quadratic model of their relative spending fit the data better than the linear model ($\Delta F_{\text{Nonbudget}}(1,941) = 9.77, p < .01$ and $\Delta F_{\text{Budget}}(1,849) = 4.08, p < .05$).

Discussion

The results of study 1 suggest that the relative spending of shoppers evolves nonlinearly over the course of a shopping trip. More specifically, the relative spending of nonbudget shoppers evolves in a concave manner, while their budget-constrained counterparts exhibit a convex pattern in relative spending. These results suggest that in-store spending behavior is dynamic and evolves throughout a shopping trip. This is consistent with suggestions made by recent research on dynamic in-store decision-making (Dhar et al. 2007; Gilbride et al. 2015; Vohs and Faber 2007). One possible caveat of study 1 is that I made the budget of the budget shoppers explicitly consequential. While this is consistent with past budgeting research (Thaler 1999), it may cast doubt on whether the pattern in relative spending pattern is driven by the budget as a reference point or by concerns about overspending.

Study 2:

The Consequences of Consequential Budgets

To offer stronger evidence for the use of budgets as a reference point, I replicated study 1, now comparing the relative spending patterns of budget shoppers with that of shoppers who were merely asked to assume that they typically spend about \$60 on a shopping trip like this. If my reference-point account holds, I should find that both shoppers exhibit a similar convex pattern in relative spending.

Design and Procedure

One hundred and nineteen undergraduates participated in computer-simulated grocery-shopping task in exchange for course credit. The design and procedure were identical to study 1. The only difference was that participants in the nonbudget condition were asked to imagine that they typically spent \$60 will shopping. The participants in the consequential budget condition were informed that their budget on this shopping trip was \$60 and that those who would spend more than their budget would have to solve several 3-digit math problems before they could leave (Thaler 1999).

Results

First, I find that the relative spending of those participants in the consequential budget condition was marginally less than those who only received a reference amount ($M_{\text{Budget}} = 0.94$ vs. $M_{\text{Reference}} = 0.97$; $F(1,117) = 2.87$; $p < 0.10$, $\eta_p^2 = .024$). Consistent with the results of study 1, a significant quadratic contrast in a repeated measured analysis demonstrates that the relative spending of all shoppers evolves quadratically ($F(1,117) = 52.86$; $p < 0.001$, $\eta_p^2 = .311$). As the central purpose of this study was to see

if the concavity of the budget shoppers' relative spending pattern was a result of the consequential nature of the manipulation, both patterns were compared. Although the patterns differ between both conditions ($F(1, 117) = 9.05, p < .01, \eta_p^2 = .072$), both the referenced and consequential budget condition exhibit the predicted concave pattern in relative spending, similar to the budget condition in study 1 (see figure 2.2). Specifically, regression analyses confirm that the patterns in spending are concave for both budget shoppers ($\beta_{\text{PurchaseDecision}} = .882, p < .001; \beta_{\text{PurchaseDecision}^2} = -.888, p < .001$) and shoppers who were only given a reference amount ($\beta_{\text{PurchaseDecision}} = .372, p < .01; \beta_{\text{PurchaseDecision}^2} = -.359, p < .01$). Stated differently, although budget shoppers exhibit a more concave pattern than those in the referenced condition, in support of the reference-point argument—I find that the patterns in relative spending are concave, irrespective of the consequentiality of the reference point.

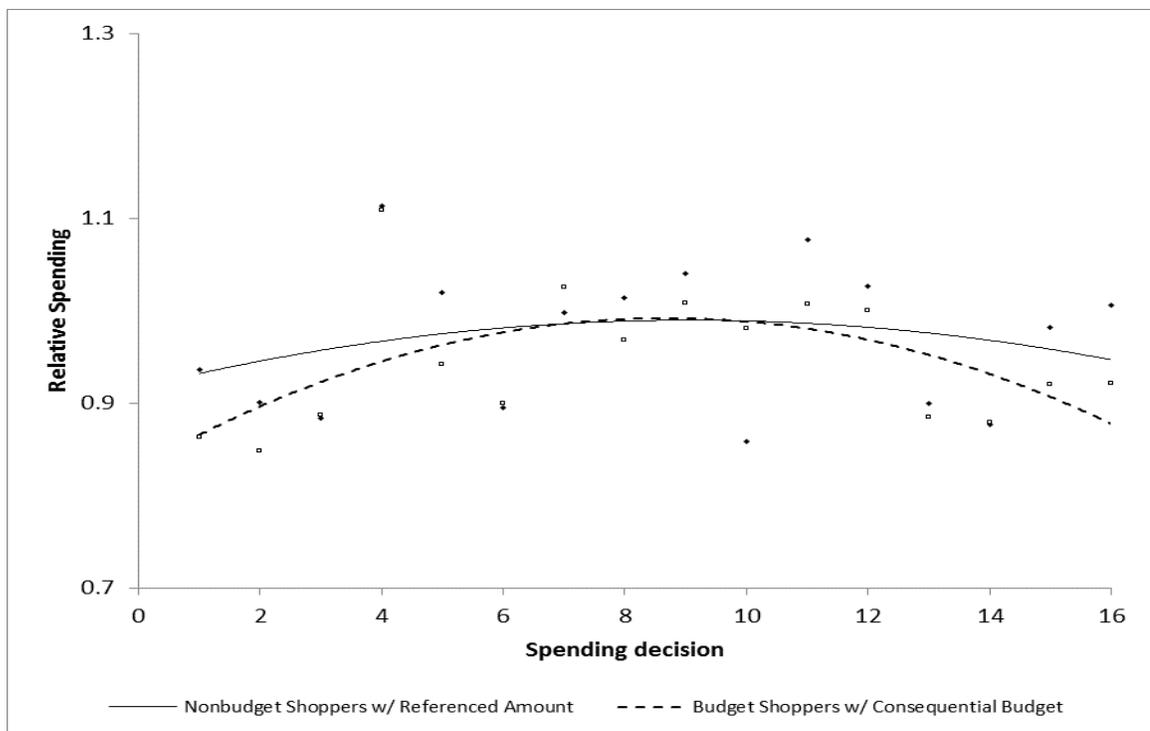


FIGURE 2.2:

STUDY 2: RELATIVE SPENDING OF THOSE WITH CONSEQUENTIAL AND REFERENCED BUDGETS THROUGHOUT A SHOPPING TRIP

Discussion

The results of study 2 are consistent with the notion that budget shoppers use their budget as a reference point. And although the consequentiality of a budget influences shoppers to adhere to their budget, it does not change the basic pattern in relative spending; it merely amplifies it. Next, I examine how shoppers' reference points influence the pattern of pain of paying experienced while shopping and offer empirical evidence for the mediating impact of pain of paying on relative spending decisions.

Study 3:

Patterns in Pain of Paying While Shopping

Study 3 is designed to offer empirical evidence for the proposed patterns in pain of paying for budget and nonbudget shoppers. Moreover, it allows for testing the mediating relationship of pain of paying on a shopper's pattern of relative spending.

Design and Procedure

To examine whether differences in reference points give rise to unique patterns in shoppers' pain of paying between budget and nonbudget shoppers, six hundred and fifty-eight participants from Amazon's Mechanical Turk ($M_{age}=30.6$; 53% female) completed a computer-simulated shopping task. The study utilized a two-by-six between-subjects design with budget (no budget vs budget) and the number of spending decisions (5, 10, 15, 20, 25, or 30) as experimental factors.

In order to control for number and type of products the participants were asked to purchase, each participant was presented with a shopping list (listed in Appendix A)

containing 30 product categories (e.g., “Wheat Bread (1 loaf)”). The order of the 30 purchase decisions was randomized to observe the influence of a shopper’s position within any sequence of spending decisions, rather than only a precise sequence of spending decisions. For each product category (one category at a time), participants were presented with four product alternatives of similar sizes. The prices of each alternative varied in accordance to their prices in a national grocery store. This allowed us to better simulate an actual shopping trip where a consumer has a variety of products and price levels to choose from. A picture of the product, the unit size, and the price were presented for each product option.

Participants in the budget condition were asked to “Imagine that your budget for this shopping trip is \$100.” If participants were to choose the lowest (highest) price option in each category, their total price for 30 products would be \$82.76 (\$135.29). Participants were further told that “it is important that you create a basket you can afford,” and “If the total price of your basket is more than \$100, you will have to finish a number of complex calculations before you will be able to continue.” The complex calculations involved a series of 4-digit math problems. Participants in the nonbudget condition were simply asked to shop for grocery products as they would if they were shopping for groceries in their local grocery store.

As the primary focus of study 3 was to examine how a shopper’s relative spending and experienced pain of paying evolve within a shopping, participants were randomly assigned 1 of 6 measurements points (after 5, 10, 15, 20, 25, or 30 purchases). At their specified measurement point, the participant’s shopping trip was interrupted and s/he was asked to answer a few quick questions (described below).

Measures

To measure pain of paying, I used an established and validated scale (Thomas et al. 2011). At their specified measurement point, participants were presented with the following question: “The amount of money consumers spend on their purchases can influence how consumers feel while spending money. How do you feel about your spending on this shopping trip?” Participants were asked to identify their current feeling on a nonverbal face, ranging from happy (☺) to sad (☹). The responses were coded on a 9-point scale.

To explore in more detail whether and to what extent budget shoppers experience positive emotions early in the shopping trip related to feeling a sense of wealth, I also asked all participants to “check as many of the words below that correspond to how you feel about the money you have spent” (Thomas et al. 2011). In addition to the seven negative feelings words that were used in past research (Irritated, Restricted, Annoyed, Powerless, Controlled, Suffocated, Inhibited), seven positive feeling words were included (Comforted, Calmed, Euphoric, Elevated, Freed, Pleased, Empowered; cf., Carver 2003; Edell and Burke 1987). This also makes the scale more consistent with the nonverbal face scale that ranged from happy (positive) to sad (negative). Participants were also given the option to select “None of the above”.

Results

Pain of Paying

As the numbers of spending decisions completed varied by the condition in which participants were randomly assigned, the results were analyzed using regression analyses. Consistent with expectations, the results of regression analyses confirm a positive relationship between a shopper's progression through the shopping trip and their pain of paying ($\beta_{\text{Purchases}} = .03$; $p < .001$). More importantly, a marginally significant quadratic interaction between a shoppers' budgetary condition and the number of spending decisions ($\beta_{\text{Budget}_x\text{Purchases}^2} = -.003$; $p = .07$) suggests that this relationship is dependent on the participant's budget condition (see figure 2.3). While pain of paying accumulates linearly for nonbudget shoppers ($\beta_{\text{Purchases}} = .04$, $p < .001$), a significant nonlinear relationship is found for budget shoppers ($\beta_{\text{Purchases}^2} = .002$, $p = .05$). As expected, the pain of paying experienced by budget shoppers remains limited early in shopping trip before increasing later in the shopping trip. A similar pattern is found for the number of negative feelings reported by the participants.

Recall that I proposed that the slower increase in pain of paying among budget shoppers can be explained by Heath and Soll's (1996) suggestion that budget shoppers have the rare ability to feel both poverty and wealth simultaneously. A closer examination of the number of positive feelings selected offers empirical support for this theoretical account. That is, I find a marginally significant interaction between a participant's budget condition and their progression through a shopping trip on the number of positive feeling reported ($\beta_{\text{Budget}_x\text{Purchases}} = .03$; $p = .08$). A follow up analysis suggests that this interaction is driven by the significantly larger number of positive emotions reported by budget shoppers early in the shopping trip, relative to nonbudget shoppers ($M_{\text{Budget}} = 1.81$ vs. $M_{\text{Nonbudget}} = 1.4$; $F(1,326) = 5.53$, $p < .05$, $\eta_p^2 = .017$). There is

no difference later in the shopping trip ($M_{Budget} = 1.51$ vs. $M_{Nonbudget} = 1.39$; $F(1,330) = 4.57, p = .49, \eta_p^2 = .001$).

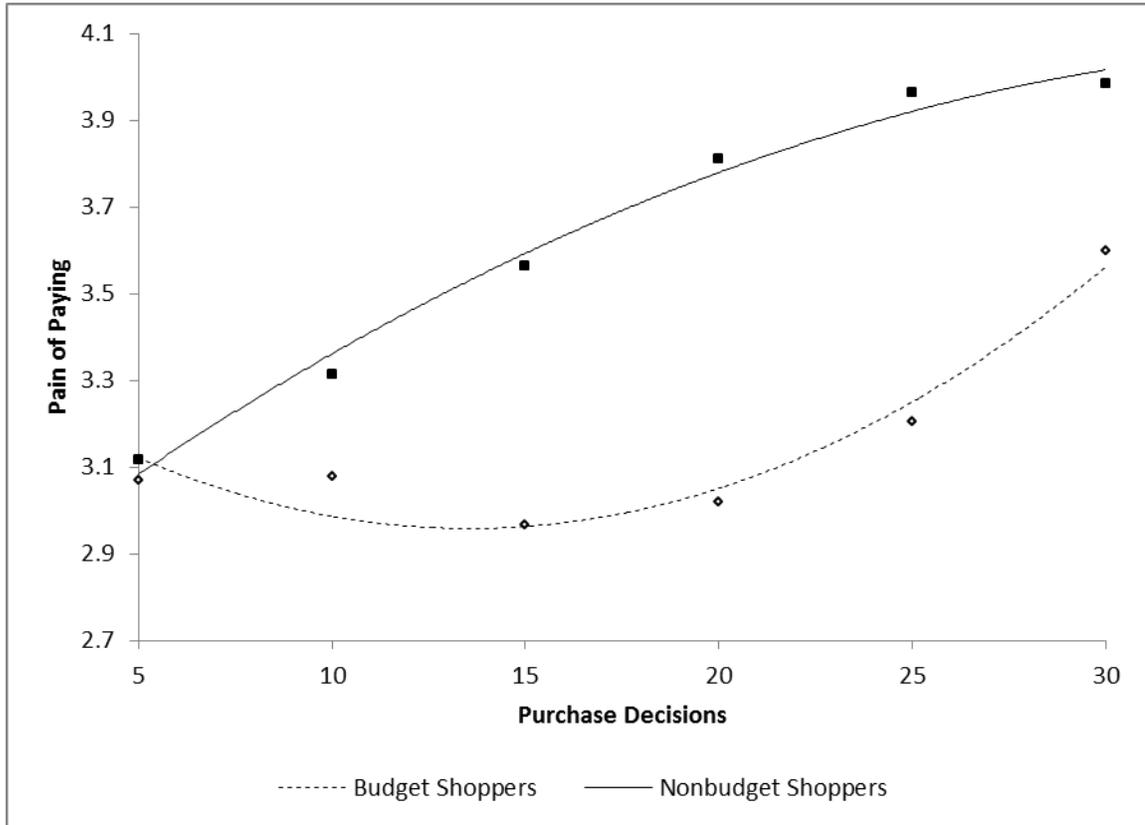


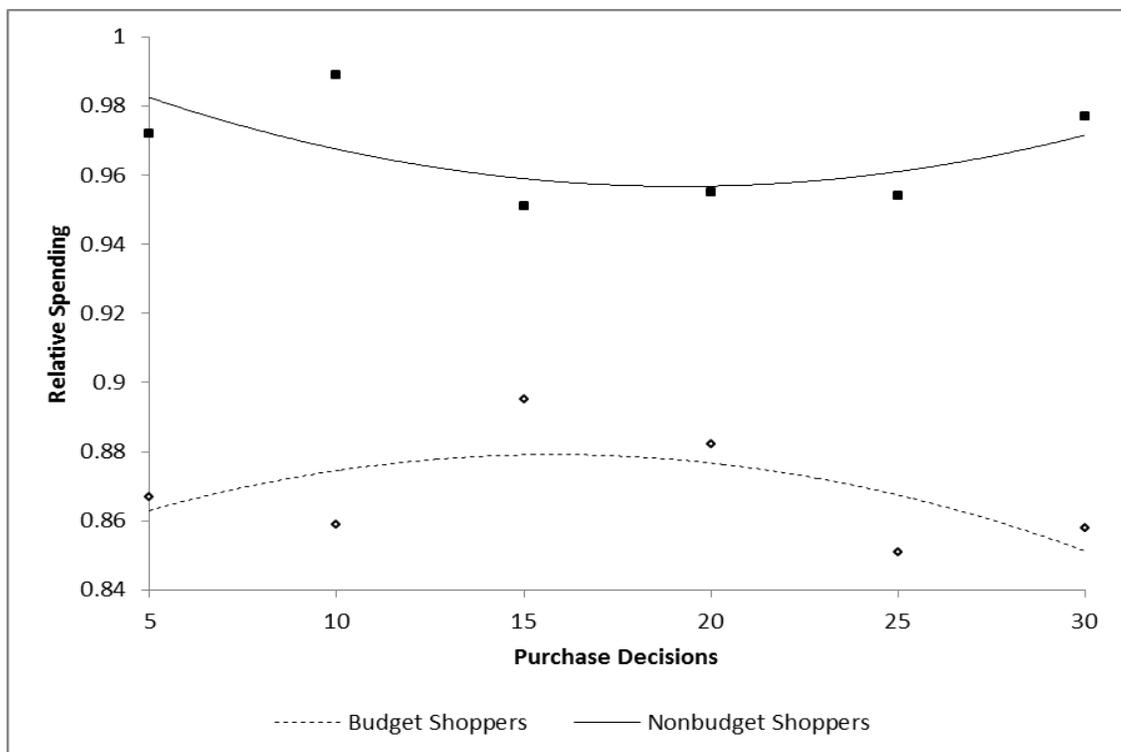
FIGURE 2.3:

STUDY 2: PAIN OF PAYING THROUGHOUT A SHOPPING TRIP

Spending and Pain's Mediation of Spending

To examine whether pain of paying mediates the relationship between the number of spending decisions made throughout a shopping trip and shoppers' relative spending, nonlinear mediation analyses (Hayes & Preacher 2010) were conducted. First, consistent with studies 1-3, each decision's relative spending was calculated by dividing the price of the selected product by the mean price of all the products from the product category in the choice set. Second, as shopper's pain of paying was measured after either 5, 10, 15,

20, 25, and 30 spending decisions (based on their randomly assigned condition), their relative spending was averaged across their five spending decisions immediately prior to their assigned measurement point to obtain a more consistent measure of their relative spending. The conclusions of my analyses remain unchanged when using the average relative spending of the last three or four spending decisions. The patterns in relative spending for budget and nonbudget shoppers are consistent with the results of study 1a and 1b (figure 2.4). A significant quadratic interaction between participants' budget condition and the number of spending decisions made suggests that the relative spending evolves differently for budget and nonbudget shoppers ($\beta_{\text{Budget}_x\text{Purchases}^2}=0.23; p < .10$).³



³ An examination of the relative spending of the individual spending decisions (not averaged) reveals a stronger quadratic interaction ($\beta_{\text{Budget}_x\text{Purchases}^2}=0.65; p < .01$), with significant quadratic term for nonbudget shoppers ($\beta_{\text{Purchases}^2}=0.21; p < .05$) and a marginally significant quadratic terms for budget shoppers ($\beta_{\text{Purchases}^2}=0.18; p < .10$) in separate regression models including both linear and quadratic terms.

FIGURE 2.4:
**STUDY 2: RELATIVE SPENDING OF BUDGET AND NONBUDGET SHOPPERS
THROUGHOUT A SHOPPING TRIP**

Consistent with expectations, a nonlinear bootstrapping procedure (Hayes and Preacher 2010) revealed that the relationship between the number of purchases by nonbudget shoppers and their relative spending is mediated by pain of paying experienced while shopping. For nonbudget shoppers, their relative spending decreases as their pain of paying increases ($\beta_{\text{Pain}} = -.012, p < .01$). The indirect effect of nonbudget shoppers' ratings on the nonverbal face scale on their relative spending was significant: mean bootstrap estimate = 17.89 ($se = -0.0005$), 95% confidence interval = -0.001024/-0.00011 (5000 draws).

Similarly, the relative spending of budget shoppers decreases as their pain of paying increases ($\beta_{\text{Pain}} = -.007, p = .10$), yet their pain does not increase until later in their shopping trip. The nonlinear bootstrapping analysis confirmed that pain of paying mediated the relationship between the number of spending decisions and the relative spending of budget shoppers: mean bootstrap estimate = 17.22 ($se = -.0001$), 90% confidence interval = -.000382/-0.000001 (5000 draws). Consistent with these findings, an analysis of the number of positive emotions selected confirms that budget shoppers spend less as they report less positive emotions ($\beta_{\text{PositiveFeelings}} = .006, p < .10$). Additionally, the number of these positive emotions experienced mediates the relationship between the number of spending decisions and budget shoppers' relative spending: mean bootstrap estimate = 17.22 ($se = .0003$), 90% confidence interval = -.000340 / -.000003 (5000 draws). The number of positive feelings does not mediate a nonbudget shopper's spending: mean bootstrap estimate = 17.89 ($se = .0002$), 90% confidence interval = -.0000231 / .000214 (5000 draws).

Discussion

Consistent with expectations, the results demonstrate that pain of paying increases throughout a shopping trip. Furthermore, the pattern in which pain of paying evolves differs between budget and nonbudget shoppers. Specifically, for nonbudget shoppers, pain accumulates throughout the shopping trip for budget shoppers, starting as soon as they begin their shopping trip. Pain of paying for budget shoppers, on the contrary, evolves in a convex pattern, as the pain of paying remains relatively low earlier in the shopping trip, but accumulates more sharply later in the shopping trip. These findings are consistent with the notion that nonbudget shoppers evaluate their spending against “not spending”, while budget shoppers evaluate their spending against their budget. Moreover, the results suggest that the relatively low pain of paying experienced by budget shoppers earlier in the shopping trip may be the result of the positive emotions stemming from an experienced sense of wealth, when most of their budget is still available (Heath and Soll 1996).

Next, in studies 4 and 5, I examine the robustness of my findings in two field experiments. Pain of paying will be manipulating in these studies, instead of interrupting shopping for measurements. Study 4 examines the relative spending patterns for budget and nonbudget shoppers in a mock online grocery store, while study 5 was conducted in a brick-and-mortar grocery store.

Study 4:

Manipulation of Process in an Online Grocery Store

One-hundred and eighty-four participants ($M_{\text{age}}=41.4$; 55% female) from a professional panel of adult American consumers who are responsible for most of their household grocery purchases participated in study 4. As a way to provide additional support for my theoretical framework, I sought to manipulate shopper's pain of paying to see if the basic patterns in relative spending can be shifted. I accomplished this by randomly offering half the study participants real-time spending feedback—real-time information about the total price of their shopping basket as they shop. As discussed next, real-time spending feedback is expected to amplify the pain of paying experienced by both budget and nonbudget shoppers, which subsequently shifts the patterns in relative spending in opposing directions (Rick et al 2008, Van Ittersum et al. 2013).

Nonbudget Shoppers

Real-time spending feedback increases the salience of how much they are spending (Van Ittersum et al. 2013), which, for nonbudget shoppers, will increase the pain of paying they experience while shopping (Rick et al. 2008). This elevated pain of paying is expected to result in a downward shift in the relative spending among nonbudget shoppers early in the shopping trip. As the shopping trip continues, the incremental pain diminishes and their relative spending will increase again. In sum, I expect that real-time spending feedback will shift the convex pattern in relative spending of nonbudget shoppers downward.

Budget Shoppers

For budget shoppers, real-time spending feedback is also expected to shift their relative spending behavior. First, real-time spending feedback is expected to amplify their

sense of wealth early in the shopping trip by increasing the salience of how much budget shoppers have left to spend. This increased sense of wealth is expected to boost the relative spending early in the shopping trip beyond the relative spending of budget shoppers who do not receive real-time spending feedback. However, as the shopping trip progresses, their pain of paying experienced by budget shoppers increases and their relative spending will reduce. In sum, real-time spending feedback is expected to shift the concave spending pattern exhibited by budget shoppers upward.

Design and Procedure

Study 4 consisted of a two-factor between-subject design where participants were asked to participate in an online grocery store shopping study. Participants were randomly assigned to both a budgetary condition (no budget vs. a \$35 budget) and real-time spending feedback condition (with vs. without).

In the beginning of the study, participants were presented with a shopping list (listed in Appendix A) consisting of 15 products categories and sizes (i.e. Bread, 1 loaf) and told that they can shop for the products in any order they would like. There were as many as fifteen different product options (e.g., blueberry bagels, plain bagels) for each product category, at up to eight different price levels. Each product option in the store listed a product's name, product category, price, unit size, and picture of the product. Overall, the online grocery store contained 3000 products in 18 main product categories (i.e., canned foods) and 168 subcategories (i.e., canned vegetables). Products could be found by either using the menu system on the left side of the page, or by searching for a specific product. The contents of participants' shopping baskets were constantly

displayed on right side of the screen. Participants in the real-time spending condition also saw the prices of the products placed in their shopping basket as well as the total price of their entire shopping baskets.

Participants assigned to the budget condition were asked to imagine that they were shopping with a \$35 budget. To incentivize participants to shop and make purchases as they typically would (Ding 2007; Ding, Grewal, and Liechty 2005), all participants were told that they could win a \$75 prize package consisting of their selected groceries and cash. Participants without a budget were told that their prize would consist of both the groceries they selected and cash. For example, if a participant spent \$40 on their selected groceries, they would receive their groceries and the remainder (\$35) in cash. Budget shoppers, on the contrary, were told that if they exceeded their \$35 budget they would receive the remaining cash but not the groceries.

Before entering the online store, participants were told that they were being asked to shop for groceries in an experimental online grocery store. They were informed that this online store would contain brands and products typically found in their grocery store, and asked to shop as they normally would in a weekly grocery-shopping trip. Participants then viewed a video clip that instructed them how to enter and shop for items in the store, how to view and use their shopping basket associated with their spending feedback condition, and how to check out and complete their shopping trip.

Measures

For all participants, both the order of their choices and each specific spending decision were recorded. For each product category, responses were rescaled into their

relative spending—the price of a selected item, relative to the mean price of the product-category alternatives available in the online store.

Results

Once again, shopping with a budget is shown to be effective in regulating a participant's relative spending in each decision ($M_{Budget} = .99$ vs. $M_{Nonbudget} = 1.07$; $F(1,180) = 8.49$; $p < .01$, $\eta_p^2 = .045$). 14 of 91 participants budget participants exceeded their budget, however the majority of those were within \$1; all were within 3 SDs of the average budget deviation ($M_{BudgetDeviation} = \$-3.09$) and thus remained in the analyses.

Consistent with the first three studies, the results of a repeated measures analysis revealed a significant quadratic interaction that suggests that the precise evolution of a shopper's relative spending throughout a shopping trip is dependent on whether they are shopping with a budget ($F(1,180) = 15.05$, $p < .01$, $\eta_p^2 = .077$). Separate repeated measures analyses of the spending of each budget condition revealed the significant quadratic contrast for both budget ($F(1,90) = 7.52$, $p < .01$, $\eta_p^2 = .079$) and nonbudget shoppers ($F(1,92) = 7.99$, $p < .01$, $\eta_p^2 = .081$). Furthermore, a regression analysis including both linear and quadratic terms for the sequence of shoppers' spending decisions on their relative spending demonstrate that spending evolve concavely for budget shoppers ($\beta_{PurchasePosition} = .28$, $p = .01$; $\beta_{PurchasePosition}^2 = -.32$, $p < .01$) and convexly for nonbudget shoppers ($\beta_{PurchasePosition} = -.42$, $p < .001$; $\beta_{PurchasePosition}^2 = .39$, $p = .001$).

Additionally, there was a significant interaction between receiving real-time feedback and shopping with a budget on a shoppers relative spending ($F(1,180) = 7.11$, $p < .01$, $\eta_p^2 = .041$). This suggests that the effect of real-time spending feedback on

shoppers' relative spending depends on whether participants shopped on a budget. The results of independent repeated measures analyses of the relative spending of budget and non-budget shoppers reveal the predicted influence of real-time spending feedback and predicted patterns in relative spending (figure 2.5). For nonbudget shoppers, real-time spending feedback has a marginally significant negative impact on their pattern in relative spending throughout a shopping trip ($F(1,91) = 2.89, p < .10, \eta_p^2 = .030$). Specifically, the convex relationship between a non-budget shopper's progression through their shopping trip and their relative spending shifts downward, resulting in lower relative spending for non-budget shoppers with real-time spending feedback. Real-time spending feedback has the opposite influence on the pattern in relative spending for budget shoppers; spending feedback has a significantly positive influence on a budget shopper's pattern in relative spending ($F(1,89) = 5.21, p < .05, \eta_p^2 = .055$).

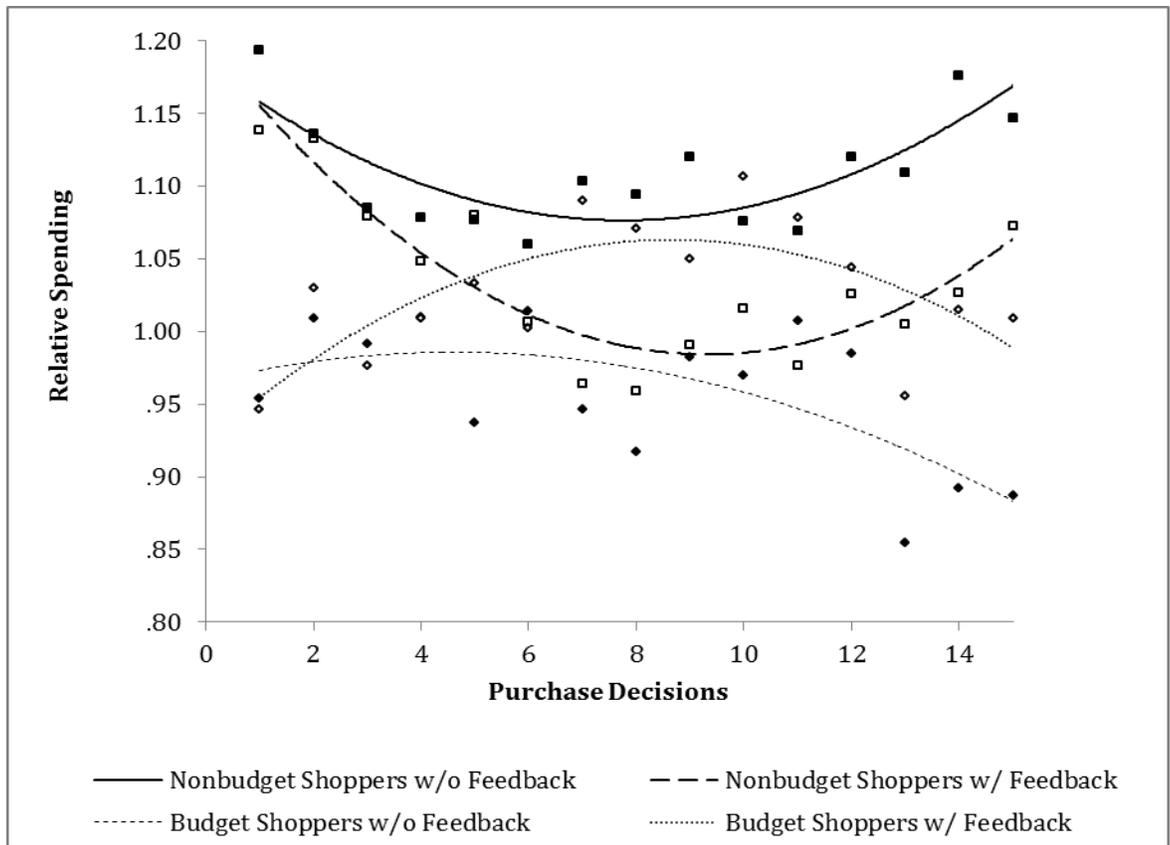


FIGURE 2.5:

STUDY 4: RELATIVE SPENDING OF BUDGET AND NONBUDGET SHOPPERS THROUGHOUT AN ONLINE SHOPPING TRIP

Discussion

The results of study 4 provide support for my theoretical framework by demonstrating that the patterns in relative spending shift in a predictable manner when manipulating the proposed driver—pain of paying—of these spending patterns. The results provide a more nuanced understanding of how consumer spending evolves within a shopping trip.

While demonstrating the variable influence of real-time spending feedback, the findings from study 4 build on the evidence offered in the first three studies. Consistent with the results of earlier studies, shoppers without a budget reduce their relative spending early in the shopping trip. This pattern supports literature that suggests a

(nonbudget) shopper's pain of paying can be influenced by exposure to information about their spending (Rick et al. 2008). On the other hand, budget shoppers seem to positively react to receiving real-time spending feedback by increasing their relative spending early in the shopping trip. This suggests that budget shoppers may experience a stronger sense of wealth when they know exactly how much they have left to spend. I will elaborate on the possible implications of these findings in the General Discussion. Finally, to test the robustness of my findings, I next replicated the basic study design of study 4 in a brick-and-mortar store.

Study 5:

Field Study in a Brick-And-Mortar Grocery Store

Study 5 consisted of 198 real shoppers ($M_{age} = 52.0$, 62.4% Female) that were intercepted as they were entering a grocery store in the southeastern US. Participants received \$10 in compensation for participation in the study, as well as the chance to win the products they purchased in the store.

Design and Procedure

Study 5 consisted of a 2-factor between-subjects field experiment, in which subjects were assigned to a budget (self-reported by the shoppers) or nonbudget condition, as well as a feedback condition where shoppers either received or did not receive real-time spending feedback while shopping (provided through a specialized shopping cart). Upon entering the store, shoppers were approached by a trained interviewer and asked how many items they intended to purchase during this shopping trip. Shoppers who were shopping for more than ten products were invited to be a part of

the study. Given the nature of my research question, I decided to categorize the purchase of multiple items of the exact same product (e.g., four containers of milk) as one spending decision (e.g., purchase of milk). This should provide more powerful examination of shopper's relative spending patterns, as purchase decisions for multiple products tend to occur at the same time (Simonson 1990). With this criterion in mind, I eliminated thirty-seven participants from the analyses for not purchasing 10 unique items. The final participant pool consisted of spending decision 161 participants who were included in the analyses.

Before participants were provided with the study details, they were asked whether there was a maximum amount of money they intended to spend on that shopping trip (i.e., budget) and, if so, how much that amount was (Stilley, Inman, and Wakefield 2010a). Participants who responded that they did not have a maximum amount they intended to spend were not asked to estimate their spending, to avoid creating a reference point (as in Study 2).

Next, half of the participants were randomly assigned to receive real-time spending feedback, by using a modified shopping cart that presented shoppers with concurrent feedback of their total basket spending as they proceeding through their shopping trip. These carts were equipped with iPads that allowed them to enter the price of the products they chose to purchase, and see a tally of their total basket amount. The other participants utilized a traditional shopping cart and received no spending feedback. After participants received additional instructions (which will be discussed next), all participants were asked proceed with their regular shopping trip, pay for their items at the checkout, and then return to the interviewer as they were exiting the store.

To incentive-align the participants, they were given a chance to win a prize package consisting of the items purchased and cash (totaling \$150). The precise amount of cash they would receive depended on their study condition as well as the total price of the items in their cart. Nonbudget shoppers would receive their groceries, and the remainder in cash (up to \$150 total). Shoppers who spent more than \$150 would receive \$150 in groceries and no cash. Budget shoppers were told that their prize package would depend on whether they stay within their self-reported budget in order to ensure that their budgets were consequential (Bliss 1980). If they stayed within their budget, they would receive \$150 in groceries and cash (similar to the nonbudget shoppers). However, if they spent more than their budget, they would only be able to receive $(\$150 - \text{total price of basket})$ in cash. Making participants subject to consequences when they exceed their budget is consistent with theory that states that for budgeting to be an effective self-control strategy, budgets must be consequential (Thaler 1999). Furthermore, because the degree to which a budget is consequential is difficult to self-assess, I decided to make it relatively consequential for all budget shoppers.

Measures

After participants finished their shopping trip and paid for their groceries, their final receipt was copied, and they were asked to detail their shopping route on a map of the store. Based on the shopping route, the product purchases were ordered into the sequence they were made. To determine their relative spending in each selection, the purchases were compared to the purchases of the other participants to determine a mean for each category and each participant's relative spending for each spending decision.

In order to account for differences in the number of products purchased and be able to compare the relative spending patterns across shoppers, the purchases were categorized into 10 percentiles for the entire trip. Spending decisions in which a decision's relative spending was more than 3 standard deviations away from its percentile's mean were removed from the analysis (1.68% of the spending decisions). This controls the influence of outliers and provides a better investigation of how spending changes based on when the purchase was made in the shopping trip.

Results

As the budget shoppers had different budgets, their budget deviations were analyzed to see if their budget was an effective regulatory device. Consistent with the results of the previous studies, the relative spending of budget shoppers was less than the nonbudget shoppers ($M_{\text{Budget}} = .94$ vs. $M_{\text{Nonbudget}} = 1.03$; $F(1, 2985) = 23.42$; $p < 0.001$; $\eta_p^2 = .008$). Fifteen budget shoppers exceeded their budget, yet all budget shoppers were included in the analyses as their budget deviations all within 2 SD of the average deviation ($M_{\text{BudgetDeviation}} = \-5.07). In fact, a majority of those who exceeded their budget were within \$1 of their reported budget.

More importantly, and consistent with the results of my previous studies, relative spending appears to evolve nonlinearly and uniquely for budget and nonbudget shoppers as they progressed through the shopping trip (figure 2.6). In a regression model that included terms for the participant's budget condition, linear and quadratic effects, as well as the linear and quadratic interactions, the term for the quadratic interaction was significant ($\beta_{\text{Budget*PurchasePosition}^2} = -.93$, $p < .01$). The quadratic interaction was significant for shoppers who either received ($\beta_{\text{Budget*PurchasePosition}^2} = -1.11$, $p < .01$) and marginally

significant for those that did not receive spending feedback ($\beta_{Budget*PurchasePosition}^2 = -.70, p < .10$). In separate models examining the relative spending of budget and nonbudget shoppers including linear and quadratic terms, significant quadratic terms for budget shoppers indicate that their spending evolves concavely ($\beta_{PurchasePosition}^2 = -.26, p < .05$) whereas the significant quadratic term for nonbudget shoppers demonstrates that their spending evolves convexly ($\beta_{PurchasePosition}^2 = .31, p < .01$).

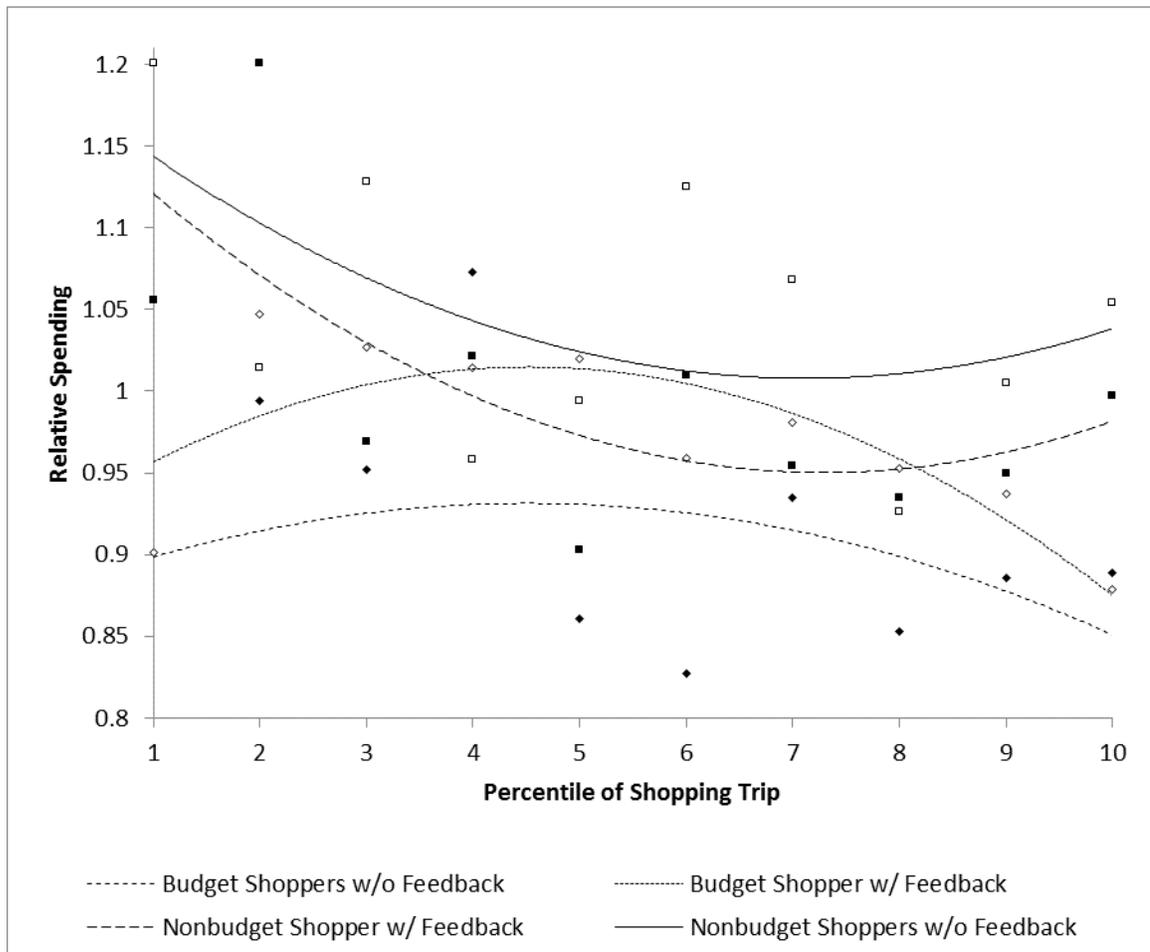


FIGURE 2.6:

STUDY 5: RELATIVE SPENDING OF BUDGET AND NONBUDGET SHOPPERS THROUGHOUT A SHOPPING TRIP IN A BRICK-AND-MORTAR STORE

In order to provide additional support for my theoretical framework, the influence of real-time spending feedback influences a shopper's relative spending was analyzed with a regression model. Consistent with my theoretical framework, and the results of study 4, there is a significant interaction between a shoppers budget condition and whether they received spending feedback ($\beta_{\text{Budget*SpendingFeedback}} = .243, p < .001$) when including terms for each factor and their interaction. This is consistent with the notion that real-time spending feedback amplifies the pain of paying experienced by budget and nonbudget shoppers. Specifically, budget shoppers who know how much they are spending seem to spend more ($\beta_{\text{SpendingFeedback}} = .07, p = .01$), whereas feedback had a marginally significant negative impact on the relative spending of nonbudget shoppers ($\beta_{\text{SpendingFeedback}} = -.05, p < .10$).

Discussion

Study 5 examines the robustness of the predicted spending dynamics and provides further support for the mechanism behind these spending dynamics while examining the spending of real consumers making actual spending decisions in a brick-and-mortar grocery store. The results of this field study corroborate the results of earlier studies that demonstrate spending evolves in a convex manner for nonbudget shoppers while spending evolves in a concave manner for budget shoppers. For nonbudget shoppers, receiving feedback of one's own spending appears to amplify the pain experienced while shopping, which subsequently shifts their spending further down. The opposite occurs for budget shoppers. Real-time spending feedback seems to amplify the sense of wealth budget shoppers experience early in the shopping trip, resulting in an increase in relative spending. However, as their shopping trip progresses and their spending room reduces,

the pain of paying they experience increases, which stimulates them to reduce their relative spending.

General Discussion

The results of three lab experiments, a field study in an online grocery store, and a field study in a brick-and-mortar grocery store demonstrate how and why shoppers' relative spending evolves throughout a single major shopping trip for budget and nonbudget shoppers. To the best of my knowledge, this is the first research to examine how a shopper's relative spending evolves over the course of a major shopping trip, and how this progression is unique for shoppers with and without a budget. Specifically, I propose and demonstrate that nonbudget shoppers decrease their relative spending early in the shopping trip in response to the pain of paying they experience (Prelec and Loewenstein 1998). As they approach the end of the shopping trip, however, their relative spending increases as the marginal pain of paying diminishes as they get farther away from the reference point. Budget shoppers, on the other hand, experience little pain and even a sense of wealth early in the shopping trip that entices them to increase their relative spending early in the shopping trip. Yet, this sense of wealth gives way to pain of paying as their spending approaches their budgeted amount, which drives them to reduce their relative spending.

These results contribute to pain of paying (Prelec and Loewenstein 1998), budgeting (Heath and Soll 1996, Thaler 1980, 1985), and in-store decision making literatures (Hui, Bradlow, and Fader 2009; Hui et al. 2013; Stilley et al. 2010a, 2010b) by providing evidence of their unique dynamics within a single shopping trip for budget and nonbudget shoppers. Furthermore, this research provides an enhanced understanding of

how shoppers' relative spending evolves throughout a major shopping trip according to each group's unique reference point, as well as how these patterns in relative spending are amplified by receiving real-time spending feedback. I elaborate below.

Theoretical Contributions

The foremost objective of this research is to demonstrate how shoppers' spending behavior evolves throughout a single major shopping trip. My research contributes to literature on in-store decision-making (Dhar, Huber, and Khan 2007; Khan and Dhar 2006; Stilley, Inman, and Wakefield 2010a; 2010b; Hui et al. 2009; Hui et al. 2013) by demonstrating the unique relative spending patterns of budget and nonbudget shoppers, while enhancing the theoretical understanding of the drivers of these patterns.

In-Store Decision-Making

Research on in-store decision-making has recently begun to address the dynamic connections between individual spending decisions within a shopping trip (Dhar et al. 2007; Khan and Dhar 2006). The predominant focus of that research is to examine how prior decisions influence the instance (Dhar et al. 2007; Vohs and Faber 2007) or type of additional purchases (Khan and Dhar 2006; Stilley, Inman, and Wakefield 2010b; Stilley et al. 2010a). My findings contribute to this area by demonstrating how these additional purchases may vary on price, given how many spending decisions are made within a shopping trip.

Furthermore, I examine this dynamic relationship in the context of shoppers with and without a budget. Differentiating between budget and nonbudget shoppers allows for a more enhanced understanding of a shopper's proclivity to spend in each decision within

a shopping trip as each are focused on a different spending amount. It is interesting to note that if I would have aggregated the relative spending of budget and nonbudget shoppers, the nonlinear relative spending patterns would have been obscured. This further supports the need to differentiate between budget and nonbudget shoppers when examining in-store decision-making.

Finally, the results of study 4 and 5 expand recent research on the influence of real-time spending feedback (Van Ittersum et al. 2013), and illustrate how receiving spending feedback dynamically influences a shopper's relative spending. Interestingly, the patterns in relative spending appear to stay consistent for consumers shopping with and those shopping without real-time spending feedback; yet the magnitude changes in response to accurate real-time spending information.

Pain of Paying

Past research on pain of paying has only speculated about the evolution of pain of paying, implicitly assuming a linear relationship between spending and pain of paying. In fact, research often uses the number of products in a shopper's cart as a proxy for pain of paying (Bell and Lattin 1998; Thomas et al. 2011). My findings enrich this understanding of a shopper's pain of paying in a few ways. First, the results for study 3 suggest that the precise evolution of pain differs for budget and nonbudget shoppers according to the distinct reference points each group focuses on while shopping. Specifically, by building on past budgeting literature (Heath and Soll 1996), the results of study 2 and 3 show the budgets provide a reference points (study 3) that may actually lead budget shoppers to experience a sense of wealth early in the shopping trip before experiencing pain of paying as they near the end of the shopping trip.

I also contribute to pain of paying literature by demonstrating that real-time spending feedback amplifies how shoppers feel about the money they are spending while shopping (Rick et al. 2008; Van Ittersum et al. 2013). Specifically, the results demonstrate that real-time spending feedback temporarily influences budget (nonbudget) shoppers to increase (decrease) their spending as it the salience of how much they have left to spend (has spent). This presents a far more nuanced account of how concurrent feedback of one's spending can lead consumers to increase or decrease their spending.

Limitations and Further Research

The results of five studies demonstrate unique patterns in relative spending for budget shoppers and nonbudget shoppers. Three of the five studies consisted of laboratory experiments, where participants made choices within a controlled simulated shopping trip. The fourth study allowed participants to make spending decisions in an online experimental grocery store that offered 3000 products in 18 main product categories and 168 subcategories. Study 5 provided additional external validity, by demonstrating these patterns for real consumers (and self-imposed budgets), making real spending decision, with their own money.

The findings presented by this research offer numerous opportunities for future research relevant to in-store decision-making, pain of paying, and budgeting. First, research is needed to understand how the dynamic relationships between two consecutive purchases (e.g., licensing) may vary based when they occur within a longer string decisions. For example, these relationships may change based on when they occur (e.g. early vs. late) in a shopping trip. Furthermore, as most decisions are not made in complete isolation, research should examine if these decisions need to be directly connected (i.e., consecutive), or if these

effects systematically vary based on the number and type of intervening decisions. Second, as my findings suggest that consumers may be more or less sensitive to price at different points in their shopping trip, research is needed to examine how consumers respond to different external stimuli, such as promotions, when encountered at different points in a shopping trip. The distinct ways in which shoppers evaluate their spending and accumulate pain of paying throughout a shopping trip offer additional opportunities for future research. Although I did not find statistical evidence to support that a shopper's pain of paying accumulates at a diminishing rate, additional research warranted to see how shoppers incorporate this pain into their spending decisions. Shoppers may be influenced by the marginal increase in pain of paying rather than an accumulated amount. Thus, pain of paying may influence spending to a greater degree when it increases rapidly, whereas small increases in pain may influence spending to a lesser degree.

The novel effects of real-time spending feedback presented in study 4 also present additional opportunities for research into the consequences of real-time spending feedback on in-store decision-making. Past research supports my finding that spending feedback should both magnify a consumer's psychological reaction to spending (Rick et al. 2008), with subsequent corresponding effects on spending (Van Ittersum et al. 2013). Yet, research is needed to determine how, and to what extent, consumers integrate this spending feedback into their decisions over the course of a single shopping trip, as well as subsequent shopping trips. For instance, as this feedback magnifies a nonbudget shoppers pain of paying, research should examine whether shoppers attempt and succeed at avoiding this information, mitigating its influence on spending.

Additional research could examine consumer decisions in other domains in which consumers make multiple decisions within the same experience or budget. For example, future research is needed to determine if and how other types of resources that are also often budgeted, such as time, calories, and energy, may be subject to similar types of consumption dynamics. For example, would eaters with (i.e. dieters) and without calorie budgets choose to eat different items throughout the day. Perhaps dieters eating more calories at lunch than breakfast or dinner, and visa versa for nondieters. Furthermore, as calorie and activity trackers are becoming increasingly more common, research is need to see if that form of real-time feedback influences food and exercise decisions similarly to the spending decisions discussed in this article.

Conclusion

The in-store spending dynamics presented, tested, and supported in this essay provide a more in-depth understanding of a consumer's in-store spending behavior. These insights contribute to in-store spending, budgeting, and pain of paying literatures, while also offering numerous insights to retailers and marketing practitioners on how to better organize their marketing programs and communicate with consumers in the store. Furthermore, although my theoretical framework and results are directly focused on the in-store spending decisions of budget and nonbudget shoppers, these findings likely apply to many situations where consumers are making decisions about how to manage and consume resources in an experience consisting of numerous sequential choices.

CHAPTER 3

TEMPORAL PRICE PROMOTIONS

Customer-facing technology is quickly changing the landscape of the traditional “brick-and-mortar” retail experience, offering opportunities for both retailers and consumers. For instance, these technologies allow retailers to track and actively engage their customers with promotional offers in the store, based on their location or the contents of their shopping basket (Clifford & Hardy 2013). This technology means that, rather than pragmatically offering promotions alongside their products, retailers can now separate the moment shoppers encounter a promotion from the moment shoppers encounter the promoted product. Given that research has shown that category-level promotions can lengthen a consumer’s shopping trip and lead to unplanned purchases (Hui, Inman, Hung, & Shuer 2013), research is needed to examine whether and how brand-specific temporal promotions — promotions presented to in the store, but before the customer actually reaches the promoted product — influence a consumer’s response to the promotion.

While research on the drivers of promotional redemption is abundant (Blattberg & Neslin 1990; Mela, Gupta, & Lehmann 1997), the influence of the timing of a promotional offer relative to the moment shoppers encounter the promoted product on its subsequent redemption remains unclear. Although research has suggested that the amount of time that has elapsed since encountering a promotion is critical in determining a consumer's promotional response (Raghubir & Corfman 1999), past studies generally control for the influence of timing, rather than explicitly manipulating and investigating

it. However, as recent technological advances now allow retailers to intercept consumers at any time during their shopping trip, research is needed to examine and understand how the time, or temporal distance, between encountering a promotion and subsequently arriving at the purchase decision for the promoted product alters a consumer's response to the promotion. For example, instead of traditionally encountering a promotion at the same time as the purchase decision (henceforth referred to as shelf promotions), shoppers can now be offered a promotion earlier in the shopping trip, before arriving at the ultimate purchase decision for the promoted product. This allows more time for the promotion to influence the consumer and motivate a shopper's behavior.

This research builds upon temporal framing (Chandran & Menon 2004) and attitude accessibility literature (Fitzsimons & Morwitz 2004) to propose that promotions may be more effective and persuasive if they are offered temporally in advance of the purchase decision for the promoted product. Specifically, I propose that encountering the promotion before the purchase decision essentially divides the redemption decision into two separate temporal frames: (1) a frame in which shoppers initially evaluate the promotion and the promoted product and (2) another frame in which shoppers evaluate all of the information and alternatives available in a product category and make their ultimate purchase decision. This means that the evaluations shoppers make when they are upon the ultimate purchase decision for the promoted product are influenced by their previous evaluations.

This research makes three important contributions. First, this is the first research to demonstrate that promotions encountered before the actual purchase decision may be more effective than those encountered with the purchase decisions. Second, I show that

temporal promotions bias the manner in which consumers make their ultimate purchase decisions, by altering the amount and type of information available and the manner in which that information is evaluated. Third, this research adds to literature on attitude accessibility (Fitzsimons & Morwitz 1996, Morwitz & Fitzsimons 2004), by demonstrating that promotions implicitly activate thoughts of the promoted product, making those thoughts more accessible in the ultimate purchase decision, which polarizes a shopper's initial attitude towards the product.

The remainder of this paper is organized as follows. First, I provide a short review of the literature on promotions and describe the new opportunity retailers have to present consumers with temporal promotions. Then a theoretical framework is proposed, and specific hypotheses are presented. Subsequently, I present a series of laboratory studies that provide empirical support for the proposed theoretical framework. Finally, the implications of these findings and avenues for future research are discussed.

Promotions

Promotions are one of the most frequently used marketing tools and make up a substantial portion of the marketing expenditures in many industries (Blattberg, Briesch and Fox 1995). Promotions have been shown to increase the awareness of products and brands and ultimately increase sales (Ailawadi & Neslin 1998; Blattberg & Neslin 1990; Chandon & Wansink 1997; Erdem & Keane 1996; Leone & Srinivasan 1996; Mela et al. 1997). Broadly defined, sales promotions consist of any action that is targeted at an entity (i.e. consumers, businesses, or other channel partners) meant to induce sales. In this article, I focus on consumer sales promotions and define them as a “temporary and tangible monetary incentives intended to have a direct impact on consumer behavior

(Chandon, Wansink & Laurent 2000, p.65).” Sales promotions can range from a retailer’s or manufacturer’s coupon to a temporary price discount encountered in the moment of choice.

The logic behind promotions is straightforward -- promotions direct customers’ attention to a product and/or inform consumers of additional value that is available (Bell, Chiang, & Padmanabhan 1999; Blattberg, Briesch, & Fox 1995; Kalyanaram & Winer 1995). Research has demonstrated that promotions offer a variety of benefits to consumers beyond simple monetary savings (Chandon, Wansink, & Laurent 2000; Keller 1994, Holbrook 1994). First, promotions provide value to consumers by simplifying their decision process (Inman, McAister & Hoyer 1990; Simonson, Carmon, & O’Curry 1994; Wansink, Kent & Hoch 1998). Second, promotions allow consumers to maximize the value of their spending by upgrading to a better product (Chandon, Wansink, & Laurent 2000; Narasimhan 1984).

Temporal Promotions

Until recently, in-store promotions were pragmatically offered alongside their promoted products. However, rather than being limited only offering promotions to shoppers when they arrive at the product, retailers can now use technology to offer promotions to shoppers at any time of the shopping trip. I propose that altering the moment when promotions are offered, relative to when shoppers encounter the promoted product, influences how the promotion is evaluated and the likelihood that it will be redeemed. Essentially, receiving a temporal promotion alters the temporal frame in which shoppers encounter and evaluate the promotion (Chandran & Menon 2004). This means shoppers will make two different sets of evaluations and decisions. First, when shoppers

first encounter the promotion, they evaluate promotion and the promoted product. Second, when shoppers arrive at the ultimate purchase decision they evaluate all of the information and alternatives available in a product category, deciding which product to purchase. Therefore, it is necessary to consider how a consumer's evaluation in one frame influences their ultimate purchase decision in another frame, as well as how evaluating a temporal promotion is different from a shelf promotion.

How Temporal Promotions Influence Product Evaluations

There is a rich stream of literature that examines how initial purchase evaluations influence a consumer's subsequent evaluations and purchase behavior. Much of this research suggest that prompting shoppers to evaluate a brand or product enhances its accessibility and salience, which makes it more likely to be purchased later (Morwitz et al. 1993, Nedungadi 1990). In the case of promotions, I expect shoppers who encounter a temporal promotion to evaluate the promotion and congruently consider if they would redeem the promotion and purchase the promoted product. Then, as a consumer arrives at the ultimate purchase decision for the promoted product, the promoted brand is more accessible and fresh in a consumer's mind, which ultimately enhances the probability that a consumer will redeem the promotion and purchase the promoted product. For example, past research has demonstrated that consumers are more likely to think about and consider brands in which they previously encountered (Nedungadi 1990; Shapiro 1999).

The accessibility of a product also influences the level of attitudes consumers have toward the product (Fitzsimmons and Morowitz 2004). Based on processing fluency, more accessible objects are general evaluated more positively as they easily "come-to-mind" (Harmon-Jones and Allen 2001). Past research offers numerous

examples that brands, products, or people are evaluated more favorably as their exposure and accessibility are enhanced (Baker 1999; Janiszewski 1993; Zajonc 1968). Promotions given to consumers before arriving at the purchase decision for the promoted product could enhance accessibility, and subsequent evaluation, of the promoted product as well. Therefore, temporal promotions should both activate and enhance the favorability of their focal product, ultimately leading to an increased likelihood of redemption. Therefore, I hypothesize:

H₁: Temporal Promotions, relative to Shelf Promotions, should lead to higher redemption likelihood.

***H₂: Temporal promotions, relative to shelf promotions, will:
(a) enhance the evaluation of the promoted product and...
(b) enhance the accessibility of promoted product,***

Although the majority of research suggests that evaluations of an object typically increase over repeated exposures to that object (Baker 1999; Janiszewski 1993; Zajonc 1968), more recent research demonstrates that consumer evaluations depend on the valence of their original evaluations of the product (Chapman 2001; Lee and Labroo 2004). For example, although enhancing the accessibility and salience of a chocolate bar may enhance the evaluations of chocoholics, it may just strengthen the distaste of someone who dislikes chocolate. Therefore, an additional, earlier evaluation of a product is likely to polarize their subsequent evaluation of the product according to the valence of their original attitudes (Morwitz and Fitzsimons 2004).

This suggests that a shopper's reaction to a temporal promotion should vary according to a consumer's initial evaluation of the promoted product. In essence, a temporal promotion highlights a consumer's attitude towards the product, making it more accessible and salient in subsequent evaluations, which ultimately amplifies a consumer's

original evaluation. If shoppers hold the promoted brand in a positive (versus negative) regard, temporal promotions should enhance their evaluation of the product at the subsequent purchase decision. If consumers have negative evaluations of a promoted brand, however, temporal promotions should degrade their evaluations of the brand in the ultimate purchase decision. This essentially increases their salience of what they did not like about the product. This can ultimately decrease the likelihood of redeeming the promotion for those shoppers who originally disliked the product. Thus, the effectiveness of independent promotions is moderated by a consumer's initial attitude towards the promoted product.

H₃: The influence of temporal promotions, relative to shelf promotions, is moderated by a shopper's initial attitudes toward the promoted product.

How Temporal Promotions Influence Purchase Decisions

Increased accessibility of the promoted brand is not the only consequence of temporal promotions. As previously discussed, encountering a temporal promotion motivates consumers to evaluate the promotion and determine whether they are going to purchase the promoted product before they have to make the ultimate purchase decision. Therefore, temporal promotions also alter the amount and type of information available, and the way consumers process that information, which influences what is important to consumers in the ultimate purchase decision.

Temporal promotions, relative to shelf promotions, encourage shoppers to consider the promoted product's benefits, as opposed to its costs, by altering the availability and weighting of information (Kahneman & Frederick 2002; Frederick et al.

2009; Trope & Liberman 2003). First, as consumers have been shown to only process information that is explicitly available to them, temporal promotions encourage shoppers to only evaluate the promoted product, and not all the other options available (Kahneman & Frederick 2002). This leads to consumers underweight the benefits of other options, subtly enhancing the benefits of the promoted product and the likelihood that consumers will decide to purchase the promoted product (Frederick et al. 2009). Second, the perceived temporal distance between the temporal promotion and ultimate purchase also encourages shoppers to weight information relating to the benefits of a purchase over information regarding its costs. (Alexander, Lynch Jr, & Wang 2008; Castano et al. 2008; Trope & Liberman 2003). Therefore, temporal promotions, relative to shelf promotions, will lead to shoppers to focus on the benefits (such as quality, taste, etc.) of the promoted products when evaluating the promotion.

Moreover, if temporal promotions lead shoppers to consider certain aspects of a product, shoppers will increase the importance of those aspects in the ultimate purchase decision (Higgins, Rholes, and Jones 1977). For example, encountering a temporal promotion for a high-quality product will spur shoppers to think of a product's high quality. Then, quality will be more important when evaluating all of the options available when they arrive at the subsequent purchase decision. This is based on research that has examined how environmental cues activate concepts that relate to that cue in a consumer's mind (Anderson 1983; Collins and Loftus 1975). Thus, as shoppers evaluate temporal promotions, the inferences they generate, and the factors in which those inferences are based, will be more accessible and salient in the ultimate purchase decisions (Barsalou 1985). Therefore, I propose:

H4: Temporal promotions, relative to shelf promotions, lead shoppers to the weighting of a product's benefits in the redemption decision.

To empirically examine the influence of temporal promotions and to compare them to traditional shelf promotions, four studies were conducted. Study 1 provides initial evidence for the positive effect of receiving a promotion independently from the promoted product. Study 2 offers initial support for my theoretical framework by showing how consumer's evaluation of the promoted product changes when they encountered a temporal promotion instead of a shelf promotion. Next, study 3 demonstrates that the enhanced evaluations, and ultimate effectiveness of temporal promotions is moderated by how shoppers originally feel towards the product. Study 4 demonstrates that this process is driven by the accessibility of the promoted product.

Study 1:

Initial Evidence of the Effect

To examine the core hypothesis regarding the effectiveness of temporal promotions, a between-subject lab study was designed. The study involved 178 undergraduates at a university in the Southeastern US who participated for partial course credit. The average age of the participants was 20.8 (18-24), and 52.0% were males.

Procedure and Design

The study consisted of a simulated grocery-shopping task, where participants were told that the purpose of the study was to examine how consumers made grocery purchases on small grocery trips, which are those grocery trips where consumers only purchase a small number of items. This ensured that participants were not expecting a

promotion, and encouraged participants to examine the shopping list and the order of decisions they would be making. The study was designed to provide an initial examination of the impact of offering the same price promotion at distinctly different moments in a series of purchase decisions.

Participants were each presented with a shopping list with eight different product categories on it (i.e., bread, paper towels). In the simulated shopping trip, each purchase decision was presented one at a time and contained four actual brands (with their respective prices) that would be found in a local grocery store. After making a purchase decision, participants proceeded to the next screen where they were presented with their shopping list and the next purchase decision. This process would continue until they purchased an item for each of the eight product categories.

Participants were randomly assigned to one of three conditions: (1) temporal promotion (2) shelf promotion, and (3) a control condition without promotions. Participants in the control condition progressed through the study in the manner described. Participants in the other two conditions were exposed to a price promotion at either one of two times. Participants in the condition with the shelf promotion encountered the promotion on the same screen as the purchase decision for the promoted product. Those participants who received the temporal promotion encountered the promotion on the same screen as the second purchase decision. The promotion was for \$1 off Starbucks Ground coffee, which was one of the available options in the 5th purchase decision for ground coffee.

The goal of this initial study was to test the influence of receiving a promotion temporally separated from the purchase decision. In order to accomplish this, I simply

measured the share of the promoted product, Starbucks ground coffee, relative to the share of all the other products combined.

Results

An analysis of participants' coffee purchases supported the hypothesized effect regarding the influence of a promotional temporal distance (Figure 3.1). Specifically, participants who received the temporal promotion for coffee were more likely to redeem the promotion and purchase the promoted product than those participants who received the shelf promotion (34.4% vs. 16.9%; $\chi^2 = 4.78, p < 0.05, \Phi = .152$). Thus, this study provides support for H₁. As a further validation check of the influence of promotions in general, a planned contrast revealed that participants in both promotion conditions were more likely to purchase the promoted product than those in the control condition (25.5% vs. 6.3%; $\chi^2 = 9.12, p < 0.01, \Phi = .230$).

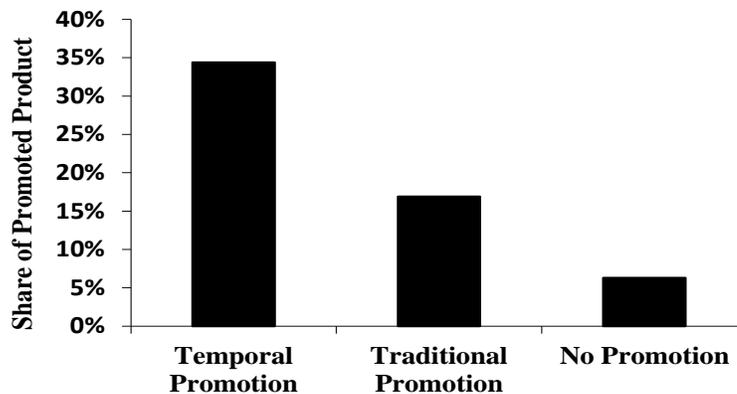


FIGURE 3.1:

STUDY 1: SHARE PROMOTED PRODUCT PURCHASED IN STUDY 1

Discussion

The results of study 1 support my core proposition that temporal promotions that are separated from the purchase decision may be more likely to be redeemed. Additionally, the results validated past research and conventional wisdom by showing that both types of promotions influenced whether participants would purchase the promoted product. This suggested that the promotional offer used in the study was, in fact, motivating to participants. However, one concern may be that coffee was a product that is not universally consumed by participants. To address this, I decided to switch to a more popular product category. Furthermore, to explore the underlying theoretical mechanisms behind this effect, I included additional measures about the promoted product and purchase decision.

Study 2:

The Influence of Temporal Promotions on Product Evaluations

A between-subject lab experiment was designed that utilized a similar simulated shopping experience as the first study. The experiment involved 263 online participants from Amazon's Mechanical Turk. The average age of the participants was 32.19 (18-71), and 48.0% were females.

Procedure and Design

Study 2 was similar to study 1 with a few important exceptions. First, this experiment contained 15 purchase decisions instead of eight. Second, to examine the robustness of the effect of temporal promotion, and to eliminate the influence of consumer that may not like coffee at all, the promoted product was changed from

Starbucks ground coffee to Freschetta frozen pizza. A pretest indicated this brand was considered a premium product, yet not the most premium product in the product category (e.g., DiGiorno). Hence, this offers sufficient opportunity to for evaluations to be altered, which allows for a more in-depth understanding of the influence of temporal promotions and their influence on a consumer's evaluations of the promoted product. In the purchase decision, Freschetta was the second most expensive brand (of four options; DiGiorno was the most expensive), and the promotion made the net price (original price – \$1 promotional value) equivalent to the second least expensive brand. Participants saw the promotion either between the 4th and the 5th purchase decision (temporal promotion condition), with the 11th purchase decision that was for frozen pizza (shelf promotion condition) or not at all (control condition). The decision of what brand of pizza to purchase was the 11th decision. Furthermore, additional measures regarding a participant's evaluation of the promoted product were collected.

Measures

As in Experiment 1, the redemption rate of the promoted product, Freschetta frozen pizza, was collected to determine the influence of the perceived temporal distance between the exposure to the promotion and the purchase decisions for the promoted product on the redemption decision. After completing their simulated shopping trip, participants rated the promoted product on quality, taste, and value ($\alpha=.84$) and answered questions about what factors were important to them in their decision for frozen pizza. Also, a manipulation check was included to examine if participants did, in fact, perceive that temporal promotions were encountered at a different moment than the purchase decision.

Results

As illustrated in Figure 3.2, the results of the manipulation check demonstrated the temporal promotions were perceived as occurring significantly earlier in the shopping trip. Specifically, participants who encountered the temporal promotion indicated that the promotion occurred significantly earlier on a timeline shopping-trip (ranging from 0 to 100) than those participants who saw the shelf promotion (45.87 vs. 57.36, $F(1,176)=8.48, p < 0.01$).

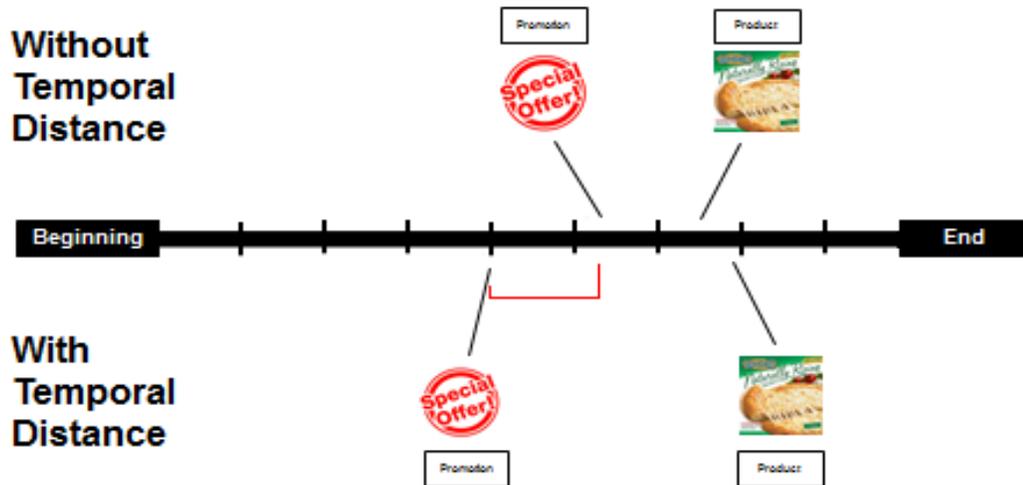


FIGURE 3.2:

PERCEPTIONS OF THE TIMING OF EVENTS

Consistent with H_1 and the results of the previous study, temporal promotions increase the likelihood that participants will redeem the promotion and purchase the promoted product. Specifically, a chi-squared test found that participants who encountered the temporal promotion were more likely to purchase the promoted product (50% vs. 38%; $\chi^2 = 2.79, p < 0.10; \Phi = .123$, Figure 3.3). Thus, H_1 is supported.

Furthermore, a planned contrast revealed that both promotion conditions were more likely than the control condition to purchase the promoted product (44.0% vs. 16.8%; $\chi^2 = 20.41, p < 0.001, \Phi = .270$).

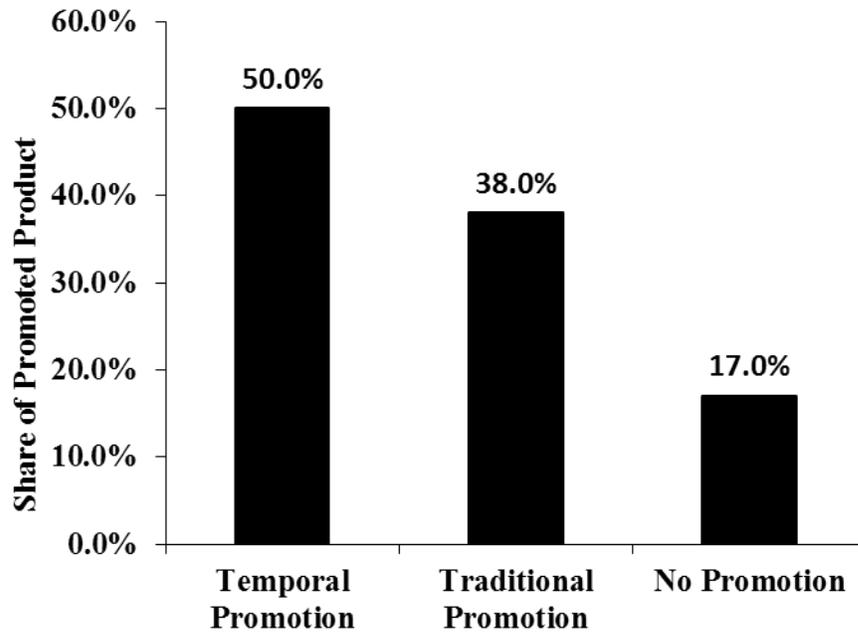


FIGURE 3.3:
PURCHASE SHARE OF THE PROMOTED PRODUCT IN STUDY 2

Each participant's evaluations of the promoted product's quality, taste, and value were aggregated and analyzed in a one-way ANOVA test H_{2a} and provide support for the proposed theoretical framework. Using the promotion type (temporal vs. shelf promotions) as a between-subjects factor, the results demonstrate that those participants who received the temporal promotion rated the promoted brand more favorably than those who received the shelf promotion ($F(1,177) = 4.15, p < 0.05, \eta_p^2 = .042$). These

results support H_{1b} and demonstrate that temporal promotions enhance a shopper's evaluation of the promoted product.

In order to examine how temporal promotions influence the way participants made their purchase decision, I examined the purchases in the promoted category of participants who did not purchase the promoted product. Consistent with H₃, participants who encountered the temporal promotion instead of the shelf promotion, appear to weight the benefits of the product more heavily than the costs in their purchase decision. Specifically, when examining the purchase decisions of those participants who did not purchase the promoted product, participants who were presented the promotion with temporal distance purchased a significantly higher share of the most expensive pizza product, compared to the least expensive product available (95% vs. 58%; $\chi^2 = 5.13$, $p < 0.05$, $\Phi = .024$). These results support H₄ by demonstrating that the temporal promotion enhanced the importance of the benefits of the product (quality and taste), leading participants to purchase a more premium product.

Discussion

The results of this experiment support out theoretical proposition that encountering a temporal promotion influences how consumers process information about the promotion and promoted product, which ultimately leads to them to decide to redeem the promotion. Participants appear to evaluate the promoted product and construe the purchase decision differently with promotional temporal distance. Although the results support my theoretical framework, it is possible that participants choose to purchase the promoted product upon receiving the earlier promotion, and participants subsequently increased their evaluations in response. Next, I attempt eliminate this alternative

explanation and test how the benefits of temporal promotions may be moderated by a shopper's original evaluation of the promoted product.

Study 3:

Moderating the Influence of Temporal Promotions

Although the results of the first two studies provide support for my theoretical framework, it is possible that participants alter their evaluations to be aligned with their choices, rather than their evaluations leading to their choices. Essentially, participants might alter their evaluations of a product in order to be consistent with their purchase decision. In order to obtain more evidence for the proposed theoretical framework, I investigate participant's evaluation rather than their product choice in study 3.

Additionally, to specifically examine the role of temporal promotions and whether they enhance or polarize shopper's evaluations, I will include a measure to understand the role of shoppers' original evaluations of the promoted product on their subsequent evaluations of the promoted product.

Design and Procedure

Study 3 involved 217 online participants from Amazon's Mechanical Turk. The average age of the participants was 28.31 (18-72), and 48.6% were males. The design was similar to prior experiments in that it consisted of a simulated shopping experience in which participants were told they would make 15 purchase decisions and answer questions about their shopping decisions. However, it contained three important differences. First, unlike the previous studies, the dependent variable of interest in Study 3 was participants' evaluations of the promoted product, rather than their decision

whether to purchase the promoted product. Therefore, when participants arrived at the purchase decision for frozen pizza, they were informed that, before finishing their shopping trip, they would be asked questions about their purchase decision before proceeding with the shopping trip. Second, in order to examine whether a temporal promotion enhances or polarizes a shopper's evaluations of the promoted product, I collected information about their past experience with Freschetta frozen pizza to use as a proxy for their evaluation of the product before they encountered the promotions. Third, the study contained only two conditions; a temporal promotion condition and a shelf promotion condition. The temporal promotion condition was the same as study 2. The shelf promotion condition was slightly different, as the promotion was given immediately prior to the purchase decision for frozen pizza (when participants were prompted to answer questions about how they would make their decision).

Measures

As both promotional conditions were seen independently, participants responded to a manipulation check to determine the degree the temporal promotion was perceived to have taken place before the shelf promotion.

To examine the influence of a promotion's timing on shoppers' evaluations of the promoted product, participants evaluated the promoted product on multiple dimensions by using a 7-point scale. The 10 dimensions measured (tasty, enjoyable, attractive, delightful, exciting, fun, satisfying, thrilling, premium, easy) were based on the dimensions of value promotion can give a product (Chandon, Wansink & Laurent 2000) and aggregated into a single measure ($\alpha=.86$). Furthermore, as a proxy for accessibility, the amount of time participants took to complete their evaluation would be

recorded. Next, participants indicated what factors (price, taste, quality) were important in their decision of what frozen pizza to purchase (on a 7-point scale), as well as how they made trade-offs between price and quality (on a 100 point scale).

Lastly, as a proxy for participants' original evaluations of the promoted product, participants indicated whether they have purchased the promoted product in the past in a binary choice (44% had purchased the product in the past).

Results

Manipulation Check

The manipulation check demonstrated that participants in the temporal promotion condition thought the temporal promotion took place earlier than those participants in the shelf promotion condition ($M_{\text{Temporal}} = 2.77$ vs. $M_{\text{Shelf}} = 2.23$; $F(1, 216) = 11.27$; $p < .01$, $\eta_p^2 = .043$).

Evaluations of the Promoted Product

Participants' evaluations of the promoted product were analyzed using 2 (Promotional Timing: temporal vs. shelf promotion) by 2 (Original Evaluation: Purchased Before vs. Not Purchased Before) ANOVAs. As illustrated in Figure 3.4, a significant interaction between original evaluations and the promotional timing condition reveals that the temporal promotions only enhanced the evaluations of those customers that had past experience towards the promoted product ($F(1, 213) = 4.20$, $p < 0.05$, $\eta_p^2 = .019$). Furthermore, consistent with the proposed theoretical framework, this interaction is driven by the difference in the evaluations of those participants who encountered the

temporal promotion ($M_{\text{PriorPurchase}} = 5.133$ vs. $M_{\text{NoPriorPurchase}} = 4.29$; $F(1,108) = 34.35$, $p < 0.001$; $\eta_p^2 = .012$).

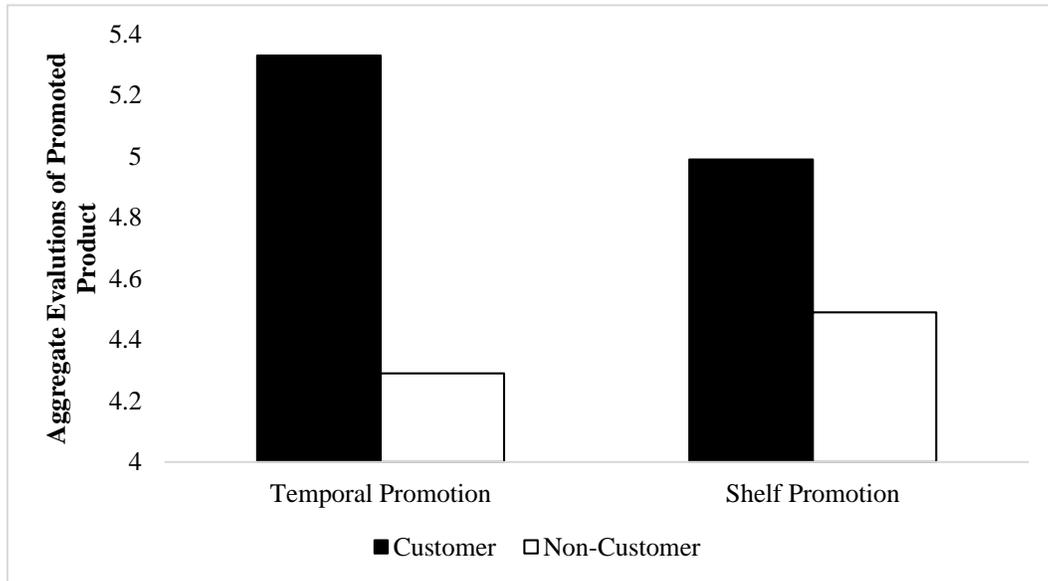


FIGURE 3.4:

EVALUATIONS OF THE PROMOTED PRODUCT IN STUDY 3

A similar pattern emerged in their overall ratings of Freschetta frozen pizza ($F(1,213) = 9.23$; $p < 0.01$, $\eta_p^2 = .042$) and their willingness to pay for the promoted product ($F(1,213) = 5.82$; $p < 0.05$, $\eta_p^2 = .027$) These findings all support that the influence of temporal promotions is moderate by the evaluations consumer's had of the product before they encountered the promotion. These results give further support the H₃.

As a proxy for the accessibility of participants thoughts related to the promoted product, the time it took participants took to complete their evaluations was examined

with a 2-factor ANOVA. Consistent with the previous results, there is a significant interaction between a participants' promotion condition and whether they have purchased the promoted product before ($F(1,213)= 4.71; p < 0.05, \eta_p^2 = .012$, Figure 3.7). Specifically, for those participants who had purchased the promoted product, the temporal promotion appears to had allowed them to complete their evaluations in significantly less time ($M_{\text{Temporal}} = 33.47$ seconds vs. $M_{\text{Shelf}} = 41.28$ seconds; $F(1,213)= 5.55, p < 0.05, \eta_p^2 = .025$). This suggests thoughts of the product were more “top-of-mind.” Therefore, H_{2b} is supported.

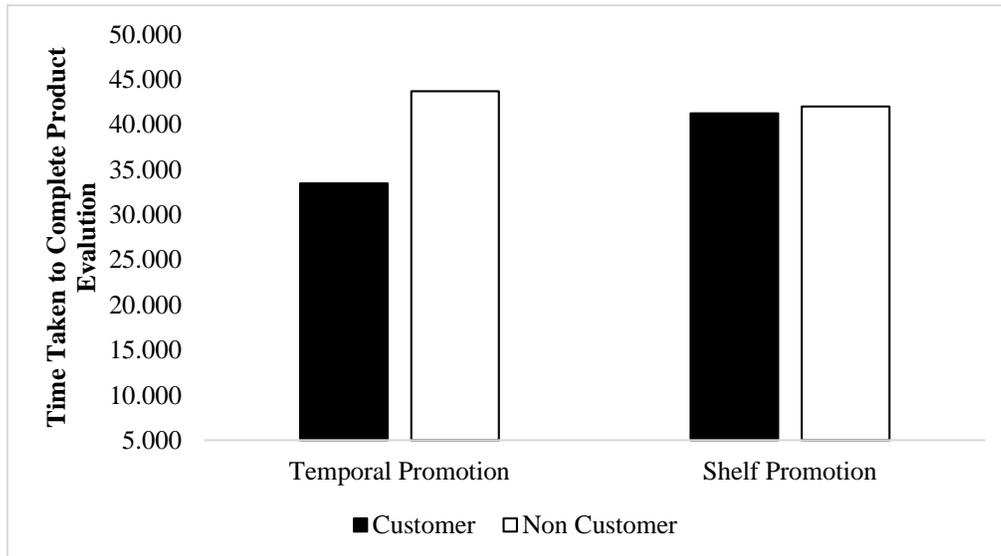


FIGURE 3.5:

TIME TAKEN TO COMPLETE PRODUCT EVALUATION IN STUDY 3

Altering Shoppers' Decision-Making

In order to see if temporal promotions lead shoppers to alter the weight they attach to different factors in their purchase decision, I analyzed participants' weightings of attributes in the purchase decisions (taste, quality, and price) using an ANOVA.

Receiving a temporal promotion, relative to a shelf promotion, appears to increase the weighting of the aggregate measure representing the importance of product's quality, taste and price in their decision ($M_{\text{Temporal}} = 5.91$ vs. $M_{\text{Shelf}} = 5.70$; $F(1,216) = 2.67$, $p = 0.10$, $\eta_p^2 = .012$). Additionally, in task where consumers had to indicate their relative weighting of taste and price (and a 0 to 100 sliding scale) participants who received a temporal promotion indicated that taste was relatively more important than price ($M_{\text{Temporal}} = 46.52$ vs. $M_{\text{Shelf}} = 53.45$ $F(1,216) = 4.24$, $p < 0.05$, $\eta_p^2 = .019$). These results suggest that temporal promotions alter how shoppers weigh information in the ultimate purchase decision. Thus, H₄ is supported.

Discussion

The results of study 3 provide support for the three main propositions of this research. First, participants who encountered a temporal promotion, relative to those who encountered the shelf promotion, appear to have more accessible thoughts relating to the promoted products. Second, this accessibility only enhances those evaluations of consumers who already have a positive opinion of the promoted product. This suggests that shoppers' evaluations of the promoted product are only enhanced through accessibility if they already have a positive evaluation of the promoted product. Thus, temporal promotions might not be more effective if shoppers do not already have a positive evaluation of the promoted product. Third, temporal promotions change the way

shoppers weigh and evaluate information. The results suggest that receiving a temporal promotion motivates shoppers to consider the benefits of the purchase as opposed to its costs. This influences what factors consumers consider important when they are making their ultimate purchase decision.

Although preventing participants from making a purchase decision may have ensured less biased evaluations of the promoted product, it is still important to understand how the participants' evaluations and the accessibility of them influence their ultimate redemption decision. In the next study, I explicitly measure the accessibility of participants' thoughts of the promoted product and examine its influence on their redemption behavior.

Study 4:

Accessibility and Temporal Promotion

A between-subject lab experiment was designed to examine how temporal promotions influenced the accessibility of participants' thoughts about the promoted product and that measured whether participants redeemed the promotion by purchasing the promoted product. Thus, study 4 consisted of a similar simulated shopping experience that was used in previous studies, yet also included a reaction time task to explicitly examine participants' accessibility to thoughts relating to the promoted product. The experiment involved 381 online participants from Amazon's Mechanical Turk. The average age of the participants was 29.84 (18-64) and 51.2% were females.

Procedure and Design

Experiment 4 utilized a simulated shopping experience that was similar to the paradigm used in the previous studies. The primary difference between study 4 and previous studies was that participants were also asked to complete a word recognition task to examine the accessibility of their thoughts relating to the promoted product. The study consisted of three conditions; a temporal promotion condition, a shelf promotion, and a control condition. The procedure for the simulated shopping task was the exact same as in studies 2 and 3, where participants in the temporal promotion condition received the promotion between the 4th and 5th purchase decision, whereas those who saw the shelf promotion saw the promotion with the promoted product. After participants had made their purchase decision for frozen pizza, which included the promoted product, participants were asked complete a word recognition.

This word recognition task was modified to be an attribute recognition task. In the task, participants were presented with a series of words (one word at a time) and asked to indicate whether each word does or does not describe the promoted product – Freschetta frozen pizza. Participants were asked to indicate their choice as soon as they could through pressing one of two letters on their keyboard. The task contained 36 words that were either positively described that either described a food product (tasty, quality, desirable, etc.) or were completely unrelated (flower, phone, music, etc.). The speed in which participants identified whether the word did or did not pertain to the promoted product served as my measure of the accessibility of participants' thoughts about the product. After completing the attribute recognition task, participants answered questions about the promoted product and their purchase decision.

Measures

Participant's purchase decision for frozen pizza was recorded to determine whether participants purchased the promoted product. To examine the accessibility of their evaluation of the promoted product, the amount of time it took participants to respond to each word in the attribute recognition task was also recorded. Furthermore, similar to study 3, participants' evaluations of the promoted product and the factors important to them in the purchased decision were collected on a 9-point scale.

Results

Consistent with the results of the past studies, temporal promotions increased the likelihood that participants purchased the promoted product. Specifically, a chi-squared test found that participants who encountered the temporal promotion were more likely to purchase the promoted product than those who encountered a shelf promotion (58.3% vs. 39.9%; $\chi^2 = 8.83, p < 0.01, \Phi = .19$). Thus, H_1 is supported. Additionally, a planned contrast demonstrated that both promotion conditions increased the likelihood that the promoted product would be purchased (49.0% vs. 29.5%; $\chi^2 = 13.42, p < 0.01, \Phi = .24$).

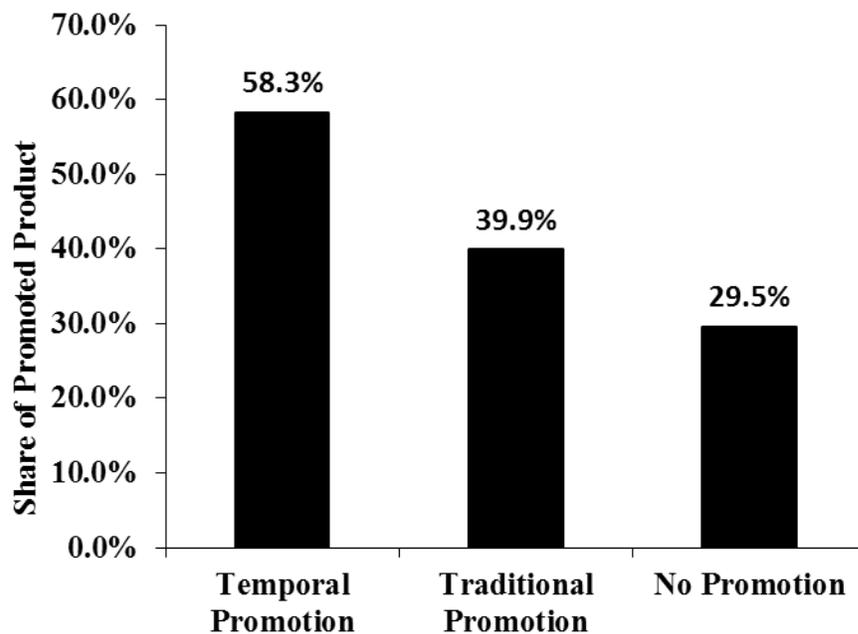


FIGURE 3.6:

PURCHASE SHARE OF THE PROMOTED PRODUCT IN STUDY 4

The results of the attribute recognition task support my theoretical framework and demonstrate that temporal promotions increase the accessibility of participants' thoughts about the promoted product. Specifically, the results of a one-way ANOVA revealed that the average amount of time it took people to respond to each word varied by condition ($F(2,175) = 8.331, p < 0.10, \eta_p^2 = .012$). This was driven by the those participants in the temporal promotion responding marginally faster than those participants in the shelf promotion condition ($M_{\text{Temporal}} = 1025\text{ms}$ vs. $M_{\text{Shelf}} = 1103\text{ms}$; $t(249) = 2.23, p < 0.05, d = .29$) and significantly faster than those participants in the control condition ($M_{\text{Temporal}} = 1025$ vs. $M_{\text{Control}} = 1261\text{ms}$; $t(256) = 197, p < 0.05, d = .26$). There was no difference

between participants in the shelf promotion and control conditions. This provides support H_{2b}.

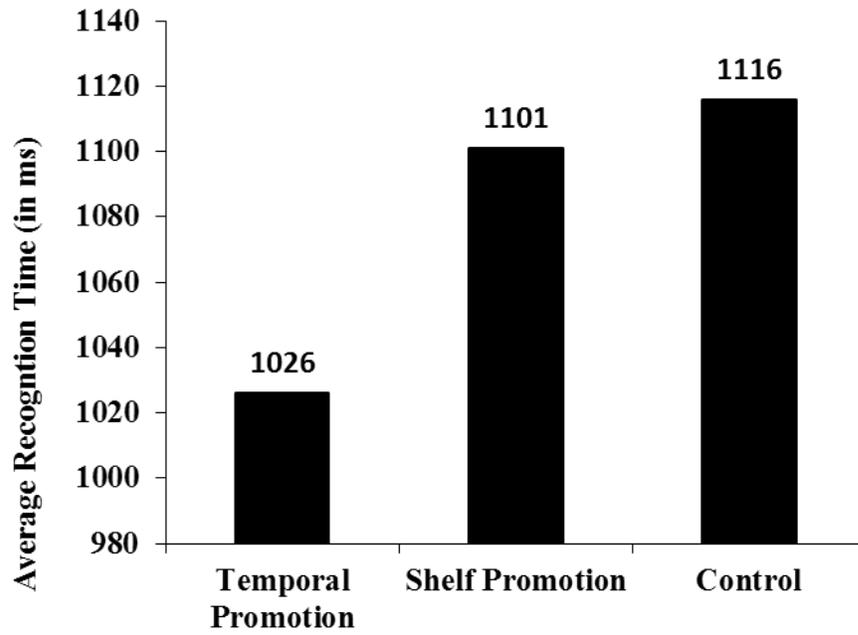


FIGURE 3.7:

AVERAGE REACTION TIME IN ATTRIBUTE RECOGNITION TASK IN STUDY 4

This enhanced accessibility translates into stronger participant evaluations of the promoted product. The results of a one-way ANOVA demonstrated that participants' evaluations of the promoted product depended on their promotional condition ($F(3,376)=3.86, p < 0.05, \eta_p^2 = .02$). The evaluations of those participants who encountered a temporal promotion were higher than those who encountered a shelf promotion ($M_{\text{Temporal}} = 6.55$ vs. $M_{\text{Shelf}} = 6.14; t(249)= 3.03, p < 0.01, d = .38$) and the control condition ($M_{\text{Temporal}} = 6.55$ vs. $M_{\text{Control}} = 6.05; t(256)= 3.97, p < 0.01, d = .49$). Similar results are

found when examining participants overall rating of the promoted product. These results provide additional support for H_{2a}.

Although participants' speed in the attribute recognition task did not vary based on whether they originally had a positive evaluation of the promoted product, their subsequent evaluations do vary according to whether they had purchased the product in the past. When examining both the promotion condition with a two-way ANOVA that included their promotional condition and whether they have purchased the promoted product in the past, there is a significant interaction ($F(1,247)= 7.47, p < 0.01, \eta_p^2 = .020$). This is primarily due to the significantly higher evaluations of those participants who have purchased the promoted product in the past and received a temporal promotion ($M_{\text{Temporal}} = 6.80$ vs. $M_{\text{Shelf}} = 6.01; F(247)= 5.74, p < 0.01, d = .49$). Therefore, H₂ is supported.

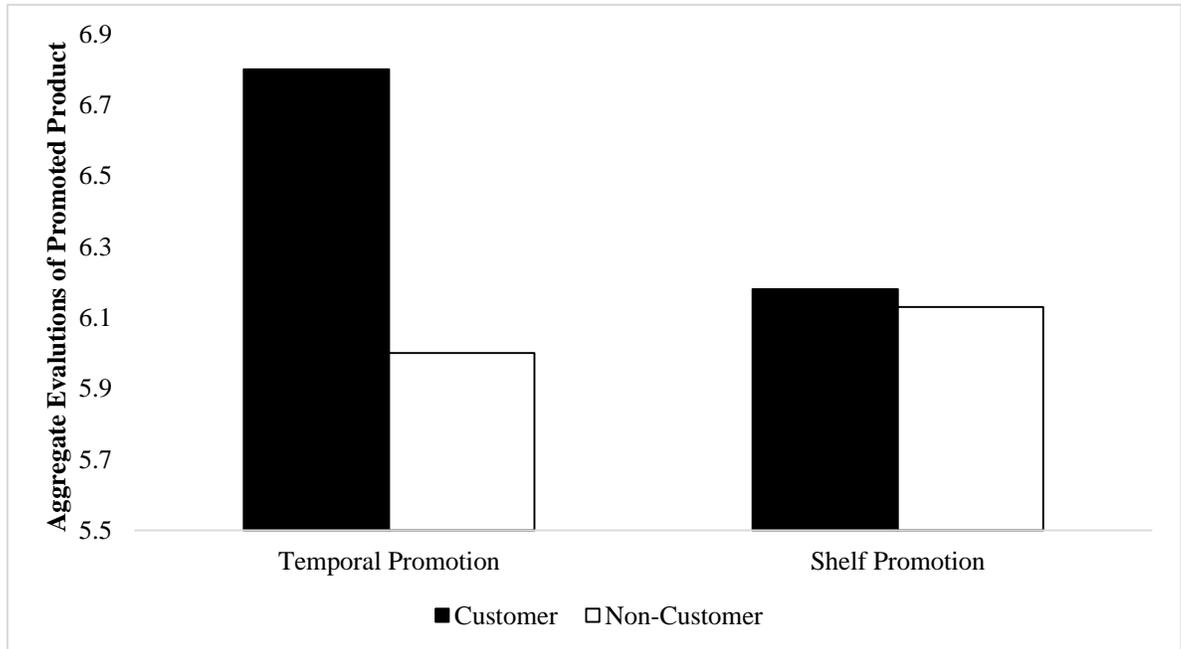


FIGURE 3.9:

EVALUATIONS OF THE PROMOTED PRODUCT IN STUDY 3

Serial Mediation. A serial multiple mediator model (Hayes 2012), from promotional condition to accessibility to participants' evaluations of the promoted product to redemption likelihood, was utilized to examine mediational process. Accessibility and participants' evaluations of the promoted product served as mediators in the serial model, with the accessibility affecting evaluations. The results suggest a significant overall indirect effect ($ab = -.1331$, 95% CI, $-.2588, -.0595$), which consists of three specific indirect effects: (1) the effect of promotion time of redemption likelihood through only evaluations ($ab = -.1073$, 95% CI, $-.2110, -.0454$), (2) the effect of promotion type of redemption likelihood through only accessibility ($ab = -.0186$, 95% CI, $-.0796, .0037$), and (3) the effect of through both ($ab = -.0072$, 95% CI, $-.0232, -.0010$)

Discussion

The results of study 4 corroborate the results of the earlier studies and provide consistent support for my theoretical framework. Specifically, the results of the attribute recognition task demonstrate that temporal promotions enhance the accessibility of shoppers' thoughts related to the promoted product. This accessibility subsequently enhances a shoppers' evaluations of the promoted product and ultimately increases the likelihood that shoppers will redeem the promotion and purchase the promoted product. Furthermore, this study demonstrates that temporal promotions are most influential for those shoppers who have a positive evaluation of the promoted product before encountering the promotion in the store.

General Discussion

Customer-facing technologies, such as smartphones or retailer-provided shopping assistants (e.g. smart shopping carts or handheld devices), are quickly infiltrating the traditional retail environment, mostly due to the substantial benefits they offer to both retailers and consumers. Retailers benefit from customer-facing technology by being able to integrate the information they know about the customer (from loyalty cards and purchase history) with how they interact with the customer throughout the store. Specifically, this gives retailers more control and flexibility over when information can be presented to their customers, such as targeting consumers with specific promotional offers based on their in-store location or contents of the shopping basket.

This research provides evidence that promotional offers encountered before shoppers arrive at the promoted product may be more effective than the traditional shelf promotion that shoppers encounter alongside the promoted product. By building upon

principles from temporal framing (Chandran & Menon, 2004) and attitude accessibility (Morowitz & Fitzsimons 2004) this research demonstrates that temporal promotions are evaluated separately from the subsequent purchase decision. This earlier evaluation increases the accessibility and salience of the benefits of the promoted product and amplifies shoppers' evaluations of the promoted brand at the ultimate purchase decision.

Experiment 1 provided initial evidence that temporal promotions are more successful than those that are offered with the product. Experiment 2 replicated the effect and provided initial support for what drives this effect. Specifically, encountering a promotion in advance of the purchase decision for the promoted product enhances how they feel about the product. Study 3 provides further evidence as it shows that these earlier promotions depend on a shopper's evaluation of the product before they encountered the promotion. Specifically, temporal promotions only enhanced the evaluations of those who already evaluated the product positively. And study 4 demonstrates that this process is driven by the accessibility of a shoppers' thoughts about the promoted product.

Limitations

Although the findings from these four studies offer consistent evidence to support my theoretical framework, it is not without its limitations. First, all of the presented studies were conducted within simulated shopping environments for experimental control. However, a typical grocery store is far from a controlled environment. In reality, a grocery store is an extremely stimulus-rich environment, where consumer encounter several marketing tools (e.g. promotions, displays, etc.) within each aisle. Future research

is needed to examine how these temporal promotions may interact with these other in-store factors.

A second limitation may concern that all the promotions in the paper were for high-quality premium products. This was pragmatic, as offering price promotions on lower priced options would not make sense for a retailer, as promotions are generally seen as a tool to attract price sensitive consumers to a more expensive product (Blattberg & Neslin 1990; Narasimhan 1984; Nevo & Wolfram 2002). However, the strength and familiarity of a brand likely influence the success of these temporal promotions. Brands that are not known by shoppers will likely not receive the boost from temporal promotions that a well-known and liked brand should. Brand knowledge will definitely influence how salient and resonating, and ultimately effective, these promotions will be for consumers (Page & Herr 2002).

Future Research Opportunities

This is the first paper to examine the influence of a promotion's in-store timing on how it influences a consumer's response to promotions, and thus only represents a starting point for how a promotion's timing influences in-store shopping behavior. For example, this research only investigates the influence of temporal distance on the redemption of the promotion, yet this is not the only decision that temporal promotions may influence. Future research should examine how temporal promotions can influence a variety of other shopping factors and variables, such as purchase quantity, variety seeking, and ancillary spending, which shelf promotions are known to influence.

This research asserts that time is a critical to understanding in-store spending decisions, not only in response to promotions, but also spending decisions in general. The

findings presented here, and in past research, conclude that consumer decisions are dependent on timing of those decisions within a shopping experience. Specifically, I examine the influence of altering when promotions are encountered on a consumer's likelihood of purchasing the promoted product. This is studied by presenting a promotional offer a few purchase decisions (3-8 products) before the purchase decision with the promoted product. In all of the studies, participants were not reminded of the promotional offer after the initial exposure to the promotion (including the purchase decision). Although that speaks to the influence of these early promotions, future research should examine how these details would influence both a consumer's decision to purchase the promoted item, and the purchase decisions on the other products.

There are a variety of potential moderators of temporal promotions' influence that should be examined in the future. For example, past research suggests that product-type (e.g., utilitarian or hedonic) and the promotion type (e.g., price- or premium-focused), as well the congruency between them, influence a consumer's response to promotions (Chandon et al., 2000). Research should examine how these variables interact with the findings offered here. All of the products in this research were hedonic in nature and findings demonstrated that temporal promotions increased participants' thoughts of the product and increased the weight given to quality in the decision. However, temporal promotions for a utilitarian product may lead to different evaluations. For example, they may urge shoppers to consider more items relating to a product's price or value.

Finally, research is needed to understand the nuances and boundaries of the time between a consumer's initial evaluation and their purchase decision. Specifically, this effect may likely be non-linear based on the distance from the promoted product. If the

promotion was too far in advance, shoppers might forget about it by the time they reach the ultimate purchase decision, and if it was too close to the promoted product consumer may integrate the promotion and only make one evaluation. Furthermore, as the information that consumers attend to changes throughout the shopping trip (Lee & Ariely 2006), it is likely that the effect may be more or less powerful depending on when the promotion and the purchase decision are offered within a shopping trip (i.e., early vs. late). Understanding exactly how this effect occurs, and the influence of moderating variables, would provide retailers a blueprint for optimizing promotional campaigns.

Implications for Researchers and Practitioners:

The findings presented in this paper have powerful implications for both retailers and researchers. For researchers, this research provides further evidence regarding the impact of time and purchase decisions on a shopper's intra-shopping experience decision-making. Specifically, whereas most research has examined has assumed that evaluations are fairly stable within a single shopping experience, this research demonstrates that within trip interventions can have a powerful impact on a consumer's subsequent decisions. Thus, researchers should consider and control for this influence when examining the in-store shopping decisions and the effectiveness of various marketing programs.

For retailers, the benefits are numerous. As promotions are one of the most commonly used marketing tools, a small increase in their effectiveness (i.e., increased likelihood of redemption) could translate into significant shifts in sales and revenue (Nevo & Wolfram, 2002). Not only does altering the timing of the promotional encounter lead to a higher rate of redemption and more sales of the promoted product, but it also

leads to enhanced evaluations of the promoted product. This suggests that manufacturers could benefit from promotions with temporal distance and may want to assist retailers with campaigns that utilize these promotions. Additionally, these types of promotions stimulate consumers to think more heavily about the desirable elements of the product and the promotion and reduce the importance of price for consumers. It is possible that this line of thinking will spill over to other spending decisions made by consumers in the shopping experience (Heilman, Nakamoto, & Rao, 2002; Janakiraman, Meyer, & Morales, 2006). This could translate to higher overall in-store spending.

Conclusion

Temporal promotions offer retailers a new opportunity to offer promotions and engage customers within their shopping trips. This research builds upon temporal framing (Chandran & Menon 2004) and attitude accessibility literature (Fitzsimons & Morwitz 2004) and demonstrates that promotions may be more effective and persuasive if they are offered temporally in advance of the purchase decision for the promoted product. Specifically, customers that encounter these temporal promotions are enticed to evaluate the promotion and the product before they arrive at the ultimate purchase decision for the promoted product. These evaluations increase the accessibility of a shoppers' thoughts about the product which subsequently, upon arriving at the ultimate purchase decision, amplifies shoppers' evaluations of the promoted product and ultimately increases the likelihood that the promotion will be redeemed.

CHAPTER 4

CONCLUSION

Although there is a vast amount of research on shopping behavior, a significant majority of that research focuses on either individual decisions or decisions that have been aggregated trip-level variables (e.g., total spending, basket composition, etc.). However, in reality, a shopper's decisions rarely occur in complete isolation. Furthermore, aggregating groups of decisions into trip-level variables obscures much of the detail and subsequent understanding that is provided by studying decisions at the individual level. As such, the primary focus of my dissertation is to bridge these two paradigms, explicitly examining how individual decisions vary based on if and when they occur within a larger shopping trip.

Much of our current understanding about how consumers shop for goods and services is based on cross-sectional analyses of end-of-trip variables (e.g., basket composition, spending), which has largely assumed spending behavior is constant over the course of a shopping trip (Bell et al., 2010). However, as we know that preferences and choices are constructed at the moment of choice (Bettman et. al., 1998) research has begun to explore how previous purchase decisions influence present and future purchase decisions. For example, previous purchase decisions influence the chance of a consumer purchasing additional items (Dhar et al., 2007a; Vohs et al., 2008), the visceral nature of next purchase (Khan & Dhar, 2006), and a consumer's ability to regulate their future spending (Vohs & Faber, 2007). Additionally, research suggests that consumer decisions are processed contingently on their stage of the shopping trip, such that consumers are more

abstract and uncertain of the shopping goals at the beginning of a shopping trip (Lee & Ariely, 2006). I build on this foundation with two essays that examine the sequential dynamics of consumer's purchasing behavior within a single shopping trip.

The first essay demonstrates that a consumer's relative spending—the price of an item, relative to the prices of the other items in the same product category—evolves nonlinearly over a single shopping trip. As research has demonstrated the manner in which consumers categorize and track their spending influences their subsequent spending (Heath & Soll 1996; Thaler 1980; 1985), I examine these spending patterns for both budget and nonbudget shoppers. Budget shoppers—consumers who shop with an explicit and consequential budget in mind (Bliss 1988; Thaler 1999)—evaluate their in-store spending against a different reference point than nonbudget shoppers (Heath and Soll 1996; Prelec and Loewenstein 1998). These unique reference points are expected to drive these distinct patterns in relative spending. Differentiating between budget and nonbudget shoppers also offers a more predictive and actionable account of how and why a shoppers' relative spending evolves throughout a single shopping trip.

The second essay examines whether and how encountering promotions temporally in advance of the purchase decision for the promoted product influences a consumer's redemption behavior. Specifically, by building on temporal framing (Chandran & Menon 2004) and attitude accessibility literature (Fitzsimons & Morwitz 2004), I suggest that the earlier promotions are temporally separated from the promoted product and may actually be more effective than traditional shelf promotions. Specifically, I demonstrate that temporal promotions alter the amount and manner of information that consumers consider about the promoted product and purchase decision.

This subsequently amplifies their evaluations of the promoted product and ultimately influences the likelihood of redeeming the promotion.

Taken as a whole, my dissertation makes theoretical contributions to several streams of research (e.g., sequential decision-making, shopper marketing, mental accounting, budgeting, temporal framing, attitude accessibility, etc.). My first essay makes four important contributions. First, it is the first research to demonstrate that shoppers' relative spending evolves nonlinearly and distinctly for budget and nonbudget shoppers. Second, the differences in relative spending between budget and nonbudget shoppers are shown to be driven by unique patterns in the pain of paying experienced while shopping, a result of evaluating their spending against distinct reference points (Heath and Soll 1996; Prelec & Loewenstein 1998; Soster, Gershoff, & Bearden 2014). Third, this research is the first to document how the pain of paying evolves throughout a major shopping trip for both budget and nonbudget shoppers. Lastly, this research demonstrates that real-time spending feedback amplifies shoppers' pain of paying, ultimately increasing the nonlinearity in relative spending.

The second essay makes three important contributions. First, it is the first research to demonstrate that promotions encountered before the purchase decision for the promoted product may be more effective than those encountered with the promoted product. Second, this research contributes to in-store decision-making (Dhar et al., 2007a; Stiller et al. 2010; Vohs et al., 2008) literature by demonstrating that these temporal promotions bias the manner in which consumers make their ultimate purchase decisions. In essence, the promotions alter the amount and type of information processed by consumers. Third, this research adds to literature on attitude accessibility (Fitzsimons

& Morwitz 1996, Morwitz & Fitzsimons 2004), by demonstrating that promotions can implicitly activate thoughts of the promoted product, which makes those thoughts more accessible and influential in the ultimate purchase decision. This enhances accessibility can polarize a shopper's initial evaluations towards the promoted product.

My dissertation also offers numerous recommendations to retailer, practitioners and researchers. Primarily, my dissertation demonstrates that a consumer's decisions is systematically biased by when it occurs within a longer sequence of shopping decisions. Therefore, the findings from these two essays highlight the need for retailers to examine and understand these within-trip dynamics in order to better communicate with their customers. Until now, much of the research efforts of retailers have focused on examining shopping behavior based on customer-level and trip-level variables. They generally collect purchase history through loyalty and/or credit card information. This allows retailers to segment and compare their customers based on the decisions they make in one shopping trip or over many. The findings presented in this research demonstrate that retailers can go one step deeper to better understand their customers' individual purchase decisions and incorporate information about when each purchase is made throughout each of their shopping trips.

These findings should spur retailers to devise and implement tracking systems that allow them to collect information regarding the sequence of decisions shoppers make in each shopping trip, as the order in which shoppers make these decisions provides another layer of understanding to shopper's purchase decisions. For instance, some retailers provide their customers with smart shopping carts, which allow them to track customers' in-store location and basket contents throughout their shopping trip. Not only

will this help retailers engage with shoppers throughout their shopping trips (Clifford & Hardy 2013) but it can also help understand the context of each shopping decision. Retailers could even incorporate knowledge of these spending dynamics even without having a tracking system in place. For example, retailers could, at minimum, approximate the sequence of decisions based on store layout and incorporate these in-store dynamics into their examination of a shoppers' past purchases. This can allow them to get a better understanding of a specific customer category-level price elasticities based on how many purchase people made and when they may have occurred within a shopping trip.

Although enhancing retailers' understanding of how consumers make decisions within a shopping trip provides significant benefits to retailers and manufacturers, perhaps the largest implication of this research is how retailers can leverage this information to increase the effectiveness of their marketing programs. For example, the first essay demonstrate that consumers may be more or less sensitive towards to spending money at different points of their shopping trip. This suggests the retailers should layout the store in a way the allows them to take advantage of the dynamics sensitivity. For example, retailers could change their store layouts or prices of products with in a category to increase the likelihood the consumers would purchase the store branded products. Or, they could design marketing programs that offer price promotions to consumers for product and product category that are encountered when shoppers' sensitivity to spending money is at its highest.

The findings from my second essay also provide guidance to retailers for engaging their customers. Instead of only offering promotions to customers when they arrive at the purchase decision for the promoted produce (i.e., on the shelf), retailers can

now offer promotions to shoppers at any point in the shopping trip. These temporal promotions can attract a consumer's attention and influence evaluate the promotion, ultimately enhancing the likelihood that the promotion will be effective. In addition, these temporal promotions may also bias what information shoppers consider in the purchase decision involving the promoted product. Thus temporal promotions may influence shopping behavior beyond redeeming the promotion itself. Thus, retailers could use temporal promotions, not only to enhance the effectiveness of the promotion, but also to influence total category spending.

Through two essays, my dissertation discusses and demonstrates that shoppers' decisions are influenced by when they occur within a sequence of related decisions (i.e., a shopping trip). In my first essay, I demonstrate that a consumer's relative spending in a product category varies based on when the decision is made within their shopping trip. My second essay examines how a consumer's response to a promotion is influenced by encountering the promotions before they arrive at the purchase decision. In each essay, I provide support for the proposed theoretical framework and suggest various opportunities for future research opportunities.

APPENDIX

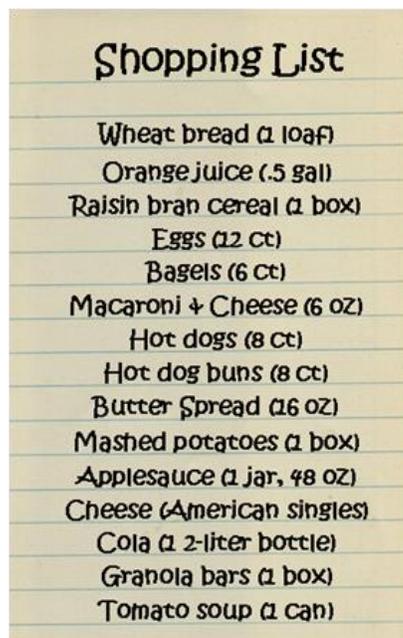
Shopping List for Experiment 1 and 2:

Shopping List: Bread, Bananas, Milk, Cola, Cheese, Eggs, Cookies, Cereal, Ham, Spaghetti, Pasta Sauce, Potato Chips, Apples, Beer, Pizza, Chicken.

Shopping List for Experiment 3:



Shopping List for Experiment 4:



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VITA

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