



The role of external reference price in pay-what-you-want pricing: An empirical investigation across product types

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ABSTRACT

This research aims to investigate the effectiveness of the adoption of external reference price (ERP) in influencing consumers' pay-what-you-want (PWYW) final payments across different product types. Results from two experiments show the effectiveness of using ERP as an anchor heavily depends on the nature of the product category. For hedonic products, the absence of an ERP, compared to the presence of one, leads to higher perceived quality and PWYW payments. The results are the opposite for utilitarian products. This study contributes to PWYW literature by investigating how product types affect consumers' perceived quality of the product offered and their PWYW payments.

1. Introduction

Participative pricing mechanisms (e.g., auctions and name your own price) allow consumers to participate in determining the final price paid for goods or services and are becoming more common with the increased popularity of Internet shopping. The pay-what-you-want (PWYW) pricing strategy is the most extreme form of participative pricing that offers consumers the greatest control over prices, as it allows them to set the price at any level, including zero, and the seller cannot reject it (Kim et al., 2009). Examples from the service industry demonstrate the potential applications of the PWYW pricing mechanism, such as restaurants, museums, hotels, and zoos, etc. (Schons et al., 2014). In addition to the industry examples from brick-and-mortar stores, PWYW is also popular in the online business environment. For example, Humble Bundle offers bundles of indie digital games to consumers in a PWYW pricing setting, where the average payment for its games is slightly over \$9 (Coldewey, 2017). The music industry also applies this strategy to sell music albums at prices that consumers prefer (Isaac et al., 2015; Regner and Barria, 2009). Software developer AdBlock releases software on a PWYW basis while the agency 8 K is the first interactive agency to design logos and slogans for clients using a PWYW payment system. In addition, there are multiple online training courses on computer programming or Microsoft Office being offered as a PWYW format (PC World, 2017).

External reference price (ERP) has been studied extensively, but no consistent conclusion has yet been reached regarding how the use of ERP affects PWYW payment amounts. Prior research suggests that using ERP can enhance consumers' final PWYW payments (Kim et al., 2014). However, other empirical evidence suggests that the effect of ERP on PWYW is not consistently positive (Gerpott, 2017; Johnson and Cui, 2013). To date, only limited research has studied the potential moderators of the ERP effect [e.g., normative vs. descriptive framing (Armstrong Soule and Madrigal, 2015) and ERP levels (minimum, average, and maximum) (Johnson and Cui, 2013)] in the PWYW setting. Hence, the current research aims to investigate the effectiveness of the adoption of ERP in influencing consumers' PWYW final payments, specifically across different product types.

As the aforementioned examples demonstrate, there is a variety of hedonic (e.g., restaurants, museums, and online music) and utilitarian goods/services (e.g., computer programming courses, advertising-blocking software, and brand-logo design services) that are currently offered in a PWYW format in the marketplace. However, there is no research studying the PWYW pricing effect across hedonic and utilitarian products. Extensive research has demonstrated that consumers react differently toward the hedonic and utilitarian nature of product types (Dhar and Wertenbroch, 2000; Okada, 2005), consumption benefits, and buying situations (Batra and Ahtola, 1991; Chitturi et al., 2007). Generally, utilitarian products (e.g., calculators) are practical,

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instrumental, and associated with necessary functions in life. Hedonic products (e.g., chocolate and movie DVDs) on the other hand are associated with pleasure-oriented, fun, and experiential consumption (Dhar and Wertenbroch, 2000). Given the distinct differences in these two product types, product-related factors, surprisingly, have rarely been studied in the context of PWYW pricing (Gerpott, 2017). This is a significant and important gap that needs to be filled in PWYW literature. The objectives of the present research are (1) to investigate the interaction effects of ERP and product type in the PWYW participative pricing mechanism and (2) to identify potential factors that may influence consumers' final PWYW payments.

Through two experiments, the present study finds that the effectiveness of using ERP as an anchor depends on the nature of the product category. For hedonic products, the absence of an ERP, compared to the presence of one, leads to higher perceived quality and PWYW payments. On the other hand, for utilitarian products, the presence of an ERP, compared to the absence of one, is found to be more effective in enhancing consumers' PWYW perceptions and leads to higher PWYW payments. Finally, our results reveal that product quality mediates the interaction of ERP and product type on PWYW payments for hedonic products.

To the best of our knowledge, this research is the first study that examines the roles of product type and ERP in influencing consumers' price perception and payment decisions in PWYW settings. We contribute to PWYW literature by extending the understanding of how consumers' PWYW payments are influenced by product type (i.e., hedonic vs. utilitarian). We also show that enhancing perceived product quality is an essential factor in increasing consumers' willingness to pay higher prices in the PWYW context. Our results have important managerial implications for assisting pricing managers in designing and implementing PWYW strategies by determining the appropriate use of ERP across different product types.

2. Literature review

2.1. Pay-what-you-want pricing

The pay-what-you-want pricing strategy, compared to the traditional fixed-pricing mechanism, can be more effective for services that typically charge low-level prices (Schons et al., 2014; Stangl et al., 2017). Previous PWYW research identifies several factors that can influence consumers' willingness to pay and drive customers to pay beyond zero. Those factors are external and internal reference prices, perceived fairness, customer satisfaction, PWYW framing, self-signaling, social pressure, consumer information about sellers' costs and other people's payments, the social distance between sellers and buyers, and price consciousness (Gerpott, 2017). A recent study suggests two theoretical mechanisms underlying consumers' PWYW purchase decisions by showing that consumers' purchase intentions are primarily driven by their perceived product knowledge while the final PWYW payment is mainly influenced by the perceived quality of the product (Weisstein et al., 2016).

The relationship between price and perceived product quality has been studied extensively, where consumers often perceive price as an indicator of product quality. Consumers' willingness to pay depends largely on their evaluations of the quality of products/services (Monroe, 2003). In a PWYW setting, field experiment research shows that buyers often pay positive PWYW amounts because of their satisfaction with the quality after consuming the service (Kim et al., 2009). Uncertainty would arise for consumers to shop for tangible products, which cannot be experienced before the purchase and the product quality cannot be evaluated ex-ante consumption (Weisstein et al., 2016). Consequently, consumers might face difficulties in determining the PWYW price to be paid. Hence, it is important to investigate variables that might be able to signal product quality before consumption and ease buyers' uncertainty, which subsequently would enhance the PWYW payments.

2.2. The effect of external reference price (ERP)

In the PWYW literature, the factor that has received the most attention is reference prices (external and internal), as reference prices serve as anchor points for PWYW payments and thus alleviate consumer anxiety or uncertainty regarding an appropriate price for a product or service (Gerpott, 2017). An internal reference price (IRP) is defined as a price (or price scale) in a buyer's memory that serves as a basis for judging or comparing actual prices (Grewal et al., 1998). Retailer-supplied comparative prices are often referred to as external reference prices (ERP) (Kopalle and Lindsey-Mullikin, 2003). An ERP provides an external reference that consumers use to compare the offered price of a product/service (Monroe, 2003). In the PWYW context, studies show that firms can use ERP to reduce the impact of IRP and consumers' chosen PWYW prices (Kim et al., 2009).

Sellers have direct control over ERP in the PWYW settings, while IRP cannot be determined by the sellers. For this reason, it appears that more studies have focused on ERP than on IRP in PWYW literature. The majority of empirical research that investigated the relationship between ERP and PWYW payments support the notions that (1) a higher ERP would lead to a higher PWYW payment and (2) a PWYW payment with ERP would be higher than those without ERP (Armstrong Soule and Madrigal, 2015; Jang and Chu, 2012; Kim et al., 2014; Regner and Barria, 2009; Schmidt et al., 2014). However, a group of studies found either no significant relationship between the use or the level of ERP and PWYW payments (Gautier and Van der Klaauw, 2012; Gneezy et al., 2012; Weisstein et al., 2016) or even significantly negative correlations (Johnson and Cui, 2013; Jung et al., 2016; Kunter and Braun, 2013; Roy et al., 2016). The inconsistent conclusions warrant further studies to uncover critical factors that might moderate the impact of ERP in influencing PWYW payments (Gerpott, 2017; Natter and Kaufmann, 2015). The present study focuses on product type (hedonic and utilitarian) and its effect on the relationship between ERP and PWYW payments, which has not been examined in PWYW literature.

2.3. The nature of product type

A vast body of prior research on hedonic/utilitarian consumption has shown that certain types of products evoke different affective states than others (Batra and Ahtola, 1991). Hedonic product consumption induces positive feelings, such as sensual pleasure, fantasy, or fun, whereas utilitarian product consumption is meant for fulfilling basic needs or accomplishing practical and functional tasks (Strahilevitz and Myers, 1998). A hybrid product possesses a balance of hedonic and utilitarian features (e.g., shampoo, toothpaste, deodorant, and body lotion) (Leclerc et al., 1994). Studies show that consumers' perceptions of a hybrid product as hedonic- or utilitarian-oriented are influenced by the framing of the product description (i.e., hedonic-vs. utilitarian-framed) (Dhar and Wertenbroch, 2000; Roggeveen et al., 2015).

Literature suggests that utilitarian products are ones whose consumption is cognitively driven, instrumental, and goal-oriented and fulfills a functional task. Hence, it is often labeled as practical or necessary. Consumption of such products rarely leads to either sensual pleasure or guilt (Strahilevitz and Myers, 1998). On the other hand, while hedonic goods can deliver benefits in the form of fun and enjoyment, they can also trigger consumers' feelings of guilt before, during, or after consumption (Okada, 2005). Purchase of hedonic goods is considered unnecessary and often induces guilt and possibly regret. This sense of guilt reduces the positive feelings and satisfaction derived from hedonic consumption. To minimize the feeling of guilt, consumers need to find a reasonable justification for purchasing hedonic products (Okada, 2005). Prior literature suggests there are three approaches with which consumers can alleviate the feeling of guilt associated with hedonic purchases: (1) performing altruistic behaviors (Strahilevitz and Myers, 1998), (2) expending effort (Kivetz and Simonson, 2002), and (3) finding deals (Choi et al., 2014). The affect-based complementarity

proposed by Strahilevitz and Myers (1998) suggests that affect generated from hedonic consumption (i.e., pleasure and guilt) may be complementary to the good feelings derived from charitable contribution. Their research finds that bundling a hedonic purchase with a charity donation has proven effective in reducing the sense of guilt and facilitates hedonic purchases. In the PWYW setting, Gneezy et al. (2012) also show that combining the PWYW strategy (i.e., photo purchase in an amusement park) with a charity component can enhance its effectiveness. The current research argues that consumers can also reduce guilt through the expenditure of effort and finding deals in the PWYW setting. The efficacy of these two approaches lies in the presence/absence of an external reference price.

2.4. Hypotheses

The anchoring and adjustment heuristic proposed by Tversky and Kahneman (1974) suggests that people, under uncertainty, often use an initial value (anchor) as a reference point and then adjust it upward or downward accordingly to form their final estimation. In the PWYW context, the external reference price serves as an anchor and, subsequently, influences consumers to choose a price that is close to the external reference price, as they will rely on external stimuli to make offers. However, previous studies show that consumers often exhibit loss aversion and are more motivated to avoid overpaying for a product than underpaying for a product. When an ERP is significantly higher than consumers' internal reference prices (i.e., a loss), it will less likely influence the final price chosen in a PWYW practice (Johnson and Cui, 2013). Presenting an ERP might lead to much lower PWYW payments than firms anticipate, owing to the anchoring and adjustment effect.

When an ERP is suggested for hedonic products in the PWYW situation, consumers would be concerned whether the ERP is reasonable or inflated (Chiou and Ting, 2011). Studies on consumer choice research show that hedonic goods are associated with greater guilt and, thus, require greater justification (Okada, 2005). Price discounts are useful in providing a guilt-reducing rationale (Khan and Dhar, 2010). In the PWYW setting, to avoid guilty feelings, consumers might significantly discount the ERP in the PWYW payment to justify their hedonic purchase. As a result, the presence of an ERP would lead to considerably lower payments than the market prices for hedonic products. On the other hand, if an ERP is not present, retailers give consumers more freedom to appreciate the quality and value of the product and to determine appropriate PWYW payments accordingly. The novel and entertaining aspects of the PWYW format (e.g., self-determination of prices) can further enhance consumers' positive feelings (Kim et al., 2014). Consequently, they will be more satisfied with the product quality that is associated with their self-determined PWYW prices. Prior literature suggests that consumers are motivated to create reasons for their decisions (Kunda, 1990) and that ambiguity gives more room for creativity to find good reasons for purchase decisions (Hsee, 1995; Okada, 2005). With the absence of an ERP, consumers need to make more efforts to self-evaluate product quality and, subsequently, self-determine PWYW payments. Higher efforts can reduce the guilt associated with hedonic consumption and increase consumer preference for hedonic goods (Kivetz and Simonson, 2002).

Without the interference of an external reference price, consumers are more likely to use their internal reference prices to guide their purchase decisions (Roy et al., 2016). Consumers' internal reference prices for hedonic products might vary significantly owing to the product's nature. Mort and Rose (2004) posit that the evaluation of hedonic products is linked to expectations regarding the likely achievement of a certain value (e.g., happy fulfilled life). Though the value may be shared by many consumers, the path to achieving value varies from person to person. That is, the evaluation of hedonic products and its relevance to a particular value is very subjective and may not apply to others (Sen and Lerman, 2007). Hence, the internal reference price of hedonic products might vary significantly among consumers.

Accordingly, there would be a high variance in the PWYW payments for hedonic products. Johnson and Cui (2013) experiments showed that subjects in the no ERP condition paid the highest PWYW payments for a concert ticket (i.e., hedonic product) than the other ERP conditions (i.e., minimum, maximum, and suggested prices). In addition, a self-determined PWYW payment is considered a good deal to most consumers. The feeling of getting a good deal is an effective way of minimizing guilt and increasing hedonic consumption (Choi et al., 2014). Past studies also show that with a good reason to justify the hedonic goods' purchase, consumers' budget control will be lessened and more money will be spent (Chiou and Ting, 2011). Thus,

H1. For hedonic products, the absence of an external reference price, compared to a situation in which an external reference price is offered, will lead to higher consumers' perceived product quality and PWYW payments.

Unlike hedonic consumption, utilitarian consumption is often goal-oriented, cognitively driven, and motivated primarily by the desire to fulfill a basic need or complete a functional and practical task. While hedonic products are evaluated primarily in terms of how much pleasure they provide, utilitarian products are assessed based on how well they function (Leclerc et al., 1994). The goal of utilitarian consumption is to maximize utility, and this utility maximization is based on tangible and objective criteria (Sen and Lerman, 2007). Product quality is more verifiable and cognitive-driven, and thus, mostly impacts utilitarian attitudes. On the other hand, an image is more affective and emotion-driven and mostly impacts hedonic attitudes. Studies show that the utilitarian attitude formation process is primarily influenced by perceived product quality while hedonic attitude is mostly driven by product image (Homer, 2008). Because of this focus on product performance and quality, consumers consider product quality as a significant factor when deciding on utilitarian product purchases.

In PWYW situations, where consumers cannot examine or sample a product before buying it, they do not know the actual product quality and, thus, may face difficulties in determining the appropriate PWYW payment. This paper argues that the presence of an ERP can serve as a quality cue to signal product quality and ease buyers' uncertainty about utilitarian products' performance. Comparatively, the absence of an ERP might lead consumers to question the product quality. In addition, utilitarian consumption rarely induces either sensual pleasure or guilt (Strahilevitz and Myers, 1998). Hence, purchasing utilitarian products would be a much less fun or pleasurable experience compared to buying hedonic products, especially when the quality is unknown and the price is undetermined. Thus, in the absence of an ERP, consumers would pay much lower PWYW payments owing to the uncertainty of perceived quality and the potential risk of overpaying. The following hypothesis captures the above logic.

H2. For utilitarian products, the presence of an external reference price, compared to a situation in which an external reference price is not offered, will lead to higher consumers' perceived product quality and PWYW payments.

Consumers' perceived product quality is known to be a strong predictor of their willingness to pay (Monroe, 2003). In the PWYW setting, as buyers have the ultimate control of the price they want to pay for a product, alternatively, retailers could present an ERP to signal the product quality. Studies further show that product quality evaluation directly influences the final pay-what-you-want amounts (Egbert et al., 2015; Weisstein et al., 2016). However, this effect is contingent upon the type of product offered. While consumers have more objective criteria and prior experience to assess the quality of utilitarian products, hedonic products are subjectively evaluated (Sen and Lerman, 2007). Presenting an ERP for utilitarian products serves as a quality signal and help buyers confirm or adjust their product assessment. In contrast, the presence of an ERP for hedonic products may create an upper threshold for consumers who buy a product for its pleasure and fun aspects

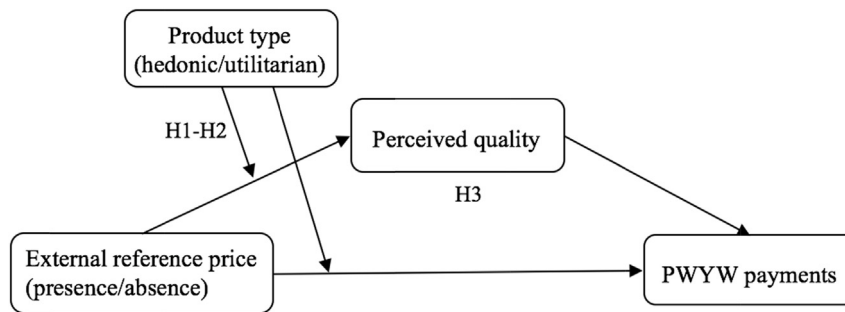


Fig. 1. Conceptual model.

(Johnson and Cui, 2013). To minimize the guilty feelings surrounding hedonic consumption, buyers will significantly discount the ERP, which lowers their perception of product quality and limits the amount they are willing to pay (Armstrong Soule and Madrigal, 2015; Okada, 2005). We, thus, posit that perceived quality will mediate the interaction effect of product type and ERP on PWYW payments.

H3. Perceived quality will mediate the interaction effect of external reference price and product type on PWYW payments. More specifically,

- (a) for hedonic products, an external reference price will reduce perceived quality and PWYW payments, and
- (b) for utilitarian products, an external reference price will increase perceived quality and PWYW payments.

The above three hypotheses are captured collectively in the conceptual model shown in Fig. 1.

3. Empirical studies

3.1. Study 1

A 2 (external reference price: presence vs. absence) \times 2 (product type: hedonic vs. utilitarian) between-subject experiment was used to investigate the interaction effect between ERP and product type on PWYW payments. A pretest was conducted to identify hedonic and utilitarian products for the study. Forty-two undergraduate students from a mid-western public university (52.4% female; average age = 21.31) were asked to rate six products (a box of chocolates, a bag of candies, a box of cupcakes, a UHU glue stick, a USB flash drive, and a backpack) on seven-point scales regarding the product hedonic and utilitarian dimensions (Okada, 2005). Participants rated a box of chocolates ($M_{\text{Hedonic}} = 6.19$, $M_{\text{Utilitarian}} = 2.38$, $p < .001$) as the most hedonic and a USB flash drive ($M_{\text{Utilitarian}} = 6.08$, $M_{\text{Hedonic}} = 2.02$, $p < .001$) as the most utilitarian product. Based on the pretest results, a box of chocolates was selected as the hedonic product and a USB flash drive was selected as the utilitarian product. Our pick of the hedonic/utilitarian products was also similar to the products selected in previous literature (e.g., Jia et al., 2018; Kim and Kim, 2016; Shen et al., 2016). The market price for the box of chocolates and the USB flash drive was the same at approximately \$11.99 at the time of the experiment.

A total of 152 college students from the same university participated in the main study for extra course credits. The study subjects consisted of 51% female participants and age ranged from 19 to 45 years old (average age = 21.38). Participants first read a short scenario asking them to consider purchasing a box of chocolates or a USB flash drive from a store that sells the products on a PWYW basis. They were required to consider making the PWYW purchases before consuming the products. They were randomly assigned to one of the four experimental conditions with cell sizes ranging from 33 to 38. The ERP was manipulated by offering (vs. not offering) the information of an external reference price of \$11.99 of the products. Subjects were then asked to

respond to the manipulation checks and dependent measures adapted from the pricing literature. Consumers' perceived quality ($\alpha = 0.94$) was measured by three items: the product is of high quality; the product is trustworthy, and the product is reliable (Dodds et al., 1991). Participants further indicated their final PWYW payments in terms of dollar amounts. Literature suggests that in the absence of ERP, consumers' decisions on PWYW payments rely mainly on their IRPs (Kim et al., 2009; Roy et al., 2016). In the no ERP condition, consumers' PWYW payments can be considered an indicator of their internal reference price (Johnson and Cui, 2013).

3.1.1. Manipulation check

Subjects were asked to rate their perception of the nature of product type on seven-point scales referring to hedonic (fun/not fun, exciting/dull, delightful/not delightful, thrilling/not thrilling, and enjoyable/not enjoyable) ($\alpha = 0.96$) versus utilitarian dimensions (effective/in-effective, helpful/unhelpful, functional/not functional, necessary/un-necessary, and practical/impractical) ($\alpha = 0.95$) (Voss et al., 2003). Products were also rated on a single hedonic scale of 1 (not at all hedonic) to 7 (extremely hedonic) and a single utilitarian scale of 1 (not at all utilitarian) to 7 (extremely utilitarian) (Okada, 2005). The answers were compared with subjects' responses to the previous multi-item measures (Voss et al., 2003). The USB drive was perceived by participants as a highly utilitarian product ($M_{\text{Utilitarian}} = 6.51$; $M_{\text{Hedonic}} = 2.39$, $p < .001$), while the chocolate was perceived as a highly hedonic product ($M_{\text{Hedonic}} = 6.41$; $M_{\text{Utilitarian}} = 2.91$, $p < .001$). There was a significant and positive correlation between the single-item and multi-item scales ($r = 0.89$ for utilitarian, $p < .01$; $r = 0.87$ for hedonic, $p < .01$). The results suggest that both the single-item and multi-item scales were similar and consistent in capturing the attitudes and concepts of product type (Okada, 2005). Cross-tabulation analysis showed a significant relationship between the presence of an ERP and the subjects' ability to recall whether the ERP was present ($\chi^2(1) = 85.65$, $p < .001$) and the price amount ($M = \$12.34$), indicating the manipulation worked as intended.

3.1.2. Results

To test H1 and H2, a MANOVA analysis was performed. As predicted, a significant interaction effect between ERP and product type ($\lambda = 0.45$; $F(2, 147) = 88.46$, $p < .001$, $r = 0.74$) existed on perceived quality ($F(1, 148) = 165.31$, $p < .001$, $r = 0.73$) and PWYW payments ($F(1, 148) = 43.08$, $p < .001$, $r = 0.47$).

A follow-up contrast analysis confirmed that in the absence (as opposed to presence) of an ERP, consumers who purchase hedonic products perceived higher product quality ($M_{\text{absence}} = 5.36$, $SD = 1.02$; $M_{\text{presence}} = 4.04$, $SD = 0.91$, $t(72) = 5.86$, $p < .001$, $r = 0.57$) and made higher PWYW payments ($M_{\text{absence}} = \$19.92$, $SD = 11.94$; $M_{\text{presence}} = \$9.11$, $SD = 3.10$, $t(72) = 5.26$, $p < .001$, $r = 0.53$), supporting H1. When the market price was offered as an ERP (\$11.99), the average PWYW payment was \$9.11, 24% below the ERP. When an ERP was absent, the average PWYW payment, an indicator of subjects' internal reference price (Johnson and Cui, 2013), was \$19.92, 66% above

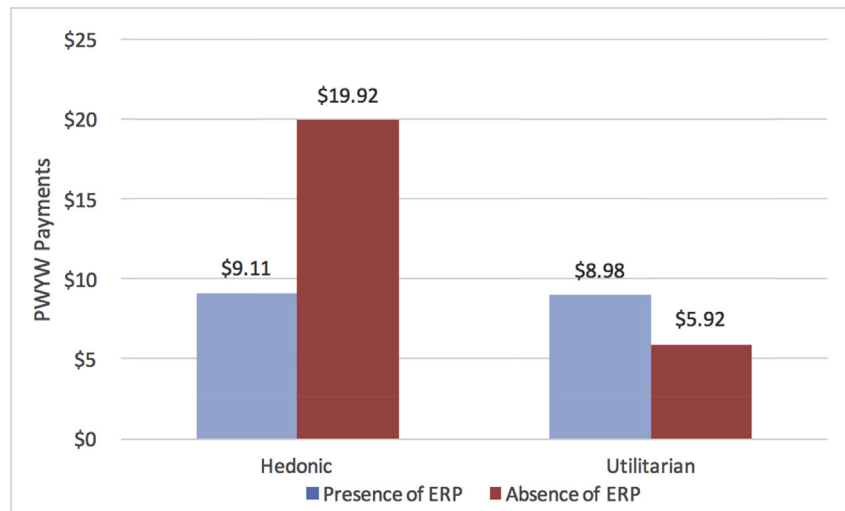


Fig. 2. External reference price \times product type interaction on PWYW payments (Study 1).

the market price (\$11.99).

Conversely, when consumers purchase utilitarian products, the presence of an ERP, compared to an absence, induces consumers to perceive a higher product quality ($M_{\text{presence}} = 6.10$, $SD = 0.70$; $M_{\text{absence}} = 3.09$, $SD = 1.39$, $t(76) = -12.10$, $p < .001$, $r = 0.81$) and make higher PWYW payments ($M_{\text{presence}} = \$8.98$, $SD = 3.28$; $M_{\text{absence}} = \$5.92$, $SD = 2.58$, $t(76) = -4.58$, $p < .001$, $r = 0.47$). Therefore, H2 received full support. The presence of an ERP leads to an average PWYW payment of \$8.98, 25% below the ERP (\$11.99). The absence of an ERP has a stronger negative effect on average PWYW payment, \$5.92, 51% below the market price (\$11.99). In addition, hedonic products generated greater variability in PWYW payments than utilitarian products ($SD = 10.32$ vs. $SD = 3.31$). Specifically, when an ERP was absent, the PWYW payments (i.e., an indicator of subjects' internal reference price; Johnson and Cui, 2013) for hedonic products, compared to utilitarian products, produced more variance in payment amounts ($SD = 11.94$ vs. $SD = 3.10$). Fig. 2 depicts the interaction effects of ERP and product type on PWYW payments.

To examine hypothesis 3 suggesting that perceived quality mediates the interaction effect of external reference price and product type on PWYW payments, a moderated mediation analysis was conducted using the PROCESS macro method (model 8) with 5000 bootstrapped samples and 95% confidence intervals (Hayes, 2017). The results revealed a significant moderated mediation effect ($\beta = 0.27$, $p < .001$) with a confidence interval of the indirect effect excluding zero (CI = 0.12, 0.48). The direct interaction effect of ERP and product type on PWYW payments was significant ($\beta = .41$, $t = 6.38$, $p < .001$). The moderated mediation test showed a significant positive effect of perceived quality on PWYW payments ($\beta = 0.63$, $t = 4.49$, $p < .001$) while the indirect interaction effect on PWYW payments remained significant ($\beta = 0.27$, $t = 3.05$, $p < .01$). Perceived quality mediated the interaction effect of ERP on PWYW payments for hedonic products ($\beta = -0.38$, $p < .001$, CI = -0.59 , -0.18), supporting H3a. The effect was not significant for utilitarian products, as confidence interval included zero ($\beta = 0.16$, $p = .27$, CI = -0.12 , 0.44), thus not supporting H3b. The negative sign of the interaction effect of ERP and product type for hedonic products indicates a negative relationship between ERP and the perception of quality as well as the final amount of PWYW payments. The ERP effect on hedonic product type negatively influences perceived quality and, subsequently, results in lower PWYW payments. Fig. 3 illustrates the indirect moderating effect of ERP and product type on PWYW payments through perceived quality.

3.2. Study 2

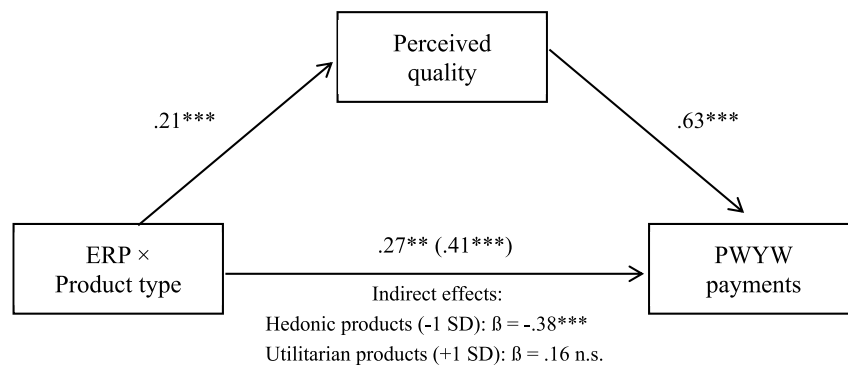
Study 2 was designed to assess the relative robustness of the findings in Study 1 by using a different product in the hybrid product category. Hybrid products (e.g., cars, smartphones, coffee makers, shampoo) can be categorized as either hedonic or utilitarian products, depending on intended use and how the product is characterized in marketing communications (Chitturi et al., 2007; Roggeveen et al., 2015). We used a bottle of shampoo as the testing product and framed the product description with a hedonic-vs. utilitarian-focus (Dhar and Wertenbroch, 2000; Roggeveen et al., 2015). A total of 184 college students from three mid-western universities participated in the study for extra course credits. The study subjects consisted of 54% female participants and age ranged from 19 to 38 years old (average age = 21.70).

Unlike Study 1, Study 2 asked the subjects to consider the PWYW purchases after the product's consumption. We adopted and modified the scenario of Roggeveen et al. (2015) study. Subjects read a scenario that they were staying in a hotel. They had just taken a shower using the shampoo provided by the hotel and were satisfied with it. They saw a product information card in the bathroom about the shampoo, which was available in the hotel lobby with a pay-what-you-want pricing format. They were then shown an image of a bottle of the shampoo and a product description framed with a hedonic vs. utilitarian focus. For the hedonic focus, the shampoo was described as providing benefits for soft, attractive, and shiny hair. The natural ingredients delivered intense moisturizing and fullness, leaving hair feeling smooth, shiny, and salon-soft. For the utilitarian focus, the shampoo was described as offering benefits of clean, fresh, and healthy-looking hair. The natural ingredients helped repair weak strands, fight dandruff outbreaks, and strengthen hair follicles, leaving hair feeling clean, healthy, and strong.

Subjects were randomly assigned to one condition of a 2 (external reference price: presence vs. absence) \times 2 (product type: hedonic vs. utilitarian) between-subject experiment, with cell sizes ranging from 39 to 53. The external reference price was manipulated by presenting (vs. not presenting) an external reference price of \$5.50, which is an average of market prices. Subjects were then asked to rate their perceived quality ($\alpha = 0.94$) and decided on their final PWYW payments (\$).

3.2.1. Manipulation check

Participants rated the hedonic-focus shampoo as a highly hedonic product ($M_{\text{Hedonic}} = 5.08$; $M_{\text{Utilitarian}} = 3.13$, $p < .001$) and the utilitarian-focus shampoo as a highly utilitarian product ($M_{\text{Utilitarian}} = 5.71$;



Note: * $p < .10$, ** $p < .05$, *** $p < .001$

Fig. 3. The moderated-mediating effect of perceived quality (Study 1).

$M_{Hedonic} = 2.83, p < .001$), indicating the product type manipulation worked as intended (Okada, 2005). Cross-tabulation analysis showed a successful ERP manipulation that participants’ ability to recall the price ($\chi^2(1) = 125.12, p < .001$) and the price amount ($M = \5.49) were significant.

3.2.2. Results

Hypotheses 1 and 2 predicted an interaction effect of ERP and product type on dependent variables. The MANOVA showed a significant interaction effect ($\lambda = .74; F(2, 179) = 31.61, p < .001, r = 0.51$) on perceived quality ($F(1, 180) = 33.44, p < .001, r = 0.40$) and PWYW payments ($F(1, 180) = 50.10, p < .001, r = 0.47$).

For hybrid products with hedonic-focus, the absence of an ERP, compared to a presence of one, induced higher perceived quality ($M_{absence} = 4.84, SD = 1.05; M_{presence} = 4.07, SD = 1.38, t(96) = 3.13, p < .01, r = 0.30$) and PWYW payments ($M_{absence} = \$7.03, SD = 4.32; M_{presence} = \$3.08, SD = 1.69, t(96) = 5.77, p < .001, r = 0.51$), thus providing support for H1. The absence of an ERP leads to much higher average PWYW payment at \$7.03 ($SD = 4.32$), 28% above the market price (\$5.50). The presence of an ERP (\$5.50) leads to lower average PWYW payment at \$4.32 ($SD = 1.69$), 21% below the ERP market price. For hybrid products with utilitarian-focus, the presence of an ERP, compared to the absence of one, induced consumers to perceive higher quality ($M_{presence} = 4.77, SD = 1.41; M_{absence} = 3.26, SD = 1.49, t(84) = -4.80, p < .001, r = 0.46$) and make higher PWYW payments ($M_{presence} = \$3.88, SD = 1.65; M_{absence} = \$2.12, SD = 1.72, t(84) = -4.83, p < .001, r = 0.47$), confirming H2. The presence of an ERP leads to an average PWYW payment of \$3.88, 29% below the ERP (\$5.50). The absence of an ERP has a stronger negative effect on average PWYW payment, \$2.12, 61% below the market price (\$5.50). Furthermore, hedonic-focus shampoo induced greater variability in PWYW payments than utilitarian-focus shampoo ($SD = 3.90$ vs. $SD = 1.90$). In particular, when an ERP was absent, the PWYW payments (i.e., an indicator of subjects’ internal reference price; Johnson and Cui, 2013) for hedonic-focus shampoo, compared to utilitarian-focus one, produced relatively higher variance in payment amounts ($SD = 4.32$ vs. $SD = 1.72$). Fig. 4 shows the interaction effect of ERP and product type on PWYW payments.

A moderated mediation test using the PROCESS bootstrapping method (model 8) again was used to test the mediating role of perceived quality in the research model. The results indicated a significant moderated mediation effect ($\beta = 0.12, p < .001, CI = 0.04, 0.26$). There was a significant direct interaction effect of ERP and product type on PWYW payments ($\beta = 0.43, t = 7.04, p < .001$). The pathway from perceived quality to PWYW payments was significant ($\beta = 0.47, t = 4.97, p < .001$) while the direct interaction effect of ERP and product type on PWYW payments remained significant ($\beta = .33,$

$t = 5.29, p < .001$), showing a partial mediation. The mediation effect of perceived quality was significant for hedonic products ($\beta = -0.47, p < .001, CI = -0.63, -0.31$), supporting H3a. No significant mediation was observed for utilitarian products since confidence interval included zero ($\beta = 0.18, p = .05, CI = 0.00, 0.37$), not supporting H3b. Consistent with Study 1 results, the ERP effect on hedonic products negatively influences perceived quality and significantly lower PWYW payments. However, the p value for utilitarian products may inspire a marginally significant effect ($p < .10$).

4. Discussion

The current research proposes and, through two experiments, empirically demonstrates that the effectiveness of using ERP as an anchor in the PWYW setting depends on the nature of the product type. For hedonic products, the absence of an ERP, compared to its presence, leads to higher perceived quality and PWYW payments. Most consumers choose to pay higher PWYW prices than the ERP market price, which results in an average PWYW price well above the market price (i.e., 66% higher for study 1 and 28% higher for study 2). In the absence of ERP, consumers tend to rely on their internal reference price to make a purchase decision (Kim et al., 2009; Roy et al., 2016). An internal reference price for hedonic products might vary significantly among consumers owing to the product’s nature (Mort and Rose, 2004). Our results on the PWYW payments across product types (i.e., average payment and the standard deviation of the payment in the no ERP condition) suggest that there was higher variance in internal reference price for hedonic than utilitarian products owing to the subjective nature of hedonic product evaluation (Sen and Lerman, 2007). On the other hand, our findings also support that the presence of an ERP reduces variability in PWYW payment amounts (Schmidt et al., 2014). Consumers would use the suggested ERP as an anchor and adjust it to some degree before arriving at a PWYW amount (Armstrong Soule and Madrigal, 2015; Johnson and Cui, 2013; Mazumdar et al., 2005). In other words, the presence of an ERP creates an upper bound on the prices that consumers are willing to pay voluntarily. To avoid guilty feelings associated with hedonic products, consumers might significantly discount the ERP to justify their hedonic purchase. Our results show that the presence of an ERP for hedonic purchases can, in fact lead to considerably lower payments than the market price. Fig. 5.

For utilitarian products, the opposite happens. The presence of an ERP, compared to the absence of one, is found to be more effective in enhancing consumers’ quality perceptions and leads to higher PWYW payments. Utilitarian products are evaluated based on how well they function and a utilitarian attitude is mostly driven by perceived product quality (Homer, 2008; Sen and Lerman, 2007). Consumers might face difficulties in assessing product quality and determining PWYW payments for utilitarian products before consumption. Our findings suggest

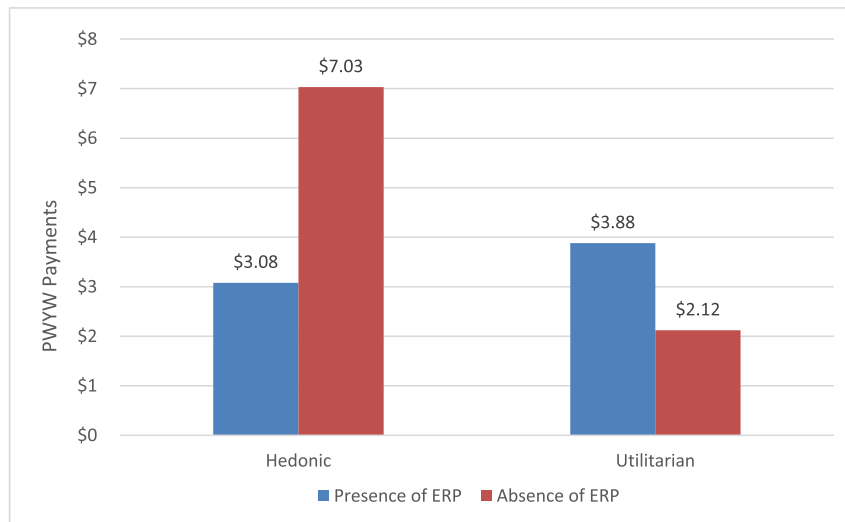


Fig. 4. External reference price × product type interaction on PWYW payments (Study 2).

that the presence of an ERP serves as a product quality signal and can improve consumers’ PWYW payments. On the other hand, without an ERP offered, consumers would face uncertainty about product quality and have concerns about the risk of overpaying for utilitarian products. These uncertainties lead consumers to choose to pay significantly low PWYW payments, which lowers the average PWYW payment well below the market price (51% lower for study 1 and 29% lower for study 2).

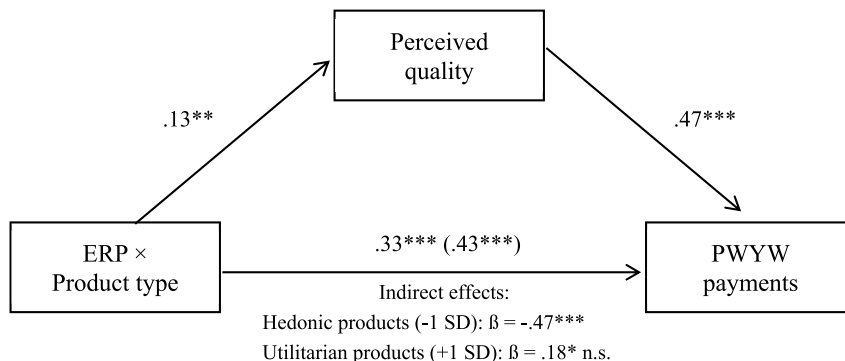
The results from Study 2 strengthen the above findings and render the findings more generalizable to diverse product categories. For hybrid products, it is important how a product is “framed” in marketing communications, which would lead consumers to perceive the product as a hedonic- or utilitarian-oriented product (Dhar and Wertenbroch, 2000; Roggeveen et al., 2015). In Study 2, a hybrid product (i.e., a bottle of shampoo) was framed differently as either a hedonic- or utilitarian-focus in different conditions and produced similar results as in Study 1. As such, the main findings of this research can also be applied to a “framed” hybrid product as well.

This study also finds that perceived quality mediates the impact of external reference price and product type on PWYW payments for hedonic products. The negative sign of the relationship suggests that the presence of ERP for hedonic products create a limitation for perceived quality and an upper threshold for PWYW payments. The ERP leaves little room for price variation, given that the perceived quality of hedonic products is relatively subjective (Sen and Lerman, 2007). On the other hand, the absence of an ERP can result in placing higher quality on the product by the consumer who focuses on fun, pleasure, or other

aspects of hedonistic needs. Therefore, we can expect higher PWYW payments when there is no ERP available. Although our experiments did not reveal the moderated mediating effect of product quality for utilitarian products, the results of Study 2 could support a marginal effect. A likely explanation of this difference is that the participants (i.e., college students) of our experiments might be more familiar and highly involved with using the USB flash drive (Study 1) than a hotel-provided shampoo (Study 2). Prior research suggests that consumers with high involvement or knowledge of a product (i.e., the level of personal relevance that a product has for a buyer) will likely have a well-established internal reference price (Zaichkowsky, 1985). High-involvement consumers are more confident in their internal reference price than low-involvement consumers. They would rely primarily on it when determining the PWYW payments (Weisstein et al., 2016). On the other hand, a low-involvement product (e.g., shampoo) has been associated with the lack of consumers’ motivation to engage in detailed information processing. As a result, consumers’ internal reference prices are not well defined and they would not be confident in acting on this information. They are more likely to rely on immediately available external cues to make evaluations (Chandrashekar, 2012). Hence, the participants might rely more on the ERP to signal the perceived quality and subsequently determine the PWYW payments.

5. Theoretical contributions and managerial implications

This paper makes several theoretical contributions to PWYW literature. First, the present study introduces a product characteristic (i.e.,



Note: * $p < .10$, ** $p < .05$, *** $p < .001$

Fig. 5. The moderated-mediating effect of perceived quality (Study 2).

product type) to the literature of PWYW pricing. Previous research points out that “to date empirical PWYW studies have devoted little attention to the effects of the characteristics of the goods sold under PWYW conditions on various outcomes of this price setting method” (Gerpott, 2017, p. 51). This is a significant gap in the PWYW literature, as product characteristics have the potential to influence consumers' valuation of the overall PWYW offering and, thus, their decisions on PWYW payments. As the first study incorporating a product characteristic in the PWYW context, the present study fills this gap in the literature by investigating how product type (hedonic vs. utilitarian) affects consumers' perceived quality of the product offered and their PWYW payments.

Second, this paper extends Johnson and Cui (2013) research by identifying the boundary conditions of their findings. Johnson and Cui (2013) found that, when a minimum price, a suggested price, and a maximum price are offered as an ERP, they all decrease the average PWYW payment, compared to the average PWYW payment when no ERP is offered. Our findings suggest that the above ERP effect on PWYW payments holds only for hedonic products. For utilitarian products, offering an ERP induces the opposite effect. An ERP can serve as a quality cue to signal the product quality and reduce purchase uncertainty. Finally, the present study identifies the mediating role of perceived quality in determining the final amount of PWYW payments made by consumers based on their perception of external reference prices while buying hedonic products. Our studies suggest that ERP plays the role of an inhibitor of perceived quality. Consumers will further discount the ERP to justify a hedonic purchase.

The current research offers useful managerial implications for practitioners. While employing the PWYW pricing strategy, marketing practitioners should be aware of differences in consumers' perceptions of various product types. The use of ERP heavily depends on the nature of the product type. For hedonic products, for less price sensitive or high internal reference price consumers, giving them the freedom to determine the PWYW payments without the presence of an ERP results in higher payments (Johnson and Cui, 2013). Offering an ERP for hedonic products is not recommended because an ERP sets an upper bound limit on perceived quality and PWYW payments. For utilitarian products, offering an ERP can signal the product quality and higher payments. On the other hand, not providing an ERP leaves consumers with uncertainty about product quality and might lead consumers to choose to pay significantly low amounts to avoid overpaying for utilitarian products.

6. Limitations and future research

There are challenges that are associated with the PWYW pricing strategy. Although PWYW pricing has gained recognition among practitioners, it is still novel and unfamiliar to most consumers. For those consumers who are accustomed to traditional fixed-price pricing, PWYW pricing may cause anxiety or uncertainty about how much they should commit as a payment (Gerpott, 2017). They might also experience guilt when they are considering a very low price as a payment. If PWYW pricing is perceived as too burdensome cognitively or emotionally, some consumers might withdraw completely from a transaction with a seller that offers a product with PWYW pricing. Another challenge is the opposite. Recognizing the fact that sellers must accept whatever PWYW payments consumers offer, some consumers have taken advantage of the PWYW pricing concept and purchased products and services paying very little or even no money. Although adopting PWYW pricing may create positive word-of-mouth or publicity for the seller, the PWYW pricing strategy can be a risky endeavor from a financial standpoint. As an example, Panera Bread recently closed the last of its pay-what-you-want locations because those locations were not financially sustainable (Patton, 2019).

This paper has several limitations which open opportunities for future research. First, the two experiments presented earlier were

conducted with college students, which are just one segment of overall consumers. The nature of our sample would limit the generalizability of the findings above to general consumers. To realize broad generalizability of the findings, it is suggested that similar studies should be conducted with different consumer segments. Second, the price level of ERP was not manipulated in the current studies. Future research can further examine consumers' perceptions of quality changes across different external reference price levels (high vs. low). Finally, the testing products (e.g., USB flash drive, chocolate, and shampoo) we used in the studies were tangible products that consumers need to decide their PWYW payments before consumption. Most products in the above product categories are sold with fixed prices in practice. Future research can test the validity of the findings in this paper by conducting similar experiments with products or services that are sold frequently in PWYW pricing settings [e.g., restaurant meals (a decadent dish vs. a salad dish) or software (a gaming app vs. a productivity app)].

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