

## **How consumers with hedonic (vs utilitarian) purchase motive use item-price (vs price-item) presentation order as a mechanism to justify their hedonic purchase**

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## **How Consumers with Hedonic (vs. Utilitarian) Purchase Motive Use Item-Price (vs. Price-Item) Presentation Order as a Mechanism to Justify Their Hedonic Purchase**

### **Abstract**

#### **Purpose**

This research investigates the moderating role of hedonic and utilitarian purchase motives for the presentation order effect. Although past research finds that presenting item first and price later (e.g., 70 items for \$29) increases consumers' purchase intention than presenting the information in the opposite order (e.g., \$29 for 70 items), the effect was examined mostly in hedonic consumption context. We examine whether the effect is applicable for hedonic purchases but is less applicable for utilitarian purchases, and why.

#### **Design/methodology/approach**

Seven experiments tested the moderating effect of purchase motives for the presentation order effect. Two serial mediation analyses were conducted to examine the underlying mechanism.

#### **Findings**

The "item-price" (vs. "price-item") order increases hedonic purchases, but not utilitarian purchases. Because consumers feel guilty about hedonic purchases, they engage in motivated information processing in order to perceive greater value from their hedonic purchase when item (benefit) information is presented first and price (cost) information is presented later. Perceiving greater value reduces guilt, which consequently increases hedonic purchases. In contrast, the order effect is not observed for utilitarian purchases that do not elicit guilt. When a price discount is offered, the order effect is reversed because actual savings justifies hedonic purchases better than perceived savings resulting from motivated information processing.

#### **Originality**

This research introduces a novel moderator for the presentation order effect and a novel underlying mechanism, driven by the motivation to alleviate guilt associated with hedonic purchases.

#### **Practical Implications**

When promoting hedonic products, marketers are recommended to present item information before price information, unless a price discount is offered, in which case the price should be presented first.

*Keywords:* hedonic motive, order effect, guilt, motivated information processing, unit price

## Introduction

Firms adopt different strategies to promote their products or services, including varying the order in which price and quantity information is presented. For instance, Dropbox presents its price information first and then quantity information (e.g., \$9.99/month for 2 TB storage, \$18/month for 3TB; Dropbox, Inc. 2023), whereas Apple presents quantity information first and price later for its iCloud services (e.g., 50 GB: \$0.99, 200 GB: \$2.99, 2TB: \$9.99; Apple Inc. 2023). On the Airbnb app search results list, hosts can choose the content of the two-line description of their lodgings that is displayed before the price (i.e., price is always displayed on the third line), and some of these hosts choose to display quantity related information (e.g., number of rooms or beds) before the price information. Retailers of frequently purchased consumer goods that are often sold in multi-item packages (e.g., chocolates, toothbrushes, light bulbs, socks, or towels) also adopt different strategies regarding whether to present price information first or quantity information first. For instance, Amazon presents descriptions of its products first (and this description in most cases includes quantity information) and then price information (e.g., vitamin supplements 120 pills per pack, \$19.99), whereas Walmart's online shop presents price information first (e.g., \$19.99, 120 per pack) (See Appendix A).

Is the order of presenting price and quantity related information important for sales of products and services? Bagchi and Davis (2012) have shown that the order in which price and quantity information is presented does affect consumers' purchase intention. Specifically, they find that consumers are more likely to purchase a multi-item package when its item (quantity) information is presented first and the price information later (i.e., "item-price" order) (e.g., 70 items for \$29) than when the price is presented first and the item later (i.e., "price-item" order) (e.g., \$29 for 70 items). They suggest this happens because consumers tend to anchor on the first

piece of information (Epley and Gilovich 2010; Tversky and Kahneman 1974); that is, when item information is presented first, consumers can perceive greater value by focusing on how many they receive rather than on how much they pay. Bagchi and Davis (2012) further show that this order effect is observed only when calculating unit price (e.g., price per item) is difficult, and as a result, consumers engage in heuristics (i.e., anchoring) to evaluate the package. When unit price is easy to calculate, the order effect is no longer observed.

Although the findings of Bagchi and Davis (2012) have important implications for marketers regarding in which order price and quantity information should be presented, the product categories examined in their studies are mostly limited to entertainment services (e.g., TV streaming services, on-demand movie streaming services, and music download services) whose consumption experiences are hedonic, rather than utilitarian, in their nature.<sup>1</sup> Could it be possible that the order effect observed in past research is driven by the hedonic nature of the category examined? Would the presentation order effect also be manifested with utilitarian products or services?

Considering hedonic versus utilitarian purchase motive associated with products or services may be important in studying presentation order effects because past research suggests that these purchase motives can change how consumers process information (Choi et al. 2020); that is, purchase motives may affect how price and quantity information is processed.

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<sup>1</sup> Out of the four studies (including one supplementary study) conducted by Bagchi and Davis (2012), three studies used entertainment services, such as TV streaming services, on-demand movie streaming services, and music downloading services, as their stimuli. We conducted a pilot study ( $N = 101$ ) to examine how consumers perceive the stimuli used in Bagchi and Davis' (2012) studies. As expected, participants perceived web-based television or on-demand services (e.g., Hulu, YouTube TV, Netflix, Amazon Prime Video, Disney Plus, HBO, Redbox) to be highly hedonic rather than utilitarian. Please see Appendix B for the full results of this pilot study. Note that one of the four studies of Bagchi and Davis (2012) examined the presentation order effect in a context-free situation. The effect was observed only when there was an additional boundary condition. We discuss this boundary condition in relation to our findings in the General Discussion.

Specifically, past research shows that, because consumers tend to feel guilty about making hedonic (vs. utilitarian) purchases that are often perceived as unnecessary and wasteful, consumers look for ways to justify their pleasurable yet unnecessary purchases so that they can alleviate their guilt (e.g., Choi et al. 2014, 2020; Baghi and Antonetti 2017; Hagtvædt and Patrick 2016; Okada 2005; Strahilevitz and Myers 1998; Zemack-Rugar et al. 2016). One possible way of justifying their hedonic purchases and reducing their guilt could be by engaging in motivated (or biased) information processing that leads them to perceive their desired hedonic purchases to be of greater value—for instance, by overweighting quantity information while downplaying price information when quantity information is presented first and thus is more salient—because perceiving greater value may help justify their purchases. On the other hand, consumers with a utilitarian purchase motive would not engage in such motivated information processing because making a utilitarian purchase is not likely to trigger guilt. In sum, the present research investigates hedonic and utilitarian purchase motives as a possible moderator for the presentation order effect and examines the process underlying the effect.

By introducing a novel moderator for the presentation order effect and revealing a related novel process underlying the effect, the current research advances the research on the presentation order effect. While past research suggested a cognitive mechanism (i.e., engaging in heuristics due to limited cognitive resources or ability), the current research demonstrates a motivation-based mechanism—a process driven by consumers' motivation to alleviate guilt associated with hedonic purchases. The present research also contributes to literature on hedonic versus utilitarian purchase motives by introducing a novel way of alleviating guilt and increasing hedonic purchases—that is, by presenting quantity information before price information for hedonic products or services. These theoretical contributions are all the more important because

they lead to practical implications. Specifically, our findings offer marketing practitioners clear guidelines regarding which presentation order to adopt depending on the purchase motive associated with their products or services. Furthermore, the current research introduces a practical way of increasing sales for hedonic products or services without incurring any additional cost, unlike the strategies suggested from past research that often involved additional costs or investments (e.g., offering price discounts or launching cause-related marketing campaigns) (e.g., Kivetz and Zheng 2017; Strahilevitz and Myers 1998).

In the following section, we review the literature on hedonic and utilitarian purchase motives and the strategies identified in past research that help alleviate guilt associated with hedonic purchases. We also review the literature on motivated information processing to develop our hypotheses regarding how the motivation to alleviate guilt can induce biased (or motivated) processing of price and quantity information, when item information is presented first and price later (vs. price-item order). We then present seven studies that test our hypotheses. Finally, we discuss the theoretical and practical implications of our findings.

### **Conceptual Background**

#### **Hedonic versus Utilitarian Purchase Motive**

Products have often been classified based on whether their purchase is driven by hedonic or utilitarian motive (Dhar and Wertenbroch, 2000; Hirschman and Holbrook 1982; Strahilevitz and Myers 1998). Hedonic products are purchased because they are fun, sensually pleasurable, or represent fantasies; on the other hand, utilitarian products are purchased because they meet instrumental or functional needs (Dhar and Wertenbroch, 2000; Strahilevitz and Myers 1998). Consequently, hedonic products are often perceived as unnecessary, frivolous, and even decadent, while utilitarian products are perceived as relatively more necessary and practical

(Okada 2005; Strahilevitz and Myers 1998). Chocolates, flowers, concert tickets, theme parks, and sports cars are typical product categories that have been considered to be hedonic, whereas toothbrushes, trash bags, water, and personal computers have commonly been considered to be utilitarian (Dhar and Wertenbroch 2000; Dugan et al. 2021; Hirschman and Holbrook 1982; O'Curry and Strahilevitz 2001; Okada 2005; Strahilevitz and Myers 1998). Although a product category may be predominantly perceived as either hedonic or utilitarian, past research also shows that most products have both hedonic and utilitarian characteristics, and thus, a consumers' consumption goal in a given situation can change their typical perception of a product (Batra and Ahtola 1991; Kivetz and Zheng 2017; Lu et al. 2016; Pham 1998). For instance, although a personal computer is typically perceived as utilitarian, a consumer considering the purchase for entertainment would see it as hedonic (Dhar and Wertenbroch 2000).

### **Strategies to Reduce Guilt Associated with Hedonic Purchases**

Consumers often experience anticipated guilt when considering purchasing hedonic products or services because they are perceived as unnecessary and wasteful (e.g., Choi et al. 2014, 2020; Mishra and Mishra 2011; Okada 2005; Strahilevitz and Myers 1998). Consequently, marketing activities that help justify hedonic purchases and as a result reduce the anticipated guilt have shown to increase hedonic purchases. One such marketing activity that has proven to effectively increase hedonic purchases is cause-related marketing, in which consumers' purchases are tied with prosocial giving (Baghi and Antonetti 2017; Chang and Chu 2020; Hagtvedt and Patrick 2016; Kulshreshtha et al. 2019; Strahilevitz and Myers 1998; Zemack-Rugar et al 2016). Engaging in prosocial actions through purchasing products associated with charitable donations helps consumers justify their subsequent hedonic consumption because the

prosocial actions provide psychological license or moral credentials to indulge (Chang and Chu 2020; Khan and Dhar 2006; Monin and Miller 2001; Merritt et al. 2010). Several studies have directly measured guilt and have shown that cause-related marketing effectively reduces the guilt associated with hedonic purchases, and that this is especially effective for consumers prone to feeling guilty about hedonic consumption (Baghi and Antonetti 2017; Hagtvedt and Patrick 2016; Zemack-Rugar et al. 2016). Kulshreshtha et al. (2019) showed that when utilitarian products incorporate some hedonic attributes (e.g., a refrigerator with a floral printed door), they can also benefit from cause-related marketing. Like cause-related marketing, making consumers expend greater effort in the process of obtaining hedonic products or services also helps justify hedonic purchases. For instance, Kivetz and Simonson (2002) showed that reward programs that require greater effort result in greater preference for luxury goods as rewards in comparison to rewards consisting of necessities. This effect was magnified among consumers feeling greater guilt, indicating that exerting effort, like engaging in prosocial actions, serves as a psychological license to indulgence and consequently reduces guilt associated with hedonic indulgence (Kivetz and Zheng 2006).

Another representative way of alleviating anticipated guilt associated with hedonic purchases is by providing discounts that help mitigate the concern that hedonic purchases are wasteful and justify the purchases (Choi et al., 2023; Khan and Dhar 2010; Kim and Tanford 2021; Kivetz and Zheng 2017; Mishra and Mishra 2011). For instance, both Mishra and Mishra (2011) and Kivetz and Zheng (2017) showed that price-based promotions (e.g., discounts) are more effective than quantity-based promotions (e.g., providing a bonus pack) in increasing hedonic or vice purchases, as price discounts directly remove the monetary concern. Khan and Dhar (2010) found that consumers are more likely to purchase a mixed bundle consisting of a

hedonic component (e.g., fondue set) and a utilitarian component (e.g., grill) when a price discount is offered on the hedonic component rather than on the utilitarian component, indicating that the discount on the hedonic component serves as a better justification for the bundle purchase. Relatedly, consumers are more reluctant to pay for indulgent products using money than when paying with other resources, such as their effort, time, or bonus points, indicating that offering a monetary discount serves as an effective justification for hedonic indulgence that can help reduce consumption guilt (Kivetz and Zheng 2006; Liu and Chou 2020; Okada 2005)

Different from price discounts that offer *actual* savings, pricing strategies that lead to *perceived* savings can also justify and promote hedonic purchases (Choi et al. 2014, 2020; Wu et al., 2021). For instance, odd-ending pricing increases hedonic purchases, as it is perceived as offering a price discount, compared to round-ending pricing (Choi et al., 2014). Similarly, partitioned pricing, which separates surcharge information (e.g., delivery fee) from base price information, increases hedonic purchases, as consumers tend to under-process surcharge information, thereby perceiving the overall price to be lower, compared to combined pricing.

Similar to pricing strategies that offer perceived savings, we propose that “item-price” (vs. “price-item”) presentation order can mitigate guilt associated with hedonic purchases by offering greater *perceived* value that justifies the purchases. Specifically, we expect that consumers with hedonic purchase motive will be particularly motivated to focus on initial information when information is presented in the item-price (vs. price-item) order, because this facilitates perceiving greater benefits earned from the quantity while downplaying the cost they need to pay. This increased value perception will, in turn, alleviate the anticipated guilt and increase hedonic purchases. In other words, consumers will engage in motivated over-processing of item (benefit) relative to price (cost) information in order to justify their hedonic purchases

and alleviate guilt anticipated from the purchases. On the other hand, consumers with utilitarian purchase motive will not be motivated to alleviate guilt and thus will not be motivated to over-process quantity information. As a result, presentation order will be less likely to affect utilitarian purchases. In sum, we suggest that the presentation order effect for hedonic purchases is a motivated process, unlike the order effect observed in the studies of Bagchi and Davis (2012) that was suggested to be driven by limited cognitive resources or ability. The plausibility of our view that motivated processing is a driver of presentation order effects is suggested by a vast amount of research that documents people's motivation to process information in a manner that allows them to reach a desired conclusion (e.g., Baumeister and Newman 1994; Dunning 1999; Kunda 1990). Below, we review the literature on motivated information processing to support our motivation-driven mechanism.

### **Motivated Information Processing to Reduce Anticipated Guilt**

Research suggests several mechanisms via which consumers with hedonic purchase motive may focus or anchor on item (quantity) related information more so than price (cost) related information, and as a result, perceive a product as having greater value, thereby alleviating guilt, compared to consumers with utilitarian purchase motive. Here, we present two possible mechanisms through which this could occur, one or both of which may function to justify hedonic purchases: motivation can trigger (1) selective attention towards desired (vs. undesired) information or (2) overweighting of desired (vs. undesired) information.

First, research has shown that motivation can influence *attention* in terms of both what people see (i.e., the target of attention) and how long they see it (i.e., the amount of attention) to produce a desired outcome from the information they processed (e.g., Balci et al. 2006; Baumeister and Newman 1994; Choi et al. 2020; Lang 1995; Xing and Isaacowitz 2006).

Studies that collected eye-tracking data found that people who are motivated to regulate their emotions selectively attend to positive images while avoiding negative images (Mather and Carstensen 2003; Xing and Isaacowitz 2006). They also found that people with an emotion regulation goal control the amount of attention paid to different stimuli; that is, they fix their attention on positive stimuli longer than on negative ones. Similarly, people with a specific phobia (e.g., animal phobia) spent significantly less time viewing pictures related to their phobia (e.g., animal pictures) than unrelated pictures when they were given the opportunity to freely view various photos (Lang 1995). Like the participants in these studies, consumers with hedonic purchase motive also have an emotion regulation goal—a goal to alleviate anticipated guilt arising from their expected hedonic consumption. Hence, they are more likely to pay attention to the desired item (quantity) information, while directing their attention away from the undesired price information, compared to consumers with utilitarian purchase motive.

Second, research has also shown that motivation can change how different pieces of information are weighted in judgement and decision-making processes (e.g., Ahluwalia 2000; 2002; Baumeister and Newman 1994; Chaiken et al. 1996; Dunning 1999). Although the amount of attention paid to a piece of information and the weight assigned to the information can be positively correlated, several past studies investigated the effect of motivation on weighing of a given piece of information while controlling for the amount of attention directed toward the information (e.g., after participants comprehended the information). For instance, Ahluwalia (2000) found that when consumers encountered negative information related to their favorite brands or politicians that is difficult to refute (i.e., the information has received consumers' attention), they underweight the negative information while overweighting positive information because they are motivated to defend their favorite brands or politicians. In fact, motivated over-

or under-weighting of information is commonly observed in our daily lives: people are generally motivated to think of themselves in a positive light, and thus information processing is conducted in a self-enhancing direction (Baumeister and Newman 1994; Taylor and Brown 1988). This leads to discounting of the possibility that negative events can happen to them versus to others—that is, people underweight the relevance of negative information to the self, resulting in “unrealistic optimism” (Weinstein 1980; Raghurir and Menon 1998). These findings suggest that consumers who are motivated to justify their hedonic purchases and alleviate associated guilt would be more likely to overweight quantity information and underweight the price information, compared to those who do not have such motivation.

### **Hypotheses**

The findings from the motivated processing literature suggest that consumers with a hedonic purchase motive may justify their purchase by selectively attending to quantity information (while directing their attention away from price information), and/or by overweighting quantity information (while underweighting price information). This motivated processing may be facilitated further when quantity information precedes price information, capitalizing on the anchoring and adjustment heuristics—people’s tendency to anchor on the first piece of information and then insufficiently adjust their initial evaluation based on the information processed later on (Tversky and Kahneman, 1974). Consistent with this tendency, Bagchi and Davis (2012) showed that when package information is presented in the item-price order, consumers assess the item information as more important than is the case when the information is presented in the price-item order—that is, consumers overweight the first piece of information. They suggest this happened because the first piece of information was more salient—that is, the first piece of information captured consumers’ attention to a greater extent. If

consumers in general, without extra incentive or motivation, tend to overweight the first (vs. second) piece of information and fail to make sufficient adjustments, this cognitive bias will be all the more likely for consumers who are motivated not to make the adjustment—that is, for consumers with hedonic purchase motive. In contrast, consumers with utilitarian purchase motive do not have guilt-reduction motivation and so they will not be motivated to selectively attend to and/or overweight item information. Therefore, presentation order will be less likely to affect utilitarian than hedonic purchases. More formally, we hypothesize

H1: Compared to the “price-item” order, the “item-price” order will increase consumers’ intention to make hedonic purchases, but will be less likely to increase their intention to make utilitarian purchases.

In past research, the presentation order effect was observed only when unit price calculation was difficult (Bagchi and Davis, 2012) because the difficulty in calculation triggered heuristic processing as a means of reducing cognitive effort. When unit price calculation is easy, this means fully considering quantity and price information is easy, and therefore, consumers no longer need to engage in heuristic processing. Extending these findings, we expect that consumers who are motivated to justify their hedonic purchases will be less motivated to calculate unit price; that is, they will be less motivated to fully consider quantity and price information. In fact, these consumers may be motivated to use unit price computation difficulty as an excuse not to fully consider the price information. In other words, the difficulty in computing the unit price will lead them to be more likely to engage in motivated processing. In contrast, when unit price computation is easy, motivated information processing will be interrupted, as the ease of calculating the unit price makes motivated perception of greater value more difficult. Therefore, when unit price computation is easy, the impact of presentation order on consumers’ intention to make hedonic purchases will be attenuated. On the other hand,

consumers with utilitarian purchase motive are not motivated to perceive greater value from their purchases because utilitarian purchases do not activate the motivation to alleviate guilt.

Therefore, presentation order will be less likely to affect utilitarian purchases, even when unit price computation is difficult (in addition to when it is easy).

H2a: When computing unit price is *difficult*, the “item-price” (vs. “price-item”) order will increase consumers’ intention to make hedonic purchases, but will be less likely to increase their intention to make utilitarian purchases.

H2b: When computing unit price is *easy*, the “item-price” (vs. “price-item”) order will be less likely to affect consumers’ intention to make hedonic purchases or utilitarian purchases.

We have proposed that consumers with hedonic purchase motive engage in motivated information processing because perceiving greater value can mitigate anticipated guilt associated with hedonic purchases. In other words, we expect the positive effect of presentation order on hedonic purchases will be sequentially mediated by increased perceived value and decreased anticipated guilt. We expect to observe this serial mediation when consumers have difficulty in computing the unit price (i.e., difficulty in perceiving the objective value), but expect it to be less likely when the computation is easy or for utilitarian purchases.

H3a: When computing unit price is *difficult*, increased perceived value and reduced anticipated guilt will sequentially mediate the impact of item-price (vs. price-item) order on consumers’ intention to make *hedonic* purchases, but they will be less likely to mediate consumers’ intention to make *utilitarian* purchases.

H3b: When computing unit price is *easy*, regardless of whether consumers’ purchase motive is hedonic or utilitarian, perceived value or anticipated guilt will be less likely to mediate the impact of presentation order on consumers’ purchase intention.

If alleviating guilt is the key reason why consumers with hedonic purchase motive engage in motivated information processing, consumers who have a high predisposition to feel guilt will be much more likely to engage in such motivated processing than those who are not predisposed to feel guilt. Indeed, past studies have found that consumers who are highly disposed

to feel guilty about their consumption (vs. consumers with a low predisposition to feel guilt) are more likely to use price discount or partitioned (vs. combined) pricing as a guilt-alleviating justification (Choi et al. 2020; Mishra and Mishra 2011), indicating that guilt-prone consumers perceive greater saving from those marketing activities. Similar to price discount and partitioned (vs. combined) pricing, we predict that item-price (vs. price-item) presentation order will also function as an effective guilt-mitigating mechanism more for consumers high in dispositional consumption guilt than for those low in the guilt.

H4: The individual differences in predisposition to feel guilt will *magnify* the positive impact of the item-price (vs. price-item) presentation order on the intention to make *hedonic* purchases.

Earlier, we proposed that consumers with hedonic purchase motive would use unit price computation difficulty as an excuse to engage in motivated processing that promotes the perception of greater value from the same product. If this is the case, reminding consumers about the unit price will interrupt consumers' engagement in such motivated information processing. Indeed, Bagchi and Davis (2012) found that the item-price (vs. price-item) order no longer increased perceived value of a package when participants were prompted to assess the unit price. Likewise, we expect that making the unit price available or prompting consumers to estimate or process the information will interrupt the motivated information processing even for consumers with hedonic purchase motive. Therefore, we expect that the motivated information processing will be observed under the item-price order only when the unit price is not available.

H5: Compared to when unit price information is *available* and/or consumers are *reminded* of it, when unit price is *unavailable*, consumers will be more willing to purchase hedonic products whose information is presented in the item-price order. In contrast, the unit price availability will be less likely to affect consumers' intention to purchase utilitarian products.

Thus far, we have proposed that the order effect exists because people under-process price information, which is undesired because it does not help alleviate guilt associated with hedonic purchases. Nevertheless, price information could be desired when a price discount is offered. Indeed, past research shows that price discounts help justify hedonic purchases and alleviate guilt (e.g., Khan and Dhar 2010; Kivetz and Zheng 2017). Therefore, when a price discount is offered, presenting the price first and the item later (i.e., “discounted price-item” order) can help consumers justify their hedonic purchases because this order helps consumers over-process information about the savings earned from the discount, which will increase the perceived value of their hedonic purchase.

We further propose that the positive effect of presenting the discounted price first (“discounted price-item” order) will be greater than the positive effect of presenting the item first (“item-discount price” order). That is, we expect that the presentation order effect will be reversed when an actual discount is offered. We expect this reversal because the discount information serves as a more powerful justification for hedonic purchases than the item information by offering actual savings instead of perceived savings. Therefore, presenting the discounted price first will increase hedonic purchases more than presenting the item first. Consistent with our expectation, Choi et al. (2020) showed that actual savings offered through a price discount served as a more powerful justification for hedonic purchases than the savings perceived through under-processing surcharge information when price was presented in a partitioned format.

H6: When a price discount is *present*, the price-item (vs. item-price) order will increase consumers’ intention to make hedonic purchases, but will be less likely to increase their intention to make utilitarian purchases.

### Study Overview

In seven studies, we tested the proposed relationship between presentation order and purchase motives. In studies 1-1 and 1-2, using different purchase motivation manipulations, we tested whether the presentation order effect is likely to be observed for hedonic purchases but is less likely to be observed for utilitarian purchases (H1). Study 2 tested the motivated processing mechanism underlying the proposed effect. Specifically, using a serial mediation model involving perceived value and anticipated guilt as mediators, we tested whether item-price (vs. price-item) information increases the perceived value of hedonic products, which in turn reduces anticipated guilt and, consequently, increases hedonic purchases. Furthermore, we tested whether this sequential mediation is observed only when computing unit price is difficult, and thus motivated processing resulting in increased perception of value is possible (H2 and H3). Study 3 tested the mechanism using individual differences in disposition to feel consumption guilt (H4). In a supplementary study, we replicated the proposed presentation order effect and the underlying mechanism by measuring, rather than manipulating, participants' perception of a product being hedonic or utilitarian. Study 4 tested whether making unit price available or reminding participants of it would interrupt motivated processing even for hedonic products (H5). Finally, in Study 5, we tested whether offering a price discount reverses the presentation order effect (H6).

#### **Study 1-1: The Moderating Role of Purchase Motive for the Presentation Order Effect**

The first study tested whether the presentation order effect is likely to be observed for consumers with hedonic purchase motive, but is less likely for consumers with utilitarian purchase motive (H1).

## Method

Five hundred and eighty-three participants were recruited from CloudResearch<sup>2</sup> (Chandler et al. 2019; Douglas, Ewell, and Brauer 2023; Hauser et al. 2023), and all but one participant completed the study ( $M_{\text{age}} = 37.7$  years, 268 males and 310 females, 4 preferred not to answer). Participants were randomly assigned to one of the four conditions in a 2 (purchase motive: hedonic vs. utilitarian)  $\times$  2 (presentation order: item-price, price-item) between-subjects design.

We manipulated purchase motive using product categories (i.e., chocolates and toothbrushes; see Appendix C for specific stimuli). A pretest ( $N = 100$  recruited from the same population; age = 39.1 years, 47 males and 52 females, 1 preferred not to answer) confirmed that the chocolates were perceived as more hedonic than the toothbrushes, which was measured on a 9-point bipolar scale (1 = extremely utilitarian, 9 = extremely hedonic) (8.10 ( $SD = 1.34$ ) vs. 1.70 ( $SD = 1.09$ ),  $F(1, 98) = 682.67$ ,  $p < .001$ ,  $\eta^2 = .87$ ).

In the item-price order condition, product information was presented as “43 pieces for \$17”, whereas in the price-item order condition, the information was presented as “\$17 for 43 pieces.” After seeing their assigned stimulus, participants rated their likelihood of purchasing the product on a 7-point scale (1 = very low, 7 = very high). Finally, participants reported their

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<sup>2</sup> For data collection across all studies, we opted for CloudResearch because recent studies found it to be one of the most reliable participant-recruiting platforms, compared to other platforms, such as Mturk and Qualtrics, and even to a sample of undergraduate students (Douglas, Ewell, and Brauer 2023; Hauser et al. 2023). The findings indicate that participants on Prolific and CloudResearch demonstrate a higher likelihood of passing various attention checks, providing meaningful responses, and adhering to instructions. Furthermore, participants recruited from CloudResearch are found to be more representative than those from a major university laboratory pool (Peer et al. 2023). Given the platform's inherent attention check that ensures high-quality data, we omitted additional attention checks in our studies to avoid redundancy for participants.

demographic information. For all remaining studies, participants' demographic information was collected at the end of the study, if not mentioned otherwise.

## Results

We conducted a  $2 \times 2$  ANOVA with purchase motive and presentation order as predictors. No main effect was observed (purchase motive:  $F(1, 578) = 1.12, p = .291$ ; presentation order:  $F(1, 578) = 1.89, p = .170$ ). Importantly, the two-way interaction was significant ( $F(1, 578) = 4.39, p = .037, \eta^2 = .008$ ). Consistent with H1, the item-price (vs. price-item) order increased participants' intention to purchase chocolates ( $M_{\text{item-price}} = 4.18 (SD = 1.80)$ ,  $M_{\text{price-item}} = 3.63 (SD = 1.88)$ ;  $F(1, 578) = 5.93, p = .015, \eta^2 = .01$ ), but not their intention to purchase toothbrushes ( $M_{\text{item-price}} = 3.68 (SD = 1.90)$ ,  $M_{\text{price-item}} = 3.80 (SD = 2.00)$ ;  $F(1, 578) = .26, p = .608$ ) (figure 1).

"Insert Figure 1 about here"

### Study 1-2: Manipulating the Purchase Motive Associated with Chocolates

The next study was designed to replicate the moderating role of purchase motives on the presentation order effect using a different purchase motive manipulation. Instead of using typical product categories, we primed purchase motives for the same product, which is another prevalent way of manipulating purchase motives in past research (e.g., Choi et al. 2020; Mishra and Mishra 2011).

## Method

Five hundred and fifty white native English speakers without health problems associated with sugar intake were recruited from CloudResearch ( $M_{\text{age}} = 41.8$  years, 246 males and 300

females, 4 preferred not to answer)<sup>3</sup> and were randomly assigned to one of the four conditions in a 2 (purchase motive: hedonic vs. utilitarian) × 2 (presentation order: item-price vs. price-item) between-subjects design.

All participants saw an advertisement for chocolates. Participants in the hedonic motive condition read the following product description: “Chocolate is one of the favorite indulgences because of its delicious taste and smooth texture.” Those in the utilitarian motive condition read: “Chocolate is well known as an effective energy supplement and is great for cholesterol control” (Lu et al., 2016). A pretest ( $N = 85$  recruited from the same population;  $M_{\text{age}} = 39.4$  years, 40 males and 45 females) confirmed that participants in the hedonic motive condition perceived the chocolates as more hedonic than those in the utilitarian motive condition (8.09 ( $SD = 1.33$ ) vs. 6.68 ( $SD = 2.11$ ),  $F(1, 83) = 14.03$ ,  $p < .001$ ,  $\eta^2 = .145$ ) (1 = extremely utilitarian, 9 = extremely hedonic).

Participants in the item-price condition read that 43 pieces of chocolate were sold at \$17 (“43 for \$17”) whereas those in the price-item condition read “\$17 for 43.” After reading the advertisement, participants indicated their intention to purchase the chocolates on the 7-point scale used in study 1-1 (1 = very low, 7 = very high).

## Results and Discussion

A 2 × 2 ANOVA with purchase motive and presentation order was conducted. No main effects were observed (purchase motive:  $F(1, 546) = 1.34$ ,  $p = .248$ ; presentation order:  $F(1, 546)$

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<sup>3</sup> Compared to study 1-1, this study recruited a more homogeneous sample in terms of ethnicity and their health status regarding sugar intake. Since past research has found that homogeneous convenience samples can improve generalizability compared to conventional convenience samples (Jager et al., 2017), we believe the sample characteristics do not constrain the implication and generalizability of the results from this study. However, since we do not expect our proposed effects to be limited to a specific group of consumers with certain demographic or psychographic characteristics, our next studies did not limit the sample by such characteristics.

= 1.55,  $p = .214$ ). The two-way interaction was marginally significant ( $F(1, 546) = 3.27, p = .071, \eta^2 = .006$ ). Consistent with H1, the item-price (vs. price-item) order increased participants' intention to purchase chocolates in the hedonic condition ( $M_{\text{item-price}} = 3.95$  ( $SD = 1.80$ ),  $M_{\text{price-item}} = 3.48$  ( $SD = 1.84$ );  $F(1, 546) = 4.68, p = .031, \eta^2 = .01$ ), but not in the utilitarian condition ( $M_{\text{item-price}} = 3.49$  ( $SD = 1.78$ ),  $M_{\text{price-item}} = 3.58$  ( $SD = 1.70$ );  $F(1, 546) = .16, p = .690$ ) (figure 2).

“Insert Figure 2 about here”

Using a different purchase motive manipulation, study 1-2 replicated H1. The hypothesized two-way interaction was marginal, perhaps due to the insufficient utilitarian purchase motive manipulation—that is, chocolates were still perceived as relatively hedonic in the utilitarian condition (6.68 on a 9-point scale). Since using typical hedonic or utilitarian product categories seemed to induce a cleaner manipulation of purchase motives, we used product categories as our purchase motive manipulation in the next study.

### **Study 2: Mediating Role of Perceived Value and Anticipated Guilt When Unit Price Computation is Difficult**

Study 2 aimed at achieving two purposes. First, we examined the motivation-driven mechanism underlying the presentation order effect for hedonic purchases. Specifically, we measured whether consumers with hedonic purchase motive perceived greater value when product information was presented in the item-price (vs. price-item) order and whether this biased value perception reduced anticipated guilt. In other words, we aimed to show that perceived value and anticipated guilt sequentially mediate the relationship between the presentation order and purchase intention, which would indicate that the processing of product information was biased due to the motivation to reduce guilt. On the other hand, we did not

expect such mediation (i.e., motivated processing) when participants had utilitarian purchase motive as they would not be motivated to justify their purchase. Furthermore, we did not expect this mediation to occur when computing unit price was easy because the readily available unit price information made it difficult to have a biased perception of the product's value. Unit price, the objective value based on the price and quantity information, would interrupt the motivated processing. Hence, the second purpose of this study was to shed further light on this motivation-driven mechanism by revealing a boundary condition—ease of computing unit price—for the presentation order effect.

### **Procedure**

Eight hundred and twenty-one undergraduate students from a large Midwest university participated in this study in return for course credit. Twenty-six failed to complete the study.<sup>4</sup> Participants were randomly assigned to one of the eight conditions in a 2 (purchase motive: hedonic vs. utilitarian)  $\times$  2 (unit price computation: easy vs. difficult)  $\times$  2 (presentation order: item-price vs. price-item) between-subjects design. All participants saw a product advertisement. We used the chocolates and toothbrushes from study 1-1 to manipulate hedonic and utilitarian purchase motivations respectively. The unit price computation manipulation was adopted from the studies of Bagchi and Davis (2012; see their Study 1). Specifically, participants in the easy unit price computation condition read that 50 toothbrushes or chocolates were offered at \$20, whereas those in the difficult condition saw an offer of 43 toothbrushes/chocolates sold at \$17. In

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<sup>4</sup> We accidentally failed to collect the demographic information in this study. However, when we traced their information from another study ( $N = 855$ ) conducted by another researcher using the same pool of enrolled students during the same time period, we found that their average age was 24. In addition, 51.7% were males, 47.3% were females, and 1% preferred not to reveal their gender.

addition, the quantity information and the price information were presented to participants in the order following their assigned order condition.

After reading the advertisement, participants indicated their purchase intention on a 7-point scale, as in earlier studies. Next, participants responded to four questions that measured the perceived value of the product (i.e., this product is reasonably priced; this product offers value for money; this product is a good product for the price; this product would be economical; Sweeney and Souter, 2001) on a 7-point scale (1 = strongly disagree, 7 = strongly agree;  $\alpha = .92$ ). Anticipated guilt was measured with six items (i.e., how guilty/regretful/uneasy/hesitant/reluctant/sorry would you feel about purchasing this product?; Choi et al., 2014) on a seven-point scale (1 = not at all, 7 = extremely;  $\alpha = .94$ ). Finally, participants responded to a manipulation check that measured the extent to which calculating the unit price was difficult on a 7-point scale (1 = extremely easy, 7 = extremely difficult; Bagchi and Davis 2012).

## Results

### *Manipulation check*

As intended, participants in the difficult condition reported greater difficulty in calculating the unit price than those in the easy condition ( $M_{\text{difficult}} = 2.88$  ( $SD = 1.70$ ),  $M_{\text{easy}} = 2.41$  ( $SD = 1.48$ );  $F(1, 793) = 17.06$ ,  $p < .001$ ,  $\eta^2 = .021$ )

### *Purchase Intention*

We conducted a  $2 \times 2 \times 2$  ANOVA with purchase motive, unit price computation difficulty, and presentation order as predictors. A significant main effect of purchase motive was observed, indicating that participants in general were more likely to purchase chocolates than toothbrushes ( $M_{\text{chocolate}} = 3.74$  ( $SD = 1.83$ ),  $M_{\text{toothbrushes}} = 3.46$  ( $SD = 1.81$ );  $F(1, 787) = 4.81$ ,  $p$

= .029,  $\eta^2 = .006$ ). Importantly, this main effect was qualified by a significant three-way interaction ( $F(1, 787) = 4.37, p = .037, \eta^2 = .006$ ; figure 3). All the other main and interaction effects were not significant (presentation order:  $F(1, 787) = 2.47, p = .116$ ; price computation difficulty:  $F(1, 787) = .23, p = .634$ ; order  $\times$  difficulty: ( $F(1, 787) = .10, p = .753$ ; difficulty  $\times$  motive:  $F(1, 787) = .26, p = .610$ ; order  $\times$  motive: ( $F(1, 787) = 1.04, p = .308$ ).

We decomposed the three-way interaction according to the difficulty of computing unit price. When computing unit price was difficult, we found a significant two-way interaction between purchase motive and presentation order ( $F(1, 787) = 4.90, p = .027, \eta^2 = .006$ ). Consistent with H2a, when computing unit price was difficult, the item-price (vs. price-item) order increased participants' intention to purchase chocolates ( $M_{\text{item-price}} = 4.09 (SD = 1.69)$ ,  $M_{\text{price-item}} = 3.52 (SD = 1.87)$ ;  $F(1, 787) = 4.91, p = .027, \eta^2 = .006$ ), but not toothbrushes ( $M_{\text{item-price}} = 3.34 (SD = 1.75)$ ,  $M_{\text{price-item}} = 3.58 (SD = 1.81)$ ;  $F(1, 787) = .86, p = .355$ ). On the other hand, when unit price computation was easy, the two-way interaction was not significant ( $F(1, 787) = .57, p = .452$ ). Consistent with H2b, when unit price computation was easy, the presentation order did not affect the intention to purchase chocolates ( $M_{\text{item-price}} = 3.73 (SD = 1.85)$ ,  $M_{\text{price-item}} = 3.63 (SD = 1.89)$ ;  $F(1, 787) = .17, p = .685$ ) or the intention to purchase toothbrushes ( $M_{\text{item-price}} = 3.65 (SD = 1.87)$ ,  $M_{\text{price-item}} = 3.27 (SD = 1.83)$ ;  $F(1, 787) = 2.15, p = .143$ ).

“Insert Figure 3 about here”

### ***Perceived Value***

We conducted another  $2 \times 2 \times 2$  ANOVA with the same predictors on perceived value. A significant main effect of purchase motives was observed, indicating that participants perceived the toothbrushes as having greater value than the chocolates in general ( $M_{\text{toothbrushes}} = 5.17 (SD =$

1.29),  $M_{\text{chocolate}} = 3.77$  ( $SD = 1.39$ );  $F(1, 787) = 216.60$ ,  $p < .001$ ,  $\eta^2 = .22$ ). A significant main effect of unit price computation was also found, such that greater value was perceived when computing unit price was easy than when it was difficult ( $M_{\text{easy}} = 4.57$  ( $SD = 1.44$ ),  $M_{\text{difficult}} = 4.37$  ( $SD = 1.57$ );  $F(1, 787) = 4.30$ ,  $p = .038$ ,  $\eta^2 = .005$ ). There was no significant main effect of presentation order ( $F(1, 787) = 1.76$ ,  $p = .186$ ). A significant two-way interaction between purchase motive and presentation order was found ( $F(1, 787) = 4.76$ ,  $p = .029$ ,  $\eta^2 = .006$ ), but the other two-way interactions were not significant (order  $\times$  difficulty: ( $F(1, 787) = .57$ ,  $p = .451$ ); difficulty  $\times$  motive: ( $F(1, 787) = .23$ ,  $p = .633$ ). Importantly, these main and two-way interaction effects were qualified by a marginally significant three-way interaction effect ( $F(1, 787) = 3.32$ ,  $p = .069$ ,  $\eta^2 = .004$ ; figure 4).

We followed up on this three-way interaction by decomposing it based on the unit price computation difficulty. When computing unit price was difficult, a significant two-way interaction between purchase motives and presentation order was observed ( $F(1, 787) = 8.13$ ,  $p = .004$ ,  $\eta^2 = .01$ ). Consistent with our expectation, the item-price (vs. price-item) presentation order increased the perceived value of chocolates ( $M_{\text{item-price}} = 3.94$  ( $SD = 1.39$ ),  $M_{\text{price-item}} = 3.37$  ( $SD = 1.36$ ),  $F(1, 787) = 9.53$ ,  $p = .002$ ,  $\eta^2 = .012$ ), but not the value of toothbrushes ( $M_{\text{item-price}} = 5.00$  ( $SD = 1.40$ ) vs.  $M_{\text{price-item}} = 5.18$  ( $SD = 1.37$ );  $F(1, 787) = .93$ ,  $p = .336$ ). On the other hand, when computing unit price was easy, the two-way interaction was not significant ( $F(1, 787) = .06$ ,  $p = .801$ ). We did not find any effect of presentation order on the perceived value of chocolates ( $M_{\text{item-price}} = 3.94$  ( $SD = 1.36$ ),  $M_{\text{price-item}} = 3.85$  ( $SD = 1.38$ );  $F(1, 787) = .21$ ,  $p = .643$ ) or that of toothbrushes ( $M_{\text{item-price}} = 5.25$  ( $SD = 1.13$ ),  $M_{\text{price-item}} = 5.23$  ( $SD = 1.22$ );  $F(1, 787) = .01$ ,  $p = .916$ ). These results indicate that consumers with hedonic purchase motive engaged in motivated processing and perceived greater value when the item information was presented first,

but only when calculating the unit price was difficult. In contrast, consumers with utilitarian purchase motive did not engage in motivated processing regardless of whether unit price calculation was easy or difficult.

“Insert Figure 4 about here”

### ***Anticipated Guilt***

We conducted another  $2 \times 2 \times 2$  ANOVA with the same predictors on anticipated guilt. Consistent with past research (Choi et al, 2020; Mishra and Mishra, 2011), we observed a significant main effect of purchase motive, indicating that participants felt greater anticipated guilt when considering purchasing chocolates than when considering purchasing toothbrushes ( $M_{\text{chocolate}} = 3.74$  ( $SD = 1.57$ ),  $M_{\text{toothbrushes}} = 3.17$  ( $SD = 1.57$ );  $F(1, 787) = 26.34$ ,  $p < .001$ ,  $\eta^2 = .032$ ). In addition, when computing unit price was difficult, participants felt less anticipated guilt for purchasing chocolates when the product information was presented in the item-price order ( $M = 3.52$  ( $SD = 1.61$ )) than when it was presented in the price-item order ( $M = 3.98$  ( $SD = 1.49$ );  $F(1, 787) = 4.37$ ,  $p = .037$ ,  $\eta^2 = .006$ ). However, this difference was not observed when the computation was easy ( $M_{\text{item-price}} = 3.71$  ( $SD = 1.57$ ),  $M_{\text{price-item}} = 3.76$  ( $SD = 1.59$ );  $F(1, 787) = .06$ ,  $p = .807$ ). We did not find any other significant main effects or interaction effects (presentation order:  $F(1, 787) = .89$ ,  $p = .347$ ; price computation difficulty:  $F(1, 787) = .02$ ,  $p = .900$ ; order  $\times$  difficulty:  $F(1, 787) = .99$ ,  $p = .320$ ; difficulty  $\times$  motive:  $F(1, 787) = .0$ ,  $p = .988$ ; order  $\times$  motive: ( $F(1, 787) = 1.86$ ,  $p = .173$ ; order  $\times$  motive  $\times$  difficulty:  $F(1, 787) = .67$ ,  $p = .413$ ) (figure 5).

“Insert Figure 5 about here”

### ***Moderated Moderated Mediation with Serial Mediators***

To examine whether presentation order increased hedonic (but not utilitarian) purchases through changes in perceived value and anticipated guilt when unit price computation was difficult (H3a), but not when it was easy (H3b), we conducted a moderated moderated serial mediation. Using Process Model 83<sup>5</sup> (Hayes, 2018), 5,000 bootstrapping samples were generated. The model included presentation order as the predictor (X: item-price = 1, price-item = 0), purchase intention as the outcome (Y), perceived value as the first mediator (M<sub>1</sub>), anticipated guilt as the second mediator (M<sub>2</sub>), and purchase motive (W: hedonic = 1, utilitarian = 0) and unit price computation difficulty (Z: difficult = 1, easy = 0) as two moderators. All interaction terms were included as covariates.

Consistent with H3a, when computing unit price was difficult, the item-price (vs. price-item) order increased the perceived value of chocolates, which in turn decreased anticipated guilt and consequently increased purchase intention for chocolates ( $b = .0281$ , Boot SE = .0130, 95% Boot CIs: [.0075 to .0579]). However, this serial mediation was not significant for toothbrushes ( $b = -.0089$ , Boot SE = .0101, 95% Boot CIs: [-.0311 to .0104]). The index of moderated mediation with two serial mediators was significant ( $b = .0370$ , Boot SE = .0173, 95% Boot CIs: [.0086 to .0762]), indicating that the two indirect effects estimated at different levels of purchase motive differed significantly from each other. When we switched the order of mediators (i.e., presentation order → anticipated guilt → perceived value → purchase intention), the index of moderated mediation with these two mediators was not significant ( $b = .0213$ , Boot SE = .0160, 95% Boot CIs: [-.0056 to .0576]). This result again supported our proposed path: biased perception of greater value in the item-price order occurred when motivation to alleviate guilt

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<sup>5</sup> We used Model 83, a statistical model that tests for moderated serial mediation. In Model 83, the moderator influences the first mediator path, which sequentially affects the next mediator and the DV.

was present. In contrast, consistent with H3b, when computing unit price was easy, the index of moderated mediation with two serial mediators was not significant ( $b = .0032$ , Boot SE = .0127, 95% Boot CIs: [-.0212 to .0305]), indicating that the two indirect effects estimated at different levels of purchase motive were not different (see Table 1 for details).

“Insert Table 1 about here”

In sum, Study 2 show that the motivation to reduce guilt associated with hedonic purchases activated motivated information processing: hedonic purchases were perceived to have greater value when product information was presented in the item-price (price-item) order. Furthermore, this motivated processing occurred only when unit price computation was difficult and thus consumers could not readily perceive the objective value of the product.

### **Study 3: Moderating Role of Dispositional Guilt**

If guilt reduction is the key motivation driving the presentation order effect for hedonic purchases, the presentation order effect should be greater (i.e., there will be a greater guilt-reduction effect) for consumers who are highly prone to feel consumption guilt than for those who are not. We tested this hypothesis (H4) by measuring participants' disposition to feel consumption guilt. The hypothesis, variables included, study design (i.e., conditions), planned analyses, and desired sample size of this study were preregistered on AsPredicted prior to collecting any data ([https://aspredicted.org/blind.php?x=QC5\\_MZJ](https://aspredicted.org/blind.php?x=QC5_MZJ)).

### **Method**

Four hundred and three participants ( $M_{\text{age}} = 40.6$  years, 197 males, 200 females, and 6 preferred not to answer) were recruited from CloudResearch and were randomly assigned to one of the two presentation order conditions: item-price or price-item. For the hedonic product, we used small bags of trail mixes that contained hedonic components, such as honey mustard

jalapeno sticks, cocoa espresso cookie puffs, organic banana chips, dark chocolate espresso beans, etc. (see Appendix D). The trail mixes also came in three flavors: espresso, honey mustard, and banana. After viewing an advertisement for each of the three flavors, participants were presented with all three flavors and were asked to “Choose your favorites! 25 snacks for \$47 [\$47 for 25 snacks]”. Participants indicated their purchase intention on the 7-point scale used in the earlier studies.

Next, participants responded to a three-item dispositional consumption guilt measure that asked whether they regretted making purchases that they were unable to justify logically; felt guilty when they made impulse purchases; or felt guilty when considering luxurious products and services that were pleasurable but not necessary (1= never, 7 = always;  $\alpha = .89$ ;  $M = 4.59$ ,  $(SD = 1.60)$ ; Choi et al., 2020; Mishra & Mishra, 2011). We confirmed that the presentation order manipulation did not affect dispositional guilt ( $F(1, 401) = 1.70, p < .19$ ).

## Results and Discussion

To test whether dispositional consumption guilt magnified the presentation order effect on participants’ intention to purchase the trail mixes (H4), we regressed the purchase intention on presentation order, dispositional consumption guilt, and their interaction term. A significant interaction was observed ( $b = .28, SE = .13, t(399) = 2.25, p = .025$ ), indicating that the presentation order effect depended on dispositional consumption guilt. To decompose this interaction, we used the Johnson-Neyman technique to identify the range of dispositional guilt for which the two presentation order conditions differed significantly. This analysis revealed that, compared to the price-item order, the item-price order increased participants’ intention to purchase the trail mixes when the dispositional guilt score was greater than 5.92 ( $b_{JN} = .51, SE = .26, t(399) = 1.97, p = .050$ ). Unexpectedly, for participants with dispositional guilt scores less

than 1.6, the item-price (vs. price-item) order marginally decreased the purchase intention ( $b_{JN} = -.71$ ,  $SE = .43$ ,  $t(399) = -1.66$ ,  $p = .097$ ); however, this difference never became significant even at the lowest guilt score of 1.0 ( $b_{JN} = -.88$ ,  $SE = .49$ ,  $t(399) = -1.78$ ,  $p = .076$ ) (figure 6).

Consistent with H4, the individual differences in the disposition to feel guilt magnified the presentation order effect, indicating that the item-price (vs. price-item) order becomes more effective in increasing hedonic purchases when consumers feel greater guilt. Therefore, the results support our proposition that consumers' motivation to alleviate guilt drives the presentation order effect.

“Insert Figure 6 about here”

Note that the effect of presentation order for hedonic purchases (H1), which we hypothesized would occur regardless of individual differences in dispositional guilt, was directional but not significant ( $M_{\text{price-item}} = 3.87$  ( $SD = 1.97$ ) vs.  $M_{\text{item-price}} = 4.00$  ( $SD = 2.04$ ),  $F(1, 401) = .42$ ,  $p = .516$ ). We speculate that this happened due to trail mixes not being perceived as hedonic by all participants, and thus, only those who perceived the product as hedonic and felt guilty about purchasing it (i.e., those with a high disposition to feel consumption guilt) were subject to the presentation order effect. To verify this speculation, we conducted a post-test ( $N = 101$ ; 60 males and 41 females), which showed that the trail mixes, in general, were perceived as more hedonic than utilitarian ( $M = 6.66$  ( $SD = 2.33$ ) vs. scale mid-point;  $t(100) = 7.17$ ,  $p < .001$ ); 1 = utilitarian, 9 = hedonic), although not as much so as the chocolates used in our other studies. Recall that even chocolates—when situationally primed with utilitarian purchase motive (study 1-2)—received a rating similar to that of these trail mixes on the same bipolar scale (i.e., 6.68). The results indicate that the presentation order effect (or the motivated processing underlying this effect) is triggered by how consumers perceive a product—only when consumers perceive a

product to be hedonic (and thus when they feel guilty about consuming it) will they engage in motivated processing of item-price information in an effort to alleviate guilt. This result reveals that consumers can perceive a given product differently (either as hedonic or utilitarian) and that this perception changes the magnitude of the presentation order effect.

To further verify this implication, we conducted a supplementary study in which the purchase motive associated with trail mixes was measured, rather than manipulated ( $N = 808$ ; see Web Appendix for the full study procedure and results). We tested whether the presentation order effect depended on how consumers perceived trail mixes—either more as hedonic or utilitarian. The results showed that the more participants perceived trail mixes as hedonic, the greater the effect of item-price (vs. price-item) order on purchase intention, anticipated guilt, and perceived value (see figures in Web Appendix). We also found a significant moderated serial mediation effect, as in study 2. The results indicate that the presentation order effect is observed only among consumers who perceive trail mixes as highly hedonic. The results further show why the main effect of presentation order was not observed in Study 3—because many participants did not see the trail mixes as sufficiently hedonic.

#### **Study 4: Unit Price Availability**

Because item-price (vs. price-item) presentation order helps justify hedonic purchases through perceived savings based on biased perception of quantity/price information, providing unit price information or asking participants to estimate unit price should interrupt this motivated/biased information processing and attenuate the presentation order effect on hedonic purchases (H5). We tested this boundary condition for the motivated information processing in Study 4.

#### **Procedure**

We recruited 572 participants ( $M_{\text{age}} = 37.3$  years, 302 males, 268 females, and 2 preferred not to reveal) from CloudResearch and randomly assigned them to one of the six conditions in a  $2$  (purchase motive: toothbrushes vs. chocolate)  $\times$   $3$  (unit price availability: present, estimate, absent) between-subjects design. To manipulate purchase motive, we used the chocolate and toothbrush stimuli used in study 1-1. All participants saw an advertisement for either toothbrushes or chocolates. The product information was presented in the item-price order for all participants. We did not include the price-item order condition, as including it would result in twelve conditions and complicate our study. Since the presentation order effect for hedonic purchases (vs. utilitarian purchases) (H1) was demonstrated multiple times in earlier studies, we included only the conditions necessary to test H5.

In the unit price present [absent] condition, the unit price information was presented [absent] within the advertisement (see Appendix E). On the other hand, in the unit price estimate condition, participants were asked to estimate the unit price. Specifically, participants were asked to choose the approximate unit price among three options (\$.30 per piece, \$.40 per piece, and \$.50 per piece). This question appeared together with the product advertisement on the same page; thus, participants did not need to depend on their memory to estimate it. Unlike in Bagchi and Davis's (2012) unit price estimation manipulation, we did not impose any time constraint, allowing participants to spend as much time as they wanted to estimate unit prices accurately. Finally, participants indicated their purchase intention on a 7-point scale used in previous studies.

## Results

We conducted a  $2 \times 3$  ANOVA with purchase motive and unit price availability as predictors. No main effects of the predictors were observed (Purchase motive:  $F(1, 566) = 2.05$ ,

$p = .153$ ; Unit price availability:  $F(1, 566) = 1.14, p = .321$ ). The two-way interaction was significant ( $F(1, 566) = 4.05, p = .018, \eta^2 = .014$ ). The simple effect of unit price availability was significant for chocolates ( $F(1, 566) = 3.16, p = .043, \eta^2 = .011$ ), but not for toothbrushes ( $F(1, 566) = 1.95, p = .143$ ). Importantly, consistent with H5, when the unit price was absent ( $M = 4.22 (SD = 1.96)$ ), participants were significantly more likely to purchase chocolates than when the unit price was estimated ( $M = 3.55 (SD = 1.70); F(1, 566) = 5.76, p = .02$ ) and were marginally more likely to purchase chocolates than when the unit price was present ( $M = 3.72 (SD = 1.92); F(1, 566) = 3.50, p = .062$ ) (figure 7). There was no significant difference between the unit price present and the estimate conditions ( $F(1, 566) = .40, p = .527$ ).

Unexpectedly, participants were marginally more likely to purchase toothbrushes when asked to estimate the unit price ( $M = 4.36 (SD = 1.82)$ ) than when the unit price information was present in the advertisement ( $M = 3.86 (SD = 1.86); F(1, 566) = 3.24, p = .072$ ). However, estimating unit price did not increase their intention to purchase toothbrushes compared to when unit price was absent ( $M = 3.94 (SD = 1.97); F(1, 566) = 2.46, p = .117$ ). Given these results, we will refrain from overly interpreting the marginally significant simple effect observed here.

As a supplementary analysis, we collapsed the two present and estimate conditions and conducted a supplementary  $2 \times 2$  ANOVA. We observed a significant two-way interaction effect ( $F(1, 568) = 5.29, p = .022, \eta^2 = .009$ ). Consistent with H5, participants were more likely to purchase chocolates when the unit price was absent ( $M = 4.22 (SD = 1.96)$ ) than when it was available (i.e., either passively presented or proactively estimated) ( $M = 3.64 (SD = 1.82), F(1, 568) = 5.91, p = .015, \eta^2 = .01$ ). In contrast, unit price availability did not influence participants' intention to purchase toothbrushes ( $M_{\text{absent}} = 3.94 (SD = 1.97)$  vs.  $M_{\text{others}} = 4.13 (SD = 1.85), F(1, 568) = .85, p = .410$ ).

“Insert Figure 7 about here”

### **Study 5: Actual Savings Versus Perceived Savings**

We found earlier that the presentation order effect, which is observed mostly for hedonic purchases, occurs because consumers engage in motivated processing, through which they perceive their hedonic purchases to be of greater value, when item information is presented first. However, when a price discount is offered, the *actual* monetary savings will serve as stronger justification for hedonic purchases than the *perceived* savings that occurs through motivated processing. Therefore, when a price discount is offered, presenting the price information first can help consumers over-process the discount information and justify their hedonic purchases better, compared to when the price information is presented later. In sum, the final study tested whether offering a price discount reverses the presentation order effect observed for hedonic purchases.

#### **Method**

We recruited 317 participants ( $M_{\text{age}} = 37.3$  years, 172 males and 145 females) from CloudResearch and randomly assigned them to one of four conditions in a 2 (presentation order: discounted price-item vs. item-discounted price)  $\times$  2 (purchase motive: hedonic vs. utilitarian) between-subjects design. We used the same chocolate and toothbrush stimuli as in earlier studies to manipulate purchase motive. All participants read an advertisement for either chocolates or toothbrushes that were on sale. The discounted price was \$13. The regular price before the discount (\$17) was also provided in the advertisement (Appendix F). Participants in the “discounted price-item” condition read “\$13 (\$17) for 43 pieces [counts],” while those in the “item-discounted price” condition read “43 pieces [counts] for “\$13 (\$17)”.

#### **Results**

We conducted a  $2 \times 2$  ANOVA with purchase motive and presentation order as predictors. We did not observe any main effects (presentation order:  $F(1, 313) = .23, p = .635$ ; purchase motive:  $F(1, 313) = .06, p = .805$ ). Importantly, a significant two-way interaction effect was found ( $F(1, 313) = 5.34, p = .021, \eta^2 = .017$ ). Consistent with H6, the reversed order effect was observed for chocolates; that is, those presented with the price first and the item information later had a greater intention to purchase chocolates than those presented with the item information first and the price later ( $M_{\text{item-price}} = 4.13$  ( $SD = 1.91$ ),  $M_{\text{price-item}} = 4.71$  ( $SD = 1.63$ );  $F(1, 313) = 3.94, p = .048, \eta^2 = .012$ ). In contrast, presentation order did not affect participants' intention to purchase toothbrushes ( $M_{\text{item-price}} = 4.67$  ( $SD = 1.84$ ),  $M_{\text{price-item}} = 4.28$  ( $SD = 2.05$ );  $F(1, 313) = 1.66, p = .198$ ) (figure 8).

“Insert Figure 8 about here”

### General Discussion

The present research investigated how purchase motives (hedonic vs. utilitarian) moderate the presentation order effect (Bagchi and Davis 2012). Across seven studies, we found that the item-price (vs. price-item) order increases the intention to purchase hedonic products, but not utilitarian products. We demonstrated the moderating role of purchase motives for the presentation order effect (H1) using different manipulations of purchase motives. Specifically, we manipulated purchase motive using product categories that were typically perceived as hedonic or utilitarian (e.g., studies 1-1, 2, 4, 5) or by priming purchase motive for a given product (study 1-2). We also measured purchase motive in the supplementary study and showed that the presentation order effect is observed when consumers perceived the product as relatively more hedonic than utilitarian (see web appendix).

We also found support for our proposed mechanism that consumers use the item-price order as a means to mitigate guilt associated with their hedonic purchases. Specifically, they over-process (or anchored on) the first piece of information when item (benefit) information is presented first. This motivated processing helps consumers perceive their hedonic purchases as having greater value, which in turn alleviates guilt associated with their hedonic purchases, and consequently increases their purchase intention for the hedonic products. We demonstrated this mechanism by measuring situationally induced guilt (Study 2) as well as dispositional consumption guilt (Study 3). Specifically, in Study 2, we supported our proposed chain of process by demonstrating that the effect of presentation order on hedonic purchases was serially mediated through increased perceived product value, which in turn decreased guilt associated with the hedonic product. The mediation results provide direct evidence regarding why consumers engage in motivated processing (i.e., perceive greater value)—to reduce anticipated guilt from their hedonic purchases. The results also showed that consumers do not engage in this motivated processing for utilitarian purchases, which do not elicit guilt. Study 3 further corroborated this motivation-driven mechanism by demonstrating that the presentation order effect is magnified for consumers who feel guilty about their purchases. Consumers who had low disposition to feel consumption guilt were not affected by presentation order. The fact that item-price (vs. price-item) order is more effective in increasing hedonic purchases for consumers who tend to feel more guilt indicates that the presentation order effect was driven by the motivation to alleviate guilt.

We also tested three boundary conditions of our effect, which helped us further understand the mechanism underlying the effect. First, we showed that the motivated processing through item-price (vs. price-item) order only occurs when unit-price computation is difficult

(H2 and H3; Study 2). Because unit-price indicates the objective product value based on the full processing of quantity and price information, when unit-price computation is easy, the possibility of perceiving greater product value is interrupted, and as a result, item-price order fails to function as a means to mitigate guilt. Relatedly, when unit price information is available or consumers are reminded of it (H5; Study 4), the presentation order effect for hedonic purchases disappears for the same reason—that is, the availability of unit price information interrupts consumers from perceiving greater product value. Finally, we showed that the presentation order effect can be reversed when a price discount is offered (H6; Study 5). When a price discount is offered, price information is no longer undesired. Instead, because it serves as a better justification for hedonic purchases than the item information, the price information becomes even more desirable than the item information. As a result, in contrast to the result obtained in the previous studies, participants were motivated to over-process *price* information when it was presented first, more so than the *item* information when it was presented first. That is, motivated processing of discounted price information was greater than motivated processing of item information, which resulted in a reversed presentation order effect. Furthermore, this reversal did not occur for utilitarian products that did not trigger motivation to over-process a certain piece of information. The results confirmed once again that the presentation order effect results from motivated over-processing of desired information when the desired information is presented first.

### **Contributions to Theory and Practice**

Our findings make theoretical contributions to several research areas. First, we contribute to the research on the presentation order effect by revealing a novel moderator and associated process underlying the moderated effect. We show that the presentation order effect can take place due to consumer's motivation to alleviate guilt associated with their hedonic purchases. To

show this process, we introduced a novel moderator for the presentation order effect: hedonic and utilitarian purchase motive. Importantly, the process we demonstrate is driven by consumers' motivation, while the effect in past research was suggested to be driven by limitations in consumers' cognitive resources or ability (Bagchi and Davis 2012).

Our findings may seem to be at odds with the results of Bagchi and Davis (2012)'s second study, in which order effects were observed even when no particular context was given; that is, the purchase context was not specified as hedonic, but the effect was still observed. However, these past effects were found *only* when a time constraint on calculating the unit price existed and thus fully processing price and quantity information was not possible. In context, across seven studies, we have shown that the motivation-driven order effect we propose for hedonic categories is not limited to time constrained situations. Even when participants had unlimited time to fully incorporate price and quantity information, participants considering hedonic consumption engaged in biased processing, such as biased allocation of attention and weight to the desired information, in order to alleviate guilt.

Second, our findings contribute to the literature on purchase motives by introducing another marketing activity that can reduce guilt associated with hedonic purchases and thereby increase hedonic purchases. Although past research suggested several marketing activities that firms can utilize to alleviate guilt associated with hedonic purchases, many of them were related to pricing strategies that offered actual monetary savings to consumers (Khan and Dhar 2010; Kim and Tanford 2021; Kivetz and Zheng 2017; Mishra and Mishra 2011). The drawback of these pricing plans is that they incur additional costs to firms. Other non-pricing marketing activities that could alleviate guilt were also introduced in past research, but those activities also seem to incur significant costs to firms (e.g., donating to charities or providing certain types of

rewards to consumers; Baghi and Antonetti 2017; Chang and Chu 2020; Hagtvedt and Patrick 2016; Kivetz and Simonson 2002; 2017; Kulshreshtha et al. 2019; Strahilevitz and Myers 1998; Zemack-Rugar et al 2016). Our findings add to the limited body of research that reveals marketing activities that increase hedonic purchases while not incurring additional costs to firms (Choi et al., 2020)—by providing *perceived* savings by simply managing the order of product information.

Revealing a novel marketing strategy that can increase sales of hedonic products or services without incurring additional costs to firm directly leads to practical contributions. In particular, our findings offer clear guidance to firms regarding how to present item versus price information: present the item (quantity) information first if products or services are highly associated with hedonic motives. Unlike what our findings suggest, retailers that carry multiple product categories, such as Amazon or Walmart, seem to adopt a uniformed display method (i.e., either price first or quantity first) across all categories. It would be worthwhile to consider adopting different display order depending on category's association with hedonic or utilitarian motive. Specifically, for categories associated with hedonic purchase motive, it would be more effective to adopt the item-price order. In contrast, if any categories go on sale, the reversed order of price-item may be more effective in increasing sales of hedonic categories. It may be possible that Walmart's "everyday low price" positioning is deep-seated in consumers and functions like a price discount (i.e., constantly reminds consumers of monetary savings that it offers), in which case, adopting the price-item order may be more effective.

For firms that sell single category of product or services, our findings suggest that it is essential to understand which type of purchase motive is associated with their own products or services, which may differ from the general consumer perception of the category. For instance,

although in general, cloud storage services may be perceived as utilitarian, it may be possible that iCloud users use it relatively more for hedonic purposes (e.g., personal photo or video storage) than other cloud service users, such as Dropbox users, who use the service more for utilitarian purposes (e.g., work). In such a case, the item-price order that iCloud has adopted in their main pricing page could be a wise decision. Similarly, travel agencies can adopt the item-price order for their services related to typical leisure destinations (e.g., resorts, theme park tickets, etc.), unless the services are on sale, in which case the reversed order is recommended.

Firms can go further and adjust the presentation order per individual customer, as our findings (Studies 1-2 and 3 and the supplementary study) show that a consumer's perception of a product/service can be altered depending on his or her purchase motive in the given situation or individual differences in disposition to feel consumption guilt. For instance, based on the file types stored on cloud services, it may be possible for firms to determine whether any of their current consumers are using their services more for hedonic purposes or for utilitarian purposes. Depending on this understanding, firms can send (e.g., email) service upgrade offers with item information presented before price information to their consumers who might need more storage space for hedonic purposes. Furthermore, online retailers with access to consumer data can identify individuals who are more reluctant to purchase specific products or services and experiment with presenting item information first to expedite the purchasing process, potentially by alleviating purchase-related guilt.

Yet, we make the above recommendations with two important cautions. First, our findings raise a question regarding whether boosting sales of hedonic products, which are usually non-necessities, by increasing *perceived* value, rather than providing *actual* value, is an ethical marketing practice. Therefore, marketers as well as policy makers should consider this ethical

implication. Policies that can de-bias consumers from the presentation order effect are called for (e.g., policy to display unit price information). We believe unveiling this potential ethical issue associated with the presentation order effect is an important contribution that our research makes to the real world. Second, varying presentation order according to category, brand, product line, individual differences, or discount situation may confuse consumers and backfire on sales. Once consumers notice the varying presentation order, they may delay the purchase or switch to another vendor due to confusion or mistrust towards the firm. As such, we recommend applying our findings with careful consideration in light of these two points.

### **Limitations and Future Research**

In our studies, we did not consider package size—which was an important boundary condition for the presentation order effect observed in past research (Bagchi and Davis, 2012)—because we assumed that the mechanism underlying the package size effect is similar to the mechanism underlying the effect of unit price calculation difficulty. Specifically, Bagchi and Davis (2012) showed that unit price estimation for smaller packages is less skewed, which indicates that the package size effect is driven by whether consumers can see the objective value of the product (i.e., unit price) based on the given quantity and price information. Because this mechanism is similar to the mechanism underlying unit price calculation difficulty, we only tested difficulty of computing unit price, which we believe more directly taps into the mechanism. In our studies, we mostly used packages that involved two-digit numbers of items (e.g., 43 pieces, 25 packs), whereas Bagchi and Davis (2012) used two-digit sizes of packages for both the large package condition and the small package condition, depending on their studies. Therefore, it is unclear whether the large package size effect was operating in our effect (i.e., whether the presentation order effect for hedonic products requires large package sizes) or the

motivational effect replaced the size effect (i.e., consumers' motivation to alleviate guilt was strong enough to cause the biased value perception for hedonic products even without large package sizes). Future research can manipulate package size of hedonic products along with the presentation order and verify whether large package size is a necessary condition for the presentation order effect even for hedonic products.

Except for study 2 in which we manipulated unit price computation difficulty, in most other studies, we simply assumed that unit price was difficult to compute and thus we expected to observe the presentation order effect for hedonic purchases. However, whether unit price is easy or difficult to compute with given quantity and price information can vary across individuals. For instance, past research has shown that individuals who are thoughtful or numerate (i.e., individuals high in need for cognition or numeracy) were less subject to biases arising from different framings of numbers or prices (Chatterjee et al., 2000; Guha et al., 2018; Kruger and Vargas, 2008). Therefore, future research can explore whether these individual differences can serve as a boundary condition for the presentation order effect we observed for hedonic purchases. Future studies can also measure perceived computation difficulty for given quantity and price information (as we measured purchase motive in the supplementary study) and test whether presentation order effect is magnified [decreased] for individuals who perceive unit price calculation to be difficult [easy]. Relatedly, customers who repeat purchase a product or service may learn unit price overtime and become less subject to presentation order even when the product or service is hedonic in nature. Alternatively, repeat purchases may indicate quick, habitual purchase or emotional loyalty, both of which may result in unit price neglect. Therefore, future research can explore whether the role of learning in the context of repeat purchase serves as a boundary condition for the presentation order effect or amplifies the effect.

As discussed earlier, boosting sales of non-necessary yet pleasurable products by increasing perceived value, not actual value, may go against ethical marketing practices. Therefore, exploring ways to de-bias consumers is important. Future studies can test contextual factors that can interrupt consumers' motivated processing. Utilizing large font sizes and colored (vs. black and white) characters for price information may interrupt the motivation to under-process price information. In the present studies, we have controlled these physical attributes of the price information. However, various ways of expressing product and price information that affect consumers' attention and information weighing process may moderate the order effect observed for hedonic purchases.

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Table 1. Index of Moderated Mediation (Process Model 83) (Study 2)

Unit Price Computation Difficulty	Perceived Value	Boot SE	LLCI	ULCI	Perceived Value → Anticipated Guilt	Boot SE	LLCI	ULCI
Difficult	.1872	.0813	.0479	.3634	.0370	.0173	.0086	.0762
Easy	.0177	.0674	-.1186	.1507	.0032	.0127	-.0212	.0305

NOTE. – LLCI/ULCI indicates lower/upper limit of the bootstrap 95% confidence interval (CI). Coefficients indicate the index of moderated mediation with the mediator(s). Note that Model 83 does not provide a measure of the moderated mediation effect of the second mediator.

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Figure 1: Purchase Motive Moderates the Presentation Order Effect

(Study 1-1; Chocolate vs. Toothbrush)

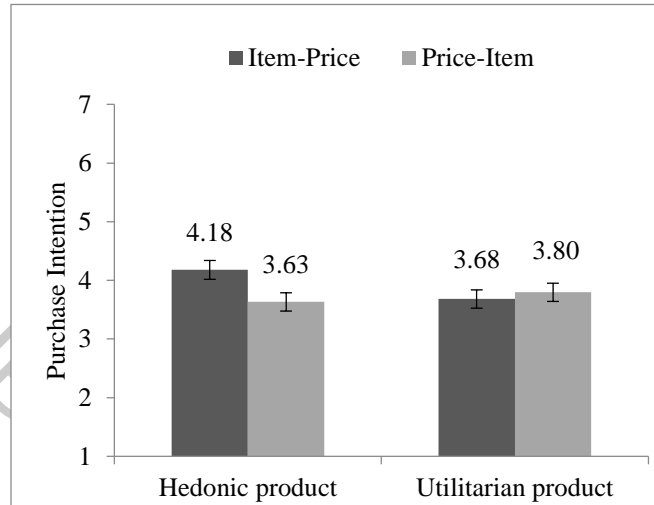


Figure 2: Purchase Motive Moderates the Presentation Order Effect (Study 1-2; Chocolate)

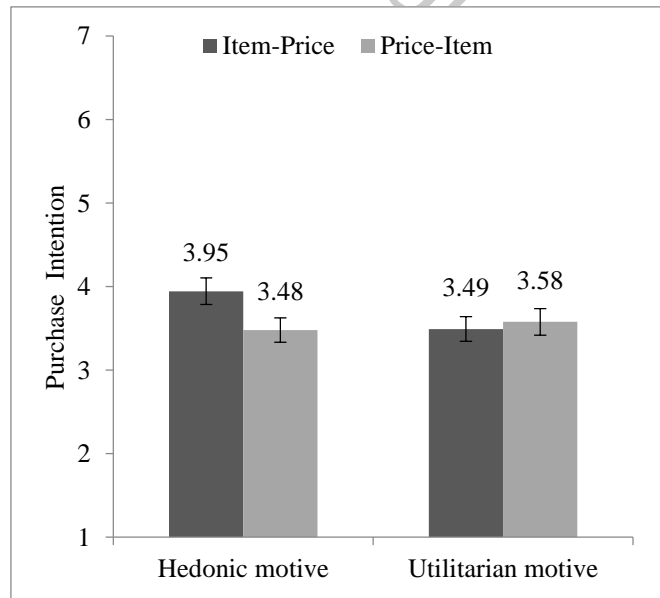


Figure 3: The Moderating Role of Purchase Motive for the Presentation Order Effect Observed Only When Unit Price Computation is Difficult (Study 2)

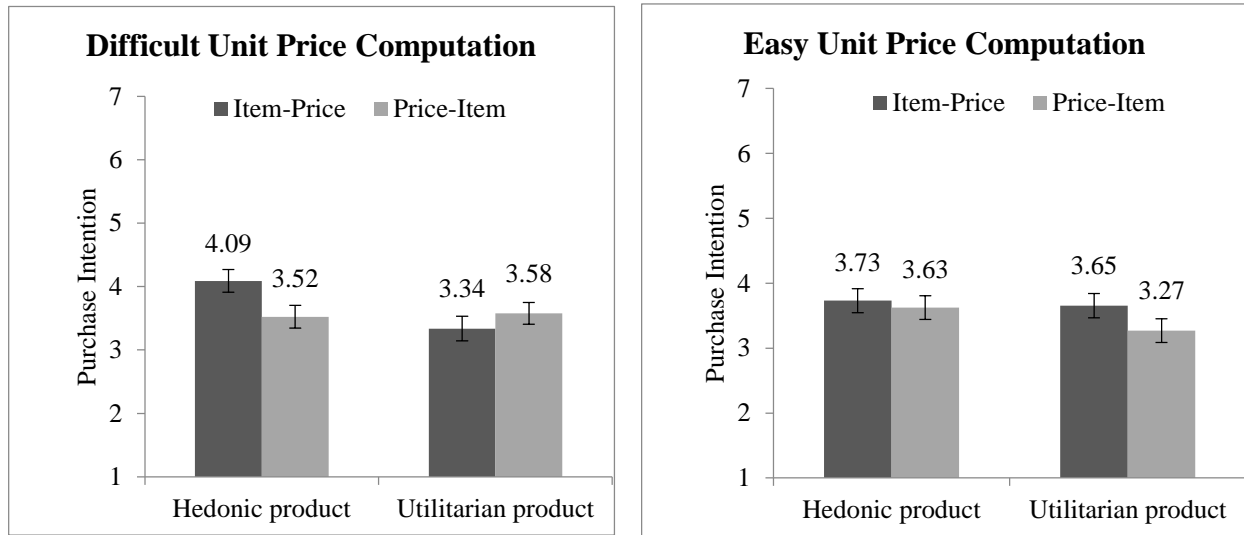


Figure 4: Purchase Motive Moderates the Effect of Presentation Order on *Perceived Product Value* Depending on Unit Price Computation Difficulty (Study 2)

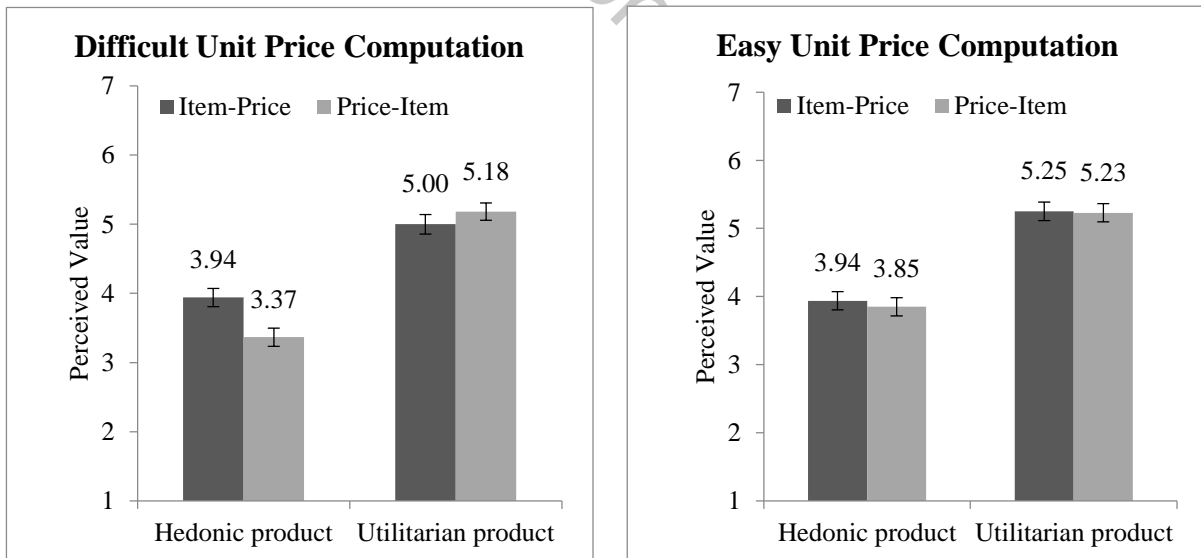


Figure 5: Purchase Motive Moderates the Effect of Presentation Order on *Anticipated Guilt* Depending on Unit Price Computation Difficulty (Study 2)

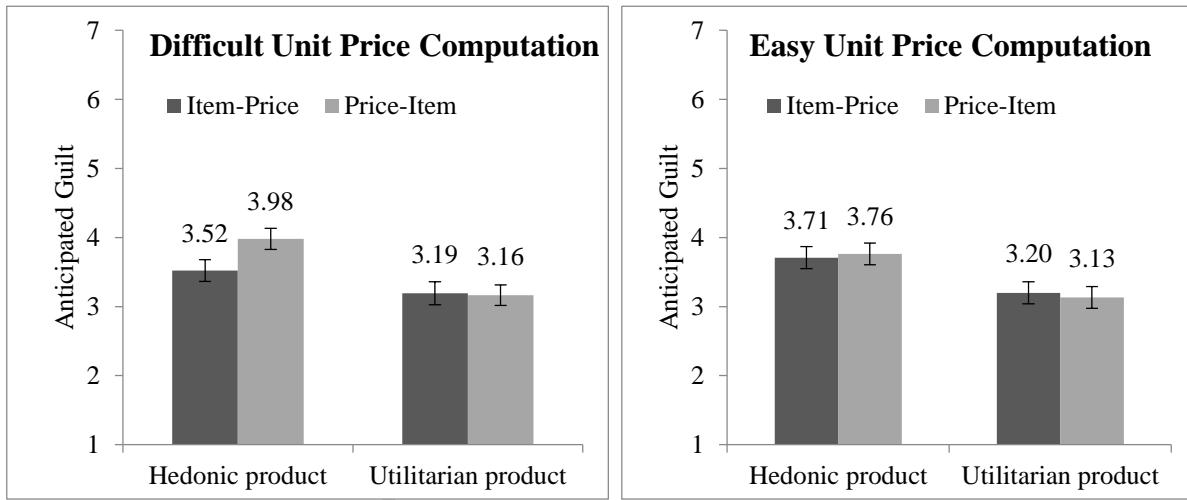


Figure 6: Individual Differences in *Disposition to Feel Guilt* Moderates the Presentation Order Effect on Hedonic Purchases (Study 3)

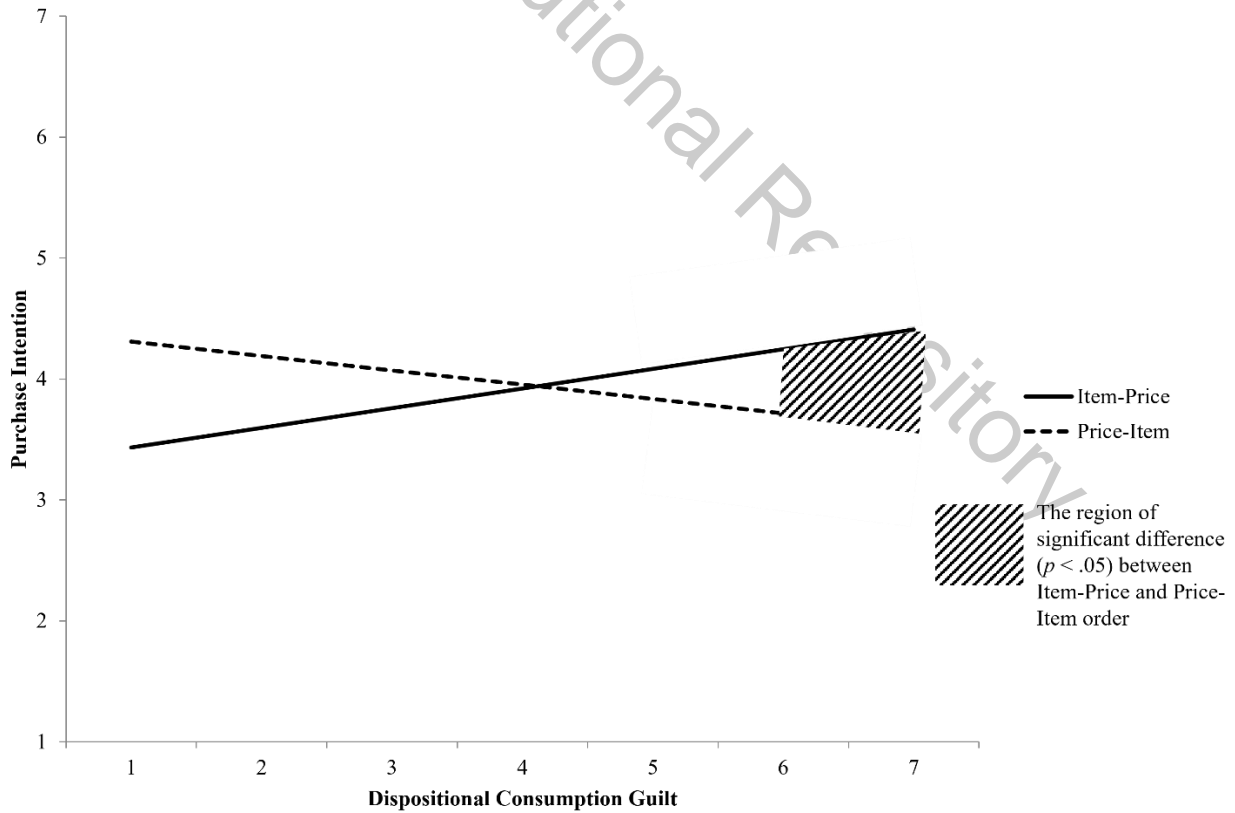


Figure 7. Unit Price Availability and/or Reminder Interrupts the Motivated Information Processing for Hedonic Purchases (Study 4)

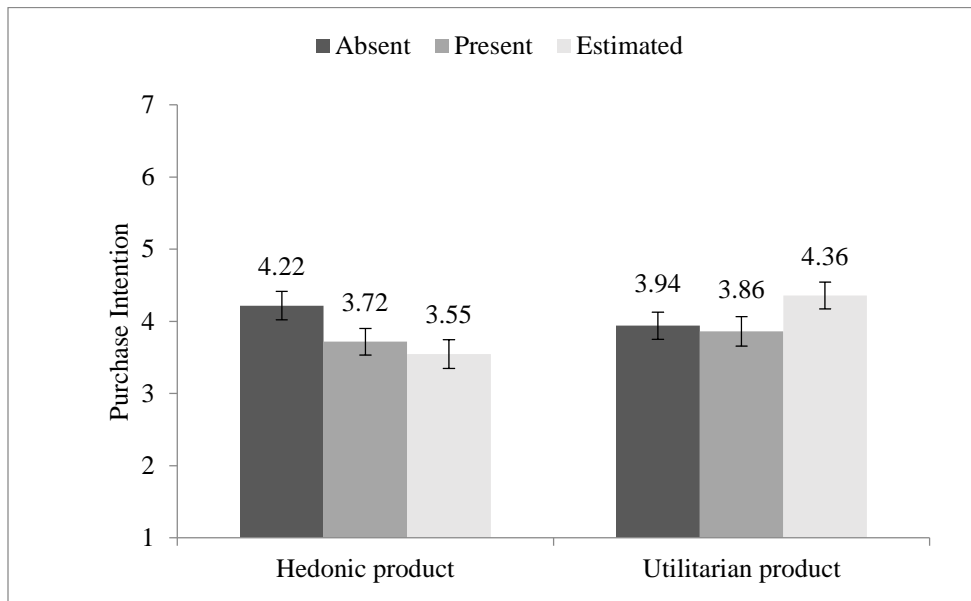
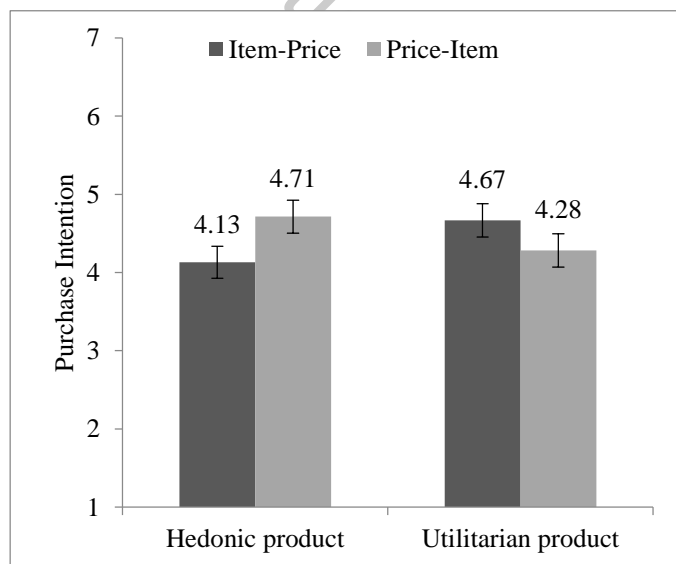


Figure 8. Offering a Price Discount Reverses the Presentation Order Effect



Appendix A: Examples of Presentation Order of Price and Quantity Information (Walmart and Amazon)

Walmart (price first, product description (including quantity) later):

This screenshot shows the Walmart search results for "vitamin jelly". The search bar at the top contains "vitamin jelly". The results are displayed in a grid format. Each product listing includes an image of the product, a price, and a quantity. The price is listed first, followed by the quantity. Below the price and quantity, there is a brief product description and a "Save with W!" button. The products shown are:

- Nature's Bounty Optimal Solutions Advanced Hair, Skin and Nail Biotin & Vitamins A, C, & E Jelly Beans, 80 Count. Price: \$1249, 15.6 c/ea.
- Nature's Bounty Vitamin C, D, & Zinc for Immune Support Jelly Beans, Orange, 80 Count. Price: \$1342, 16.8 c/ea.
- Spring Valley Vitamin C Immune Support Dietary Supplement Vegetarian Jelly Beans, Orange, 125 mg, 120 Count. Price: \$988, 8.2 c/ea.
- Natures Bounty Vitamin B12 for Energy Metabolism Jelly Beans, Cherry, 80 Count. Price: \$996, 12.5 c/ea.

This screenshot shows the Walmart search results for Halloween candy. The search bar at the top contains "Search everything at Walmart online and in store". The results are displayed in a grid format. Each product listing includes an image of the product, a price, and a quantity. The price is listed first, followed by the quantity. Below the price and quantity, there is a brief product description and a "Save with W!" button. The products shown are:

- Mars Mixed M&M's & More Assorted Chocolate Bulk Halloween Candy Variety Pack -... Price: \$5412, 51.9 c/oz.
- Mars Mixed Snickers, Twix, Milky Way & 3 Musketeers Chocolate Halloween Candy - 125 Ct. Price: \$1256, 35.6 c/oz.
- Hershey Assorted Chocolate Flavored Halloween Candy, Variety Bag 33.3 oz, 90 Pieces. Price: \$994, 29.8 c/oz.
- Mars Mixed Snickers & More Assorted Chocolate Minis Bulk Halloween Candy-61.85oz/225pc. Price: \$2197, 35.5 c/oz.

Amazon (product-description (including quantity) first, price later):

The screenshot shows the Amazon search results for "vitamin jelly". The search bar at the top indicates "All" filters and "vitamin jelly" search terms. The results are displayed in a grid format with three product listings. Each listing includes a product image, a sponsored badge, the product name, a brief description, the quantity, a star rating, the number of items bought in the past month, the price, and the delivery date.

**More-sustainable Products**  
 Climate Pledge Friendly

**Department**  
 Vitamins, Minerals & Supplements  
 Collagen Supplements  
 Multivitamins  
 Vitamin D Supplements  
 Vitamin C Supplements  
 Jams, Jellies & Preserves  
 Diet & Sports Nutrition  
 Fruit Juice Beverages

**Customer Reviews**  
 ★★★★★ & Up  
 ★★★★★ & Up  
 ★★★★★ & Up  
 ★★★★★ & Up

**Brands**  
 Garden of Life  
 Sports Research  
 Nature's Way

**Price**  
 Under \$25  
 \$25 to \$50  
 \$50 to \$100  
 \$100 to \$200

**Deals & Discounts**

**Results**  
 Check each product page for other buying options.

**Product 1:**  
 Sponsored  
 DOCTOR'S FINEST Vitamin C Gummies for Kids - Vegan, GMO Free & Gluten Free - Great Tasting Orang...  
 Vitamin C 120 Count (Pack of 1)  
 ★★★★★ ~ 4,588  
 1K+ bought in past month  
 \$19.99 (\$0.17/Count) List: \$24.99  
 Delivery Tue, Nov 7  
 Ships to China  
 Options: 2 sizes

**Product 2:**  
 Sponsored  
 Vitamin D3 5000IU / 10,000IU Gummies for Adults & Kids (120 Count) - Immune System, Bone &...  
 Vitamin D3 120 Count (Pack of 1)  
 ★★★★★ ~ 219  
 100+ bought in past month  
 \$19.95 (\$0.17/Count)  
 Delivery Tue, Nov 7  
 Ships to China

**Product 3:**  
 Sponsored  
 Chewable Vitamin D Gummies for Kids - Delicious Kids Vitamin D 1000 IU Gummy Vitamins for Kids and...  
 Vitamin D3 60 Count (Pack of 1)  
 ★★★★★ ~ 40  
 50+ bought in past month  
 \$11.99 (\$0.20/Count)  
 Delivery Tue, Nov 7  
 Ships to China

The screenshot shows the Amazon search results for "snack foods". The results are displayed in a grid format with three product listings. Each listing includes a product image, a sponsored badge, the product name, a brief description, the quantity, a star rating, the number of items bought in the past month, the price, and the delivery date.

**Customer Reviews**  
 ★★★★★ & Up  
 ★★★★★ & Up  
 ★★★★★ & Up  
 ★★★★★ & Up

**Brands**  
 Twix  
 Mars  
 Butterfinger  
 HERSHEY'S  
 Reese's  
 Kit Kat  
 Kinder Bueno  
 See more

**Grocery & Gourmet Food Price**  
 Under \$10  
 \$10 to \$20  
 \$20 to \$30  
 \$30 to \$50  
 \$50 & Above

**Product 1:**  
 Sponsored  
 IQBAR Brain and Body Keto Protein Bars - Chocolate Lovers Variety Keto Bars - 12-Count...  
 Chocolate Lovers Variety  
 12 Count (Pack of 1)  
 ★★★★★ ~ 15,171  
 8K+ bought in past month  
 \$24.99 (\$2.08/Count)

**Product 2:**  
 TWIX Fun Size Caramel Cookie Halloween Chocolate Bars - 10.83 oz Candy Bag  
 Caramel 10.83 Ounce (Pack of 1)  
 ★★★★★ ~ 1,110  
 6K+ bought in past month  
 \$3.99 (\$0.37/Ounce) Typical: \$4.49  
 Save 5% on 4 select item(s)  
 SNAP EBT eligible

**Product 3:**  
 TWIX Full Size Caramel Chocolate Cookie Candy Bar, 1.79 oz. 36-Count Box  
 Caramel 36 Count (Pack of 1)  
 ★★★★★ ~ 8,106  
 1K+ bought in past month  
 \$39.99 (\$0.62/Ounce)  
 Save \$5.00 when you buy \$50.00 of select items  
 SNAP EBT eligible

## Appendix B: Pilot Study on Streaming Services

To gain preliminary evidence for our proposition that the presentation order effect observed in past research may be driven by the hedonic purchase motive associated with the stimuli used in past studies, we conducted a pilot study that examined how people perceived the stimuli used in Bagchi and Davis' (2012) studies. One hundred and one participants (58 males and 43 females, 37.9 years) were recruited from CloudResearch and were asked to indicate to what extent various services were perceived as hedonic or utilitarian on a 9-point scale (1 = extremely utilitarian, 9 = extremely hedonic). Since Bagchi and Davis (2012) used web-based television services that charged an hourly access fee in one of their three studies and on-demand movie services in another study,<sup>6</sup> we asked participants about their perceptions of highly popular web-based television services, such as Hulu, YouTube TV, Netflix, Amazon Prime Video, Disney Plus, HBO, and on-demand services such as Redbox. *Utilitarian* services were described as being useful, practical, and functional, something that helps achieve a goal, whereas *hedonic* services were described as being pleasant and fun, or something that is enjoyable and appeals to the senses (e.g., Khan and Dhar 2010). All services were perceived as more hedonic than utilitarian (see table E for results). The results provide preliminary evidence that a hedonic purchase motive can be one of the mechanisms underlying the order effects observed in past studies.

**Table E: One-Sample Test Statistics and Results (Test value = 5)**

	N	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)	Mean Difference
Youtube TV	101	6.39	2.236	.222	6.230	.000	1.386

<sup>6</sup> One other study, out of three studies of Bagchi and Davis (2012), was context free, in which no specific nature of product or service information was given.

Netflix	101	7.49	1.858	.185	13.442	.000	2.485
Redbox	101	7.29	1.851	.184	12.417	.000	2.287
Hulu	101	7.26	1.742	.173	13.027	.000	2.257
Amazon	101	7.07	1.861	.185	11.172	.000	2.069
Disney_Plus	101	7.54	1.724	.171	14.837	.000	2.545
HBO	101	7.61	1.679	.167	15.645	.000	2.614

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Appendix C: Stimuli Used in Studies 1-1 and 2

Hedonic product (Price-Item condition)

The screenshot shows the Godiva website interface. At the top, there is a navigation bar with links for Boutiques, Gift Cards, Rewards, and Business Gifts. The Godiva logo is prominently displayed in the center, with 'Belgium 1926' underneath. To the right of the logo are links for Search, Sign In / Register, and Bag. Below the navigation bar, there are category tabs: HOLIDAY, GIFTS, CHOCOLATE, EXPERIENCE GODIVA, and GODIVA CARES. The main content area features the product title 'Milk Chocolate Hazelnut G Cube Box, Bulk' and a price of '\$17 for 43 pc.'. A detailed description follows: 'Milk chocolate and hazelnut praline combined to create an irresistibly delicious truffle treat meant to be savored and shared.' Below the text is a quantity selector set to '1' and an 'ADD TO BAG' button. A star rating of 4.5 (41) is shown at the bottom of the product listing. A 'Live Chat' button is visible on the left side of the product image area.

Utilitarian product (Price-Item condition)

The screenshot shows the Walmart Grocery website interface. The top navigation bar includes the Walmart logo and 'Shop Walmart.com'. Below this is a search bar and a 'Shop by Department' menu. The breadcrumb trail indicates the product is in 'Beauty & Personal Care > Oral Care (826)'. The product title is 'Colgate Premier Classic Clean Medium Toothbrush' with a price of '\$17 for 43 ct.'. The description highlights 'Helps maintain healthy gums', 'Ergonomic handle', and 'For hard to reach places'. The quantity selector is set to '1' and the 'Add to Cart' button is orange. A star rating of 4.5 (41) is displayed at the bottom. The background of the product image area has a large, faint watermark that reads 'Repository'.

Appendix D: Stimuli Used in Study 3

Introduction screen

**ESPRESSO OBSESSED**

130 CALORIES 8g PROTEIN GLUTEN FREE GMO FREE



ROASTED ALMONDS  
DARK CHOCOLATE ESPRESSO BEANS  
COCOA ESPRESSO COOKIE PUFFS



**SO MONEY HONEY MUSTARD**

130 CALORIES 9g PROTEIN GLUTEN FREE GMO FREE DAIRY FREE



ROASTED ALMONDS  
SOUTHWEST FAVA CRISPS  
HONEY MUSTARD JALAPENO STICKS



**BANANAS FOR CHOCOLATE**

130 CALORIES 8g PROTEIN GLUTEN FREE GMO FREE



ORGANIC BANANA CHIPS  
DARK CHOCOLATE SUNFLOWER SEEDS  
COCOA ESPRESSO COOKIE PUFFS



Next Screen for the Item-Price condition



**Choose your favorites! 25 snacks for \$47**

Appendix E: Stimuli Used in Study 4 (Manipulating Unit Price Availability)

The unit price absent condition

The unit price present condition

Appendix F: Stimulus Used in Study 5

Hedonic product (the discounted price – item order condition)

The screenshot shows the Godiva website interface. At the top, there is a navigation bar with links for Boutiques, Gift Cards, Rewards, and Business Gifts. The Godiva logo is centered, with 'Belgium 1926' underneath. To the right are links for Search, Sign In / Register, and Bag. Below the navigation bar, there are category tabs: GIFTS, CHOCOLATE, EXPERIENCE GODIVA, and GODIVA CARES. The main content area features the product 'Milk Chocolate Hazelnut G Cube Box, Bulk'. The product image shows a pile of truffles and a glass bowl filled with them. The price is displayed as \$17 (crossed out) and \$13 for 43 pc. The description reads: 'Milk chocolate and hazelnut praline combined to create an irresistibly delicious truffle treat meant to be savored and shared.' Below the description is a quantity selector set to 1, an 'ADD TO BAG' button, and a star icon. At the bottom left of the product area is a 'Live Chat' button. At the bottom right, there is a rating of 4.5 stars based on 41 reviews, with a 'Write a review' link. A large diagonal watermark 'Institutional Repository' is overlaid on the bottom half of the page.