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**The effects of participative pricing mechanisms on consumer  
behavior**

**Passo Fundo**

**2019**

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Dissertação apresentada ao Programa de Pós-Graduação em Administração da Escola de Administração da Faculdade Meridional – IMED, como requisito parcial para a obtenção do grau de Mestre em Administração, sob a orientação da Profa. Dra. Natália Araujo Pacheco.

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“Work hard... Play fair... Be nice... Dream  
big”  
- Unknown.

## ABSTRACT

This thesis empirically investigated two participative pricing mechanisms: pay-what-you-want (PWYW) and name-your-own-price (NYOP). While the former allows consumers to dictate the price they are willing to pay (including zero), the latter gives companies the possibility of setting a threshold price, and reject the consumer's offer if it is too low. The main purpose of this research is to investigate the effect of participative pricing mechanisms on consumer satisfaction with the pricing mechanism, pain of payment, and willingness to pay, as well as the role of consumer perceived control as an explanatory mechanism for the effects on satisfaction and pain of payment. Three experimental studies were conducted. Study 1 was a single factor experiment that manipulated pricing mechanism at three levels (posted price, PWYW, NYOP) in an online shopping experience of a concert ticket. It was found that PWYW leads to lower levels of pain of payment, and higher levels of perceived control and satisfaction with the pricing mechanism than posted prices and NYOP, and that NYOP leads to lower levels of pain of payment and higher levels of perceived control and satisfaction with the pricing mechanism than posted prices. It was also found that perceived control mediates the relationship between the pricing mechanism and satisfaction with the pricing mechanism, and pain of payment. Study 2 had a 2 (pricing mechanism: PWYW, NYOP) x 2 (external reference price: present, absent) design, in the same context as in study 1. It was found that the presence of an external reference price provided by the retailer leads to higher levels of willingness to pay and pain of payment, but lower levels of satisfaction with the pricing mechanism. Study 2 also found additional support for the findings of study 1. Study 3 had a 2 (pricing mechanism: PWYW, NYOP) x 3 (external reference price: injunctive, descriptive, absent) design, in the same context as in studies 1 and 2. The purpose of study 3 was to investigate whether the type of external reference price (i.e., injunctive: how much the company expects consumers to pay vs. descriptive: how much other consumers are paying) affected the investigated variables. The type of external reference price (injunctive or descriptive) did not affect satisfaction with the pricing mechanism, pain of payment, willingness to pay and perceived control. However, study 3 provided additional support for the findings of study 2, because the presence (vs. absence) of any type of external reference price did increase willingness to pay and pain of payment, and decreased satisfaction with the pricing mechanism. By comparing the effects of PWYW and NYOP on consumer behavior, this research provides insights for companies that consider adopting participative pricing mechanisms (e.g., which of the two creates the best buying experience, or which of the two yields higher willingness to pay).

**Keywords:** Name-your-own-price. Pay-what-you-want. Participative pricing; Perceived control. Satisfaction. Pain of payment. Willingness to pay.



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## **LIST OF ACRONYMS**

ANOVA – Analysis of Variance

ANCOVA – Analysis of Covariance

NYOP – Name-Your-Own-Price

PPGA – Programa de Pós-Graduação em Administração

PWYW – Pay-What-You-Want

SPSS – Statistical Package for the Social Sciences

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# 1 INTRODUCTION

When we search for a product or service and visit a store or a service provider - either online or offline - we are usually faced with pre-established prices informed by the seller. Consumers often play a passive role on this process, and buy from companies that, in their opinion, have a reasonable price for what they are looking for. However, a growing body of research suggests that participative pricing mechanisms (i.e., which allow consumers to participate in the formation of the price) may increase their satisfaction (e.g., HINZ; HANN; SPANN, 2011; GERPOTT, 2017) without necessarily reducing the company's profit (e.g., SHAPIRO; ZILLANTE, 2009; HINZ; SPANN, 2010; ISAAC; LIGHTLE; NORTON, 2015).

Participative pricing mechanisms “differ on many dimensions such as the nature and extent of participation required, the participants in the participative environments (number of buyers and sellers), whether it is computer mediated or not, whether participants can collude, and so on” (CHANDRAN; MORWITZ, 2005, p. 258). Examples of participative pricing mechanisms include auctions, reverse auctions, name-your-own-price auctions, and pay-what-you-want pricing (DORN; SUESSMAIR, 2016).

While auctions and reverse auctions involve a large number of buyers and sellers, a final distinction can be made between participative pricing mechanisms than involve only two players: one buyer, and one seller (DORN; SUESSMAIR, 2016). Under this criteria, the literature has explored two pricing mechanisms. The first, known as Pay-What-You-Want (PWYW), allows customers to pay any value, including zero, so that the company has no right to refuse to sell despite the price paid by the customer (KIM; NATTER; SPANN, 2009). The second, known as Name-Your-Own-Price (NYOP) differs from the first because companies establish a threshold price, which is unknown by the customer (FAY, 2004). Thus, the company can refuse the customer's offer if it is below its costs.

In many industries that sell perishable services (e.g., airlines, hotels, entertainment), companies face large fixed costs and a fluctuating demand (KRÄMER et al., 2017). Both PWYW and NYOP are often used by firms with large fixed costs and low marginal (or variable) costs in order to sell excess capacity in times of low demand (KRÄMER et al., 2017). A variety of practical applications of participative pricing mechanisms can be found in restaurants, museums, tickets, tourism and even music downloads (SCHONS et al., 2014).

Participative pricing mechanisms achieve endogenous price discrimination, because consumers pay different prices according to their valuations and perceptions of fairness, trust, and degree of risk aversion (KRÄMER et al., 2017). They often initiate word of mouth

recommendations (KIM; NATTER; SPANN, 2009), and can also be a powerful tool to promote products to a broader audience, increasing demand for complementary products (KRÄMER et al., 2017).

To illustrate, the band Radiohead was the first to use PWYW on the internet, allowing consumers to pay whatever they wanted for their album *In Rainbows*. Even though the profit margins for this specific album could have been larger if the posted price mechanism was employed, the band attracted new followers and increased demand for complimentary products by adopting PWYW (KRÄMER et al., 2017).

Ultimately, by frequently offering low prices and discounts in times of low demand, companies face the risk that consumers' internal reference prices are affected, which may reduce their willingness to pay in times of regular demand (KALYANARAM; WINER, 1995; KRÄMER et al., 2017; WAGNER, 2019). This risk can be circumvented by PWYW and NYOP, because they do not set explicit prices (KRÄMER et al., 2017; WAGNER, 2019).

However, some questions still remain unanswered. First, even though consumer satisfaction with the pricing mechanism was studied in NYOP (e.g., FAY; LARAN, 2009; HINZ; HANN; SPANN, 2011), most studies on PWYW have approached satisfaction with the retailer/service provider, not with the pricing mechanism *per se*. Furthermore, there is not a comparative study investigating which of the two pricing mechanisms generate higher satisfaction.

Second, the literature lacks of explanations about the antecedents of consumers' satisfaction with these pricing mechanisms. The literature shows evidence that higher perceptions of control lead to higher levels of satisfaction and more pleasant service experiences (e.g., HUI; BATESON, 1991; NAMASIVAYAN; GUCHAIT, 2013). However, few studies seem to have explored the subject on participative pricing strategies. Chandran and Morwitz (2005) were the only ones to relate participative pricing mechanisms (e.g., auctions) with perceived control on the consulted literature, and showed that auctions can increase consumers' attention and intention to purchase because of perceived control. However, no previous study has made a link between PWYW and NYOP with satisfaction through consumers' perceived control.

Third, consumers often experience a feeling of immediate pain right after making a purchase (e.g., PRELEC; LOEWENSTEIN, 1998), hereafter referred to as pain of payment. The literature has mainly studied pain of payment as a variable that depends on the method of payment. However, the effects of different pricing mechanisms, such as PWYW and NYOP on pain of payment have not yet been investigated. As previously mentioned, consumers'

perception of control lead to more pleasant service experiences. Therefore, it is possible that pricing mechanisms that enhance consumers' perceived control result in a more pleasant experience, and therefore lower the pain of payment experienced by consumers.

The literature also indicates that the addition of an external reference price serves as an anchor that usually drives payments upwards (see KIM; NATTER; SPANN, 2009; KIM; KAUFMANN; STEGEMANN, 2014). However, some scholars state that consumers may feel like they are being manipulated when companies use an external reference price under participative pricing mechanisms (JOHNSON; CUI, 2013).

Soule and Madrigal (2015) suggested that external reference prices may be positive when correctly presented. For instance, the external reference price provided in the form of a descriptive norm in PWYW (e.g., what other consumers are paying) should be more predictive of consumers' willingness to pay than when it is presented in the form of an injunctive norm (e.g., what the firm believes is the fair amount to be paid) (SOULE; MADRIGAL, 2015). The literature has yet not compared how the addition of an external reference price impacts consumers' satisfaction with the pricing mechanism, pain of payment, and willingness to pay (PWYW vs. NYOP), and whether the type of external reference price, as proposed by Soule and Madrigal (2015), affects these variables.

Thus, the main purpose of this thesis is to answer the following question: How do participative pricing mechanisms (PWYW and NYOP) impact consumer behavior (e.g., satisfaction with the pricing mechanism, pain of payment and willingness to pay)? To answer this question, three experimental studies were conducted. The results show that consumers are more satisfied and feel less pain of payment when a PWYW mechanism is adopted, but they are willing to pay significantly less than when an NYOP mechanism is adopted. However, when retailers use external reference prices, they are able to positively influence consumers' willingness to pay in both pricing mechanisms; nevertheless, the presence of external reference prices reduces consumers' satisfaction and increases pain of payment. Finally, it was found that consumer satisfaction and pain of payment are mediated by consumers' perceived control.

By understanding the antecedents by which participative pricing mechanisms generate more satisfaction with the pricing mechanism, more willingness to pay, and less pain of payment, companies considering the adoption of either NYOP or PWYW can better structure their pricing mechanism in order to be more competitive. For instance, the results of this research might help discover under which pricing mechanism consumers are willing to pay more, and whether or not the presence of an external reference price increases payments. In addition, the framing effect (KAHNEMAN; TVERSKY, 1979) of the external reference price



(injunctive vs. descriptive) may help firms induce higher payments without necessarily lowering satisfaction.

The results of this comparative research can help companies by pointing which of the two participative pricing mechanisms offers higher levels of satisfaction and willingness to pay, and lower levels of pain of payment.

This remainder of this thesis is organized as follows: The second chapter presents a literature review, and also presents eight hypotheses. Then, the methods of the three experimental studies are presented, along with their results. Lastly, a discussion is made about the results of the studies, and theoretical and managerial implications are presented, along with the studies' limitations and a future research agenda.

## 1.2 OBJECTIVES

### 1.2.1 Main objective

To investigate the impacts of NYOP and PWYW pricing mechanisms on consumers' satisfaction with the pricing mechanism, pain of payment and willingness to pay.

### 1.2.2 Specific objectives

- Compare the perceived control, satisfaction with the pricing mechanism, pain of payment, and willingness to pay generated by the NYOP, PWYW, and posted price mechanisms;
- Investigate whether consumers' perceived control mediates the effects of the three pricing mechanisms on satisfaction and pain of payment;
- Investigate whether the addition of an external reference price affects satisfaction, pain of payment, and willingness to pay;
- Investigate whether the type of external reference price (injunctive vs. descriptive) affects satisfaction, pain of payment, and willingness to pay.

## 2. LITERATURE REVIEW AND HYPOTHESIS

This section aims to analyze the literature on participative pricing mechanisms, specially PWYW and NYOP, as well as its consequences. It also explores the literature on perceived control, satisfaction, pain of payment, and willingness to pay, and presents eight hypotheses.

### 2.1 PARTICIPATIVE PRICING MECHANISMS

Participative pricing mechanisms allows consumers to (help) determine the price of a product or service. The most well-known participative pricing mechanism are auctions, under which several buyers compete to buy one product by bidding against one another (MILGROM; WEBER, 1982).

There are several types of auctions. For instance, a Vickrey auction (VICKREY, 1961; NOUSSAIR; ROBIN; RUFFIEUX, 2004) consists of a sealed-bid auction, where bidders submit an offer without knowing the values of other bidders. Another widely used type of auction is BDM, which is an acronym for Becker DeGroot Marschak (NOUSSAIR; ROBIN; RUFFIEUX, 2004). Under BDM, each participant simultaneously bids to purchase a good, and each bid generates a new price for the good. “Afterwards, a sale price is randomly drawn from a distribution of prices with support on an interval from zero to a price greater than the anticipated maximum possible willingness-to-pay among bidders” (NOUSSAIR; ROBIN; RUFFIEUX, 2004, p. 726). Any bidder who bids an amount greater than the sale price receives the good (NOUSSAIR; ROBIN; RUFFIEUX, 2004).

Name-Your-Own-Price (NYOP) is a more recent type of auction, invented by the travel services retailer Priceline.com (MILLS; LAW, 2001). While in an auction the seller can make a decision based on the entire pool of bids, in an NYOP mechanism the seller – which is always a company – has to deal with consumers that arise asynchronously (FAY, 2004). Therefore, the company must make a pricing decision before observing all bids. In addition, an NYOP mechanism only involves a direct interaction between one buyer and one seller, which is also different from the traditional auction model (DORN; SUESSMAIR, 2016).

Another type of participative pricing mechanism that involves a direct interaction between only one buyer and one seller is the so-called Pay-What-You-Want (PWYWP) (KIM et al., 2009; DORN; SUESSMAIR, 2016) which grants consumers with total control over the pricing decision. The next section depicts the characteristics of PWYW and NYOP.

### 2.1.1 Pay-What-You-Want (PWYW)

PWYW is a relatively new participative pricing mechanism in which consumers are granted with maximum control over the price they pay for a product or service (KIM; NATTER; SPANN, 2009; GERPOTT, 2017). Thus, consumers dictate the price (which can be below the retailers' cost, or even zero), and the company cannot reject it (KIM; NATTER; SPANN, 2009; TUDÓN, 2015).

Even though economic theory would suggest that consumers would want to achieve the greatest benefit by paying the least amount possible, there appears to have a consensus among researchers that prices paid in PWYW are significantly greater than zero (e.g., LYNN, 1990; KIM; NATTER; SPANN, 2009; JOHNSON; CUI, 2013; SOULE; MADRIGAL, 2015). Several reasons regarding consumer behavior may explain this: consumers seem to fear social disapproval, have self-image concerns (e.g., consumers may feel guilty when they think they have paid less than the fair price for a product or service), and do not want to appear poor or cheap (LYNN, 1990; KIM; NATTER; SPANN, 2009; GNEEZY et al., 2012; KUNTER, 2015). The amount consumers are willing to pay mainly depend on four factors: perceptions of fairness, satisfaction, price consciousness, and consumers' net income (KIM; NATTER; SPANN, 2009; GNEEZY et al., 2012; SCHONS, et al., 2014; KUNTER, 2015).

If correctly implemented, PWYW may increase a company's sales (KIM; NATTER; SPANN, 2009; GNEEZY, et al., 2010; KRÄMER et al., 2017) and profits (GNEEZY, et al., 2012; CHAO; FERNANDEZ; NAHATA, 2015; ISAAC; LIGHTLE; NORTON, 2015), even when consumers are self-interested (MAK et al., 2015). But these results are not a consensus amongst researchers. Krämer et al. (2017), for example, demonstrate that although PWYW is a very aggressive strategy, it is profitable only if marginal costs are low, and if there are promotional benefits involved, such as press coverage and word-of-mouth recommendations.

PWYW was mostly studied in offline contexts with payments made after the service experience. Weinsstein, Kukar-Kinney and Monroe (2016), however, studied PWYW in an online setting, where consumers must pay before experiencing the service or having access to the product. It was found that, in this context, perceived product knowledge influence purchase intentions, while perceived quality influence the amount paid.

In a PWYW context, Roy, Rabbanee and Sharma (2016) found that altruism positively influences internal reference price, which is an antecedent of future purchase intentions and attitude towards the seller. Attitude towards the retailer has mainly been assessed through consumers' willingness-to-pay. The relationship between consumers and the retailer, and the

value of the product or service affects the amount paid in a PWYW setting. For example, when there is a social distance between the consumer and the retailer, the amount paid is decreased (KIM; KAUFMANN; STEGEMANN, 2014). Furthermore, when the retailer carries a good reputation, the opposite effect is found (KIM; KAUFMANN; STEGEMANN, 2014). Moreover, the higher the value of the product or service being offered under PWYW, the less the proportion of prices paid will be (KIM; KAUFMANN; STEGEMANN, 2014).

The reasons that drive consumers' voluntary payments under PWYW vary according to behavioral and emotional aspects. Thus, retailers can always benefit from framing the PWYW differently (KAHNEMAN; TVERSKY, 1979; SCHRÖDER; LÜER; SADRIEH, 2015). For instance, when consumers are exposed to a mark-off-your-own-price (MOYOP), where they are told that they can reduce the price by as much as they like, they tend to pay significantly less when compared to a PWYW mechanism, where they are told they can pay as much as they like (SCHRÖDER; LÜER; SADRIEH, 2015).

Another factor that predicts the amount consumers pay in PWYW relates to the frequency consumers are exposed to this pricing mechanism. Overall, there is a downward slope in the level of prices paid under PWYW conditions, at least until they reach a steady state point after three purchases (SCHONS et al., 2014). Hence, in contexts where consumers tend to be loyal, profitability in the long run can only be sustained if the price after three transactions is still above the retailers cost (SCHONS et al., 2014). In markets where consumers and retailers carry a long term relationship, retailers should be encouraged to clearly announce the intention to switch back from PWYW to posted price in case that a threshold revenue is not achieved, so as to increase the likelihood of positive payments (MAK et al., 2015).

PWYW is different from donations, because PWYW involves a business transaction and exchange of benefits, while donations are a charitable giving in which donators do not expect anything in return (CHUNG, 2017). Practical examples of PWYW applied in practice can be found in Chung's (2017) meta-analysis of real-world examples of PWYW, which describes 14 cases of companies that applied PWYW, most of which are restaurants, hotels and travel services, entertainment, sports, and other recreation types of services. Another interesting example can be found in Kim, Natter and Spann's (2010) study of a Persian restaurant named Kish, located in Germany, which had initially adopted PWYW as a temporary promotional tool, but decided to switch from posted priced to PWYW permanently, after seeing its revenue increase exponentially.

### 2.1.2 Name-Your-Own-Price (NYOP)

The NYOP mechanism was invented and has been popularized by the travel services platform Priceline.com (FAY, 2004; WAGNER; PACHECO, 2019). According to Mills and Law (2001), on Priceline.com, consumers bid for the service (e.g. airline tickets, hotels and car rentals) offered on the retailer's website and must guarantee their offer by using a credit card. Priceline.com then communicates the offer directly to participating providers, such as airlines, hotels or rental car companies. Consumers cannot choose arrival and departure times, which instead are determined by the provider (MILLS; LAW, 2001; ANDERSON, 2009). If the placed bid is too low, the system informs the user about the possibility of having the bid refused; the user may then choose to retain the same bid or re-submit a new bid within an acceptable range suggested by the system (MILLS; LAW, 2001). Usually, within fifteen minutes, the user is informed by e-mail whether the bid has been accepted (MILLS; LAW, 2001).

Apart from Priceline.com, NYOP has been also studied in different contexts. For instance, Hann and Terwiesch (2003) studied a retailer that sold durable goods, as opposed to a hotel reservation or airline ticket. Terwiesch, Savin and Hann (2005) have chosen to study a complete history of submitted bids and threshold prices of a German retailer. Spann and Tellis (2006) note that the NYOP model has been widely adopted by several European companies, such as low-cost airlines and retailers. Wang, Li, Yan and Zhu (2016) studied the NYOP strategy in a reverse logistics context, where the manufacturer, who buys used products for its manufacturing process, can either use a posted price or adopt an NYOP strategy.

Companies that adopt a Name-Your-Own-Price (NYOP) strategy establish a threshold price, which is unknown by consumers. Thus, consumers who bid above this secret threshold set by the retailer receive the product or service at the price of their bid (SPANN; TELLIS, 2006). The threshold price can be fixed or adaptive (FAY; LARAN, 2009; HINZ; HANN; SPANN, 2011). Consumers can learn the threshold price by rebidding several times if the threshold price never changes. On the other hand, when an adaptive policy is employed, the retailer acts strategically because the retailer wants to discover the buyer's willingness to pay (HINZ; HANN; SPANN, 2011). It's been found that the adaptive threshold price policy can increase profits without reducing consumers' satisfaction (HINZ; HANN; SPANN, 2011) and that companies may attract and retain more consumers when variability in the threshold price is introduced (FAY; LARAN, 2009).

Companies may benefit from adopting an NYOP strategy and, quite often, adopt an NYOP strategy without excluding posted prices from their business models (CAI; CHAO; LI,

2009). Some of the benefits of the NYOP mechanism pointed by the literature include: facilitation of price discrimination (TERWIESCH; SAVIN; HANN, 2005; WANG; GAL-OR; CHATTERJEE, 2009); higher profits (HANN; TERWIESCH, 2003; FAY, 2004, 2009; TERWIESCH; SAVIN; HANN, 2005; SHAPIRO; ZILLANTE, 2009; HINZ; SPANN, 2010; HINZ; HANN; SPANN, 2011; SHAPIRO, 2011; WANG et al., 2016); increase of consumers' willingness to pay (when frictional costs are reduced) (SPANN; SKIERA; SCHÄFERS, 2004); increase of market participation (FAY; LI, 2015); easy disposal of unsold capacity (WANG; GAL-OR; CHATERJEE, 2009; KRÄMER et al., 2017); and reduction of competition (FAY, 2009; KRÄMER, et al., 2017).

The question of how retailers should develop and optimally structure this mechanism received attention from several researchers (HANN; TERWIESCH, 2003; FAY, 2004; TERWIESCH; SAVIN; HANN, 2005; CAI; CHAO; LI, 2009). Fay (2004), for example, investigated whether it is more profitable to restrict consumers to a single bid, or to allow multiple bids. Fay (2004) argues that a single-bid restriction does not improve a firm's profit. Besides, even when only one bid is allowed, sophisticated consumers can circumvent such policy by camouflaging their identity or otherwise manipulating the bidding procedure (by using a different credit card, for example) (FAY, 2004). Other authors argue in favor of the multiple bid policy (SPANN; SKIERA; SCHÄFERS, 2004; GUPTA; ABBAS, 2008; CAI; CHAO; LI, 2009). On one hand, while a single bid may prevent consumers from bidding until they discover the threshold price of the retailer, this policy may lead to lost revenues, because sales would not take place even if consumers were willing to increase the value of their bid (SPANN; SKIERA; SCHÄFERS, 2004).

Companies may also choose to allow consumers to place a bid for more than one item at the same time—i.e., a joint bidding (AMALDOSS; JAIN, 2008; GUPTA; ABBAS, 2008). This practice make consumers bid a higher amount than when compared to itemized bidding (AMALDOSS; JAIN, 2008). Joint bidding can help companies attenuate the losses that could come from repeat bidding behaviors (GUPTA; ABBAS, 2008).

On the consumers' side, NYOP can increase satisfaction (FAY; LARAN, 2009; HINZ; HANN; SPANN, 2011), provide higher amount of savings when consumers decide to haggle with retailers (JOO; MAZUMDAR; RAJ, 2012; LEVINA et al., 2015; TERWIESCH; SAVIN; HANN, 2005), and increase a product or service expected value, especially when consumers can bid for multiple items at the same time (GUPTA; ABBAS, 2008). On the other hand, consumers are usually not satisfied when only one bid is allowed (SPANN; SKIERA; SCHÄFERS, 2004). In addition, NYOP can often result in irrational decision making (SPANN;

TELLIS, 2006), and may result in higher frictional costs (HANN; TERWIESCH, 2003; TERWIESCH; SAVIN; HANN, 2005), which reduces willingness to pay (SPANN; SKIERA; SCHÄFERS, 2004).

Hann and Terwiesch (2003) defined frictional costs as “the disutility related to learning to navigate through websites, the disutility of keying in order and payment information, the cognitive costs of comparing different offerings, and the opportunity costs of time for the online transaction” (p. 1565). Under an NYOP mechanism, frictional costs arise because of the cognitive effort that consumers must make in the absence of posted prices (e.g., consumers must rebid and wait until the offer is accepted before receiving the product or service). Retailers, who can choose the time delay used to notify consumers about a successful/unsuccessful offer (TERWIESCH; SAVIN; HANN, 2005), can manipulate the degree of consumers’ frictional costs. For instance, if retailers send a feedback in a one-day delay, consumers exert a great effort to search for a different option, or choose to rebid. On the other hand, instantaneous feedbacks reduce this amount of effort, and consequently, frictional costs (TERWIESCH; SAVIN; HANN, 2005).

Frictional costs and willingness to pay are inversely related (SPANN; SKIERA; SCHÄFERS, 2004). However, frictional costs follow a learning curve pattern, because consumers who have previously been exposed to an NYOP bidding system are less affected (HANN; TERWIESCH, 2003). For first time bidders of NYOP, frictional costs are reduced if only one bid is allowed (HANN; TERWIESCH, 2003; GUPTA; ABBAS, 2008). Nevertheless, even though allowing a single bid may reduce frictional costs, this may give consumers a negative post-purchase experience, because when the offer is accepted after only one bid, consumers may have the impression that a bad deal was made, and that he or she could have paid less (HANN; TERWIESCH, 2003). In comparison to PWYW, NYOP is less aggressive, segments the market and reduces competition among firms; furthermore, it can be used even when marginal costs are high, because the seller can protect itself against selling below costs (KRÄMER et al., 2017).

## 2.2 CONSUMERS’ PERCEIVED CONTROL

A widely accepted definition for perceived control in the literature is “the perceived ability to significantly alter events” (BURGER, 1989, p. 246). It is crucial to mention that,

sometimes, people's perception of control over situations are inaccurate; thus, perceptions of control matter more than actual control over situations (BURGER, 1989).

Although some studies state that participative pricing (e.g., PWYW) grant full control to consumers over the price paid (KIM; NATTER; SPANN, 2009), only a few have measured perceived control as an antecedent of consumers' behavioral responses to participative pricing.

In a series of three experimental studies, Chandran and Morwitz (2005) manipulated the level of perceived control (low vs. high) of consumers under different price conditions (auction vs. posted price). It was found that high perceived control leads to higher intention to purchase on auctions, but led to lower purchase intention on the posted price mechanism. Their research further demonstrated that consumers under participative pricing tended to focus their attention on setting the final price, rather than evaluating the deal. This, in turn, led to higher purchase intentions (CHANDRAN; MORWITZ, 2005).

According to Averill (1973), there are three types of personal control: behavioral control, which relates directly to perceptions of control over the environment; cognitive control, which relates to the interpretation of events, and decisional control, which relates to having choice amongst alternatives.

Skinner (1996) argued that potential antecedents of perceived control are information, choice and predictability. Therefore, the possibility of making a choice leads to higher perceptions of control (SKINNER, 1996; PACHECO; LUNARDO; DOS SANTOS, 2013). Participative pricing mechanisms, such as PWYW and NYOP allow consumers to make a pricing choice, which does not take place in posted prices. Thereafter, it is believed that allowing consumers to make a pricing choice may lead to higher perceptions of control than when posted prices are used. This is also aligned with Averill's (1973) decisional type of control. PWYW will generate more perceived control because there is a decisional aspect (choice) involved, while in NYOP the price choice is only a possibility which may be refused by the company if the bid is below the threshold price. However, it is believed that NYOP generates less perceived control than PWYW, but still more than posted prices, because consumers still participate in the price formulation process. Thus,

*H1 – PWYW leads to higher perceptions of control than NYOP, which leads to higher perceptions of control than posted prices.*



### 2.3 SATISFACTION WITH THE PRICING MECHANISM

The literature on PWYW approaches consumers' satisfaction differently than the literature on NYOP. In PWYW, the majority of studies conceptualized satisfaction as an antecedent of the amount paid for the product or service (GERPOTT, 2017). For instance, the amount paid for a service vary if consumers pay *before* or *after* experiencing the service, because PWYW can be used as a mechanism where consumers immediately express their dissatisfaction with a service, if payment occurs after the service experience (HOMBURG; KOSCHATE; HOYER, 2005; GERPOTT, 2017). Gerpott (2017) argued that, until then, nine studies found that consumer satisfaction is positively correlated with prices paid under PWYW after consumption. However, in PWYW, the satisfaction with the pricing mechanism *per se*, as well as the antecedents of the satisfaction with PWYW were not deeply explored by the literature.

On the other hand, some NYOP studies focused on the satisfaction with the pricing mechanism, because under NYOP, consumers usually bid and pay before experiencing the service. Thus, unlike PWYW, NYOP cannot be used as a tool for consumers to express dissatisfaction with the product or service. Fay and Laran (2009) studied how consumers' expectations about changes in the seller threshold price impacted satisfaction towards NYOP. Their results indicate that consumers are more satisfied when they expect a variability in the seller threshold price. Although it was difficult for the authors to determine the reasons for this result, they speculated that it is due to the perception that the bidding process may appear more favorable to consumers if there is a probability of change in the threshold price, because it increases consumers' chance to get better prices. Hinz, Hann and Spann (2011) conducted a similar study, and discovered that sellers can use an adaptive threshold price policy (e.g., different consumers can find a different threshold price) without lowering consumer satisfaction with NYOP. Likewise in PWYW, the literature lacks of further explanation of the antecedents that generate satisfaction with NYOP.

Participative pricing mechanisms have an innovative appeal in retailing, because it is unconventional to involve consumers in the price formation process (KIM et al., 2009). Therefore, consumers may feel surprised when they are invited to help determine the price of a product or service. The literature explains that satisfaction happens when consumers' expectation is positively disconfirmed (e.g., TSE; WILTON, 1988; ANDERSON; SULLIVAN, 1993; SPRENG et al., 1996). Hence, participative pricing mechanisms should generate higher satisfaction with the pricing mechanism than the posted price mechanism because consumers

expect to find a posted price, but are invited to participate in the price formation process instead. Furthermore, PWYW should generate positive expectation disconfirmation, thus higher satisfaction, than NYOP because consumers know that their offer cannot be refused by the retailer in PWYW—which is very unexpected when you are used to posted prices. In addition, although satisfaction with PWYW has not yet been measured, the literature has found a significant and positive relationship between NYOP and satisfaction (FAY; LARAN, 2009; HINZ; HANN; SPANN, 2011). Based on this, following hypothesis is presented:

*H2 – PWYW generates higher satisfaction than NYOP and posted prices, and NYOP generates higher satisfaction with the pricing mechanism than posted prices.*

Hui and Bateson (1991) argued that perceived control is an important antecedent of the consumer's emotional and behavioral responses. For instance, it increases the pleasantness of a service experience (HUI; BATESON, 1991; UHRICH, 2011), positively impacts trust, self-esteem and fairness perceptions, which in turn, influence consumers' satisfaction with service providers (NAMASIVAYAN; GUCHAIT, 2013), positively impacts affect when consumers are allowed to co-produce the product or service with the company (STEVENS et al., 2017), increases consumers' satisfaction, value co-creation and intentions of doing business with the company in the future even after a service failure (BOLKAN; GOODBOY; DALY, 2010; GUO et al., 2015).

In situations that do not involve participative pricing, it has been widely shown that perceived control is an important antecedent of consumers' satisfaction (GOODBOY; DALY, 2010; NOONE; WIRTZ; KIMES, 2010; NOONE; WIRTZ; KIMES, 2012; PACHECO; LUNARDO; DOS SANTOS, 2013; NAMASIVAYAN; GUCHAIT, 2013; BOLKAN; GUO et al., 2015). It is expected that the relationship between participative pricing mechanisms and satisfaction with the pricing mechanism is mediated by consumers' perceptions of control. Thus, it is hypothesized that,

*H3 – Perceived control mediates the relation between the pricing mechanism (PWYW, NYOP and posted price) and satisfaction with the pricing mechanism.*

## 2.4 PAIN OF PAYMENT

Consumers often experience pain of payment immediately after making a purchase; it works as a reminder of the sacrifice that is originated by purchases (PRELEC; LOEWENSTEIN, 1998). Pain of payment can be defined as a series of negative feelings associated with the costs of a purchase that may undermine the pleasure that one derives from it (PRELEC; LOEWENSTEIN, 1998). Evidence from neuroscience is consistent with the idea that consumers' decisions involve tradeoffs between the pleasure of acquisition of a product or service, and the generated pain of payment (KNUTSON et al., 2007).

Consumers are loss averse, which means that they often prefer to prepay for products or services, so that they can minimize thoughts of payment and they can enjoy products and services as if they were free (i.e., consumers want to know how much something costs, but do not wish to overly think about these costs) (PRELEC; LOEWENSTEIN, 1998). Furthermore, Prelec and Loewenstein (1998) argue that the best scenario for a low pain of paying is one where payments are attached to consumption, but consumption is not attached to payments, so that only thoughts about the benefits of the product or service are evoked. Therefore, companies developing a pricing strategy should try to reconcile these conflicts by “creating an illusion of free benefits without sacrificing accountability” (PRELEC; LOEWENSTEIN, 1998, p. 26).

The stream of research that approaches pain of payment focuses mainly on how different methods of payment can attenuate the pain of payment, and the impact of different methods of payment on consumers' expenditure behaviors. Different methods of payment imply on different behavior and emotions (THOMAS; DESAI; SEENIVASAN, 2011; KAMLEITNER; ERKI, 2013). For example, the use of credit cards as a method of payment increases the amount spent when compared to cash payments (HIRSCHMAN, 1979; FEINBERG, 1986; SOMAN, 2001; CHATTERJEE; ROSE, 2012). In addition, payments made by check produce thoughts about the outlay, because consumers must write the total amount in number and words (PRELEC; LOEWENSTEIN, 1998), while payments made by electronic methods (i.e., credit cards) provoke a lower vividness than non-electronic methods (e.g., cash or checks), resulting in weaker memory traces (SOMAN, 2001).

It is believed that there are two main reasons why participative pricing mechanisms may lower consumers' pain of payment. First, because consumers may express how much they wish to pay, they may believe that they have made a better deal than if the same product or service was bought through a posted price. Hence, instead of focusing on the price *per se*, consumers attention should stay focused on the fact that they are paying less than they would if the price was determined by the retailer. This may produce a similar impression of lower vividness and weaker payment memory traces generated by credit card payments, for example (SOMAN,

2001). Therefore, a direct effect of participative pricing mechanisms on pain of payment is expected.

Second, increasing consumers' perceived control may lead to more pleasurable buying experiences (HUI; BATESON, 1991). Perceived control also increases perceptions of fairness and trust, and positively influences affect towards the company (UHRICH, 2011; NAMASIVAYAN; GUCHAIT, 2013; STEVENS et al., 2017). Consumers see prices generated through PWYW as fairer than posted prices (BETTRAY et al., 2017). Thus, enhancing consumers' perceptions of control through participative pricing mechanisms may reduce consumers' pain of payment by creating a more pleasurable buying experience, and enhancing perceptions of fairness and trust. And because H1 and H2 state that PWYW leads to higher satisfaction with the pricing mechanism and perceived control than NYOP, which in turn leads to higher satisfaction and perceived control than posted prices, it is hypothesized that,

*H4 - PWYW generates lower pain of payment than NYOP and posted prices, and NYOP generates lower pain of payment than posted prices.*

*H5 – Perceived control mediates the relation between the pricing mechanism (PWYW, NYOP and Posted Price) and pain of payment. Therefore, the higher the perceived control generated by the pricing mechanism, the lower the pain of payment.*

## 2.5 WILLINGNESS TO PAY AND EXTERNAL REFERENCE PRICES

Companies may employ tactics to increase the amount paid in participative pricing mechanisms, such as PWYW and NYOP. For instance, the addition of an external reference price increases consumers' willingness to pay in PWYW (KIM; NATTER; SPANN, 2009; KIM; KAUFMANN; STEGEMANN, 2014; SCHRÖDER; LÜER; SADRIEH, 2015; SOULE; MADRIGAL, 2015; WEINSSTEIN; KUKAR-KINNEY; MONROE, 2016).

Reference prices are standards against which prices are compared (MONROE, 1973; KALYANARAM; WINER, 1995; MAZUMDAR; RAJ; SINHA, 2005). Reference prices are usually built internally, based on consumers' previous shopping experiences (KALYANARAM; WINER, 1995). However, since participative pricing mechanisms do not set a specific price (KRÄMER et al., 2017; WAGNER, 2019), companies that adopt participative pricing mechanisms may provide an external reference price in order to try to

increase the amount paid. For instance, companies may inform consumers how much the product or service normally costs under a posted price mechanism (KIM; NATTER; SPANN, 2009).

The question of whether or not to provide a reference price is not a consensus among theorists. For instance, even though most argue that the addition of an external reference price have a positive impact on the final price paid in a PWYW setting, increasing the price paid (e.g., KIM; NATTER; SPANN, 2009; KIM; KAUFMANN; STEGEMANN, 2014; ISAAC; LIGHTLE; NORTON, 2015; SOULE; MADRIGAL, 2015), others argue that not using external reference prices may be the best alternative, leading to higher prices paid (JOHNSON; CUI, 2013).

Moreover, reference anchors, such as reference prices, determine how consumers frame or interpret the consequences of a decision (KALYANARAM; WINER, 1995; KAHNEMAN; TVERSKY, 1979; HOLMES et al. 2011; SOSTER; GERSHOFF; BEARDEN, 2014). Kim, Natter and Spann (2009), for example, empirically confirmed that adding an external reference price pushes payments upwards. In their field study, the regular unit price (i.e., posted price) of selected products were provided to consumers prior to PWYW payments. It was confirmed that prices paid were significantly higher for products where the regular price was provided, than when consumers did not have a reference price.

Kim, Kaufmann and Stegemann (2014) found the same results, indicating that sellers benefit by providing external reference prices, and revenues are increased. Similarly, Isaac, Lightle and Norton (2015) showed that firms benefit when announcing a minimum suggested contribution, which is positive but below the profit-maximizing price (so that endogenous price discrimination makes consumers contribute more than the suggested minimum). However, although Johnson and Cui (2013) showed that firms yield revenues while suggesting a price that is close to consumers' internal reference price, they argued that this strategy may have a drawback, because it may lead consumers to believe that the pricing strategy is not actually PWYW. Instead, they may feel like they are being manipulated into paying a price chosen by the company (JOHNSON; CUI, 2013). Meanwhile, Johnson and Cui (2013) did not empirically measure and compare consumers' satisfaction before and after the addition of the external reference price.

Therefore, two hypotheses are postulated. The first hypothesis refers to willingness to pay when external reference price is absent. Because in NYOP consumers know that the company may refuse to sell the product or service if the bid is too low (KIM; NATTER; SPANN, 2009; SCHONS et al., 2014), it is expected that consumers' willingness to pay in

NYOP will be higher than in PWYW. The second hypothesis refers to willingness to pay in the presence of an external reference price. Aligned with previous studies, it is expected that the external reference price will increase willingness to pay, but decrease satisfaction. In addition, by decreasing satisfaction with the pricing mechanism, it is believed that the pain of payment will be significantly increased. Furthermore,

*H6 – Consumers’ willingness to pay will be higher in NYOP than in PWYW.*

*H7 – The presence (vs. absence) of an external reference price will: (a) increase (decrease) willingness to pay on PWYW and NYOP, (b) decrease (increase) satisfaction with the pricing mechanism on NYOP and PWYW; and (c) increase (decrease) pain of payment of NYOP and PWYW.*

Although most studies on NYOP were conducted in online contexts, in PWYW, the majority of studies have used contexts where social pressure exists (e.g., other people are present at the point of purchase, the product is consumed in the presence of others, or the price to be paid must be decided in front of a real person) (SOULE; MADRIGAL, 2015). However, Soule and Madrigal (2015) tested how consumers react under an anonymous-online PWYW system. They found that even in the absence of social pressure, payments reported are significantly greater than zero. In addition, consumers are affected by normative information provided by the company (i.e., external reference prices). For instance, Soule and Madrigal (2015) tested two ways a company can provide an external reference price: under descriptive or injunctive norms.

Descriptive norms originate from a normative belief about what other consumers are willing to pay, whereas injunctive norms are a firm-supplied information about what the firm believes that ought to be paid (SOULE; MADRIGAL, 2015). Previous research argued that descriptive norms are more predictive of consumers’ behavior (BICCHIERI; XIAO, 2009) because unconsciously, consumers feel close to others who have previously made PWYW payments (SOULE; MADRIGAL, 2015).

Therefore, in their studies, Soule and Madrigal (2015) expected to find that a descriptive external reference price (i.e., how much others are paying) works better as an anchoring point than an injunctive external reference price (i.e., how much the firm expects consumers to pay). In their first experimental study, Soule and Madrigal (2015) tested different levels of external reference price (e.g., a high vs. a low external reference price). One of their hypothesis predicted

that descriptive external reference price should impact willingness to pay only when the value of the external reference price is high. The reason is that “although consumers tend to be highly motivated by conforming to social norms, descriptive (vs. injunctive) norms may only have stronger influence when the decision is risky” (SOULE; MADRIGAL, 2015, p.170). This means that when the external reference price is low, it is not painful to pay the price suggested by the company, but when the external reference price is high, consumers should want to conform to social norms, and pay a value that is closer to what others are paying (SOULE; MADRIGAL, 2015).

Soule and Madrigal’s (2015) results were partially confirmed. Higher levels of external reference price indeed led consumers to pay more, but the type of the external reference price (injunctive vs. descriptive) did not influence the amount paid, as expected. In some cases consumers paid amounts closer to the external reference price value when the numeric information was presented in the form of a descriptive norm. Soule and Madrigal (2015) speculated that these results may be due to the anchor values being lower than expected for the type of service they tested (i.e., concert tickets).

Soule and Madrigal (2015) only studied a PWYW context, and the main dependent variable was willingness to pay. Therefore, they did not consider the impact of the type of reference price on other variables, such as satisfaction with the pricing mechanism and pain of payment.

Because it is predicted that the presence of an external reference price increases pain of payment (H7c), and satisfaction with the pricing mechanism (H7b), it is expected that the type of the external reference price may produce a similar effect on satisfaction and pain of payment. Specifically, because descriptive norms may induce consumers to feel closer to other consumers who have previously used participative pricing mechanisms (BICCHIERI; XIAO, 2009; SOULE; MADRIGAL, 2009), it is believed that descriptive norms may have a weaker effect on the increase of pain of payment and decrease of satisfaction.

Additionally, injunctive reference prices may lead consumers to believe that they are being manipulated, which may cause a drawback effect (JOHNSON; CUI, 2013) by strongly decreasing satisfaction and increasing pain of payment. Finally, it is believed that these results will be replicated under NYOP conditions, because PWYW and NYOP have a similar configuration (i.e., interaction between one buyer and one seller) (DORN; SUESSMAIR, 2016).

*H8 – External reference prices presented in the form of a descriptive norm will: a) increase willingness to pay and b) satisfaction, and c) reduce pain of payment, while external reference prices presented in the form of an injunctive norm will: a) decrease willingness to pay and b) satisfaction, and c) increase pain of payment.*

Figure 1 summarizes the hypotheses developed, and shows the theoretical model of this research. Next chapter describes the method employed to test the hypotheses.

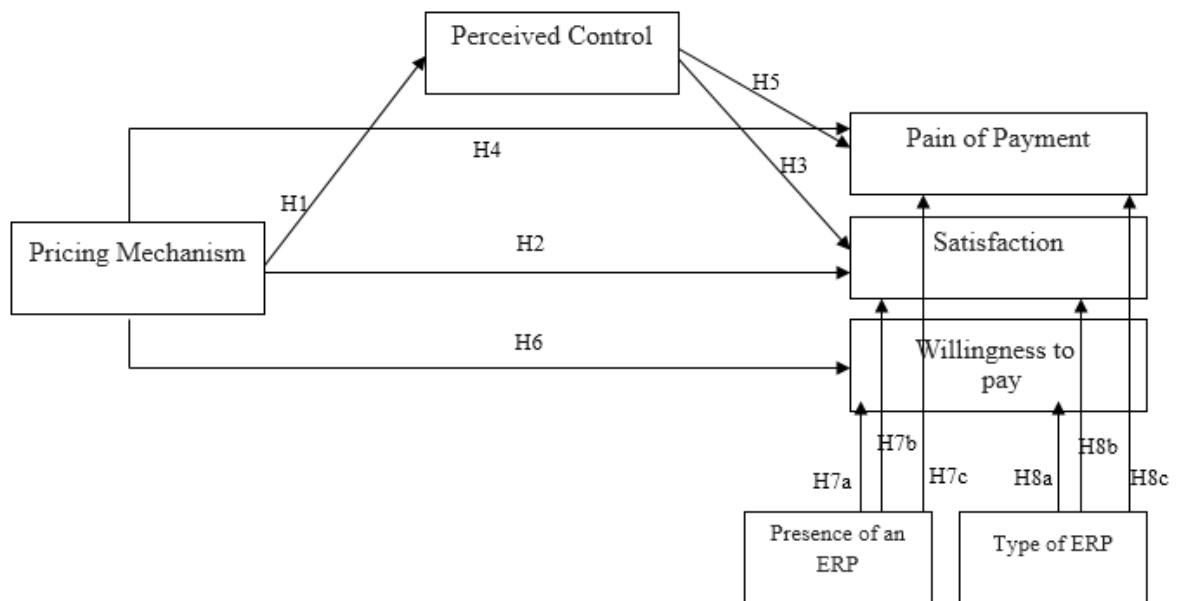


Figure 1. Theoretical model of research

Note: ERP = external reference price.

Source: the author (2018).



## 4 METHOD AND RESULTS

### 4.1 PRETEST

The value provided on the posted price scenario (Study 1) and the value provided on the external reference price (Study 2 and Study 3) took into consideration the results of a pretest conducted with 41 US-resident participants, recruited on Figure Eight platform. Figure Eight is an online platform used to recruit people to execute simple tasks, and is widely used for consumer research studies. The instrument was formulated on Qualtrics, and participants were paid US\$ 0.10 to participate.

Participants first read the instructions text: *“Dear respondent, this is a pretest for an academic research. Please read the following text and answer the question. It should take you no more than 1 minutes to respond this quick survey, so please read it carefully.”* Then, participants had to answer the name of their favorite band. The name of participants’ favorite band was used on the manipulation text in order to increase participants’ involvement with the task. After answering the name of their favorite band, they read the following text: *“Imagine you are living the following situation: You visit a website to buy a ticket for a concert of [Favorite Band Name]. You decide to buy the ticket, and then proceed to check out.”* Then, participants answered the following question: *“How much do you think the ticket costs, in US dollars?”*

On average, participants believed that the ticket cost US\$ 116 (M=116.45, SD= 134.89). Therefore, the value of the posted price and the external reference price used on the experimental studies was \$ 116 dollars.

### 4.2 STUDY 1

Study 1 is a single factor, between-subjects experiment that manipulates three different participative pricing mechanisms (posted price vs. NYOP vs. PWYW). The purpose of this study is to compare the impact of each pricing mechanism on perceived control (H1), satisfaction (H2), pain of payment (H4) willingness to pay (H6), and the role of perceived control as a mediator of the pricing mechanism effect on satisfaction (H3) and pain of payment (H5).

### 4.1.1 Sample

In total, 127 participants were recruited to participate on the experiment. Participants were residents of the United States, Canada, and the United Kingdom. 55.9% were female, and participants' age ranged from 18 to 79 years old ( $M=39.06$ ,  $SD=13.93$ ). Table 1 shows participants' highest level of education, while Table 2 shows their family's income.

Table 1. Participants' highest level of education (Study 1)

Highest level of education	Frequency	Percent
Primary education	2	1.6
Secondary education	33	26
Bachelor or equivalent	70	55.1
Master or equivalent	17	13.4
Doctoral or equivalent	5	3.9
Total	127	100

Source: the author (2018).

Table 2. Participants' family's yearly income, in US dollars (Study 1)

Family's income	Frequency	Percent
Under \$15,000 dollars	10	7.9
Between \$15,000 and \$30,000	17	13.4
Between \$30,000 and 60,000	50	39.4
Between 60,000 and 120,000	37	29.1
Above \$120,000	13	10.2
Total	127	100

Source: the author (2018).

### 4.1.2 Procedures

Participants were recruited on Figure Eight platform, and were paid US\$ 0.30 to participate. The instrument was formulated on Qualtrics, which randomly and evenly assigned participants to one of the three possible conditions.

The study simulated an online shopping experience of a concert ticket, adapted from the experimental studies of Soule and Madrigal (2015). This context was chosen because some authors suggest that PWYW is more viable when fixed costs are high, variable costs are low, and demand fluctuates (e.g., KIM et al., 2009; KRÄMER et al., 2017). This is the case of the

concert music industry, where fixed costs are usually very high, marginal costs are low, and demand is not very predictable.

Before reading the manipulation texts, participants were asked the name of their favorite band, which was used on the manipulation texts and in the questions in order to increase participants' involvement with the task. After answering the name of their favorite band, they read the following text: *"Imagine you are living the following situation: You visit a website to buy a ticket for a concert of [Favorite Band Name]. After choosing your seat, you proceed to checkout"*.

Participants assigned to the PWYW scenario read the following sentence: *"Then the following text pops up on your screen: Pay What You Want! Our pricing policy lets you decide the amount you would like to pay for your ticket. Once you enter the price you will pay, you can download your ticket. You can choose to pay any amount for your ticket. All tickets are general admission, so the price that you pay will not affect where you sit at the concert. You must pay now with a credit card. How much would you like to pay in US dollars?"* They were informed that they could only pay with a credit card in order to control possible differences in pain of payment generated by different payment methods (PRELEC; LOEWENSTEIN, 1998; SOMAN, 2001).

Participants assigned to the NYOP scenario read the following sentence: *"Then, the following text pops up on your screen: Name-Your-Own-Price! Our pricing policy lets you make an offer for the amount you would like to pay for your ticket. Once you enter the price you wish to pay, the system will calculate if your bid can be accepted. You can offer to pay any amount for your ticket, but your offer may be refused if your bid is too low. All tickets are general admission, so the price that you pay will not affect where you sit at the concert. If your offer is accepted, you must pay now with a credit card. How much would you like to pay?"*

Participants assigned to the posted price scenario read the following sentence: *"Then, the following text pops up on your screen: Our pricing policy informs you the price to be paid for your ticket. All tickets are general admission, so the price that you pay will not affect where you sit at the concert. You must pay now with a credit card. The price of your ticket is \$ 116 dollars."*

#### **4.1.3 Measures**

#### 4.1.3.1 Manipulation checks

The success of the manipulations were checked with five questions. The first one was: “In your opinion, how did the website price your ticket of [Favorite Band Name]?” and the possible answers were “a) I could not pay what I wanted for the ticket. The website informed the price of the ticket, and I must pay it if I wish to go to the concert; b) I could make an offer of the price I wished to pay and the website could accept it or not; c) I could pay whatever I wanted for the ticket, my offer would not be refused.” The second question was: “Did the website ask you how much you wished to pay for the ticket? [1)Yes; 2) No].”

Then participants indicated their level of agreement with the following statements, on a 5-point-Likert-scale, where 1=totally disagree and 5=totally agree: “The price of the ticket of [Favorite Band Name] was informed by the website, so I did not indicate how much I wanted to pay for it;” “I could make an offer of the price that I wanted to pay for the ticket of [Favorite Band Name] but the website could refuse my bid;” and “I could pay the price I wanted for the ticket of [Favorite Band Name], and the website could not refuse my offer.”

Participants assigned to the posted price scenario saw two additional questions: “Did you see the price of the ticket? [1)Yes; 2) No],” and “How much did the ticket cost?.” Finally, one attention check question was displayed amongst one of the dependent variables scales: “In order to assure survey's quality, please select the last option (5 - totally agree).” Participants who failed to pass the attention check were removed from the sample prior to analysis, because they did not read the scale items carefully.

#### 4.1.3.2 Control variables

Demographic variables and participants' involvement with music concerts were considered as control variables. The following demographic questions were collected and used as covariates at the Analysis of Variance: gender, age, highest level of education, and family's yearly income. Additionally, participants' involvement with music concerts was assessed through a 10-item-bipolar scale, with 5 points, adapted from the study of Zaichkowsky (1994). Further, the involvement with music concerts was also assessed with the following questions: “On a scale of 1 to 5, where 1=very rare, and 5=very often, how often do you go to music concerts?” and “When was the last time you went to a music concert? [1-Never; 2-More than a year ago; 3-Less than six months ago; 4-Less than a month ago].”

#### 4.1.3.3 *Dependent and mediator variables*

The dependent variables were: pain of payment, satisfaction with the pricing mechanism, and willingness to pay; and the mediator variable was perceived control. The order in which the dependent variables were displayed to each participant was randomized. After the dependent variables, participants saw the mediator variable, the control questions and manipulation-check questions, and the demographic variables were presented last.

Pain of payment was assessed through a 7 item-Likert-scale anchored by 1=totally disagree, 5=totally agree (e.g., I felt irritated with this pricing method), and a non-verbal, 5-point sliding scale with a sad face (☹) at one extreme, and a happy face at the other extreme (☺), adapted from the study of Thomas, Desai and Seenivasan (2011). Satisfaction with the pricing mechanism was assessed through a 4 item-Likert-scale anchored with 1=totally disagree, 5=totally agree, adapted from the study of Wen, Prybutok and Xu (2011) (e.g., I was very satisfied with this pricing policy). Their scale was originally used for online shopping satisfaction, but was adapted to measure satisfaction with the pricing mechanism.

To measure the amount that people were willing to pay (i.e., willingness to pay), participants were asked to indicate the amount they would be willing to pay, after the question “*How much would you like to pay?*” in the scenarios, per ticket, in US dollars. Finally, the mediator variable (perceived control) was assessed through a 4 item-Likert-scale anchored with 1=totally disagree, 5=totally agree adapted from Van-Rompay et al. (2008) (e.g., In this website, I feel in control over the situation). All measures were adapted from validated studies. A complete list of the scale items is available on Appendix 1, along with the scales’ Cronbach’s alpha.

#### 4.1.4 Results

##### 4.1.4.1 Manipulation checks

On the first manipulation check question, 91.11% of participants on the posted price scenario selected the correct alternative, followed by 79.25% of NYOP, and 96.55% of PWYW. The Chi-Square tests shows that this difference was significant ( $\chi^2 = 172.4$ ,  $df = 4$ ,  $p < .0001$ ). One hundred percent of participants on the participative pricing mechanisms (PWYW, NYOP) noticed that the website asked them how much they wished to pay, while 93.33% of participants assigned to the posted price mechanism noticed that the website did not ask them how much they wished to pay. The Chi-Square tests shows that this difference was significant ( $\chi^2 = 114.42$ ,  $df = 2$ ,  $p < .0001$ ).

The ANOVA shows that participants better perceived the posted price condition in the posted price scenario ( $M_{\text{Posted Price}} = 4.76$ ) in comparison to the other scenarios in which it was unavailable ( $M_{\text{PWYW}} = 1.50$ ;  $M_{\text{NYOP}} = 1.53$ ;  $F(2,124) = 178.42$ ,  $p < .0001$ ). The participants better perceived that the website could refuse the bid in the NYOP ( $M_{\text{NYOP}} = 4.44$ ) in comparison to the other two conditions ( $M_{\text{Posted Price}} = 1.60$ ;  $M_{\text{PWYW}} = 2.18$ ;  $F(2,124) = 75.41$ ,  $p < .0001$ ). The participants better perceived that the website could not refuse the offer in the PWYW ( $M_{\text{PWYW}} = 4.30$ ) than in the other two conditions ( $M_{\text{NYOP}} = 1.78$ ;  $M_{\text{Posted Price}} = 1.40$ ;  $F(2,124) = 86.08$ ,  $p < .0001$ ).

Finally, 100% of participants on the Posted Price scenario indicated that they did see the price of the ticket, and answered the correct price ( $M = 115.81$ ,  $SD = 1.24$ ). Therefore, the manipulations were successful.

##### 4.1.4.2 Hypotheses tests

In the test of H1, the ANOVA shows that there is a significant difference in the perceived control between the groups ( $F(2,124) = 31.17$ ,  $p < .001$ ). PWYW ( $M_{\text{PWYW}} = 4.23$ ) generated greater perceived control than NYOP ( $M_{\text{NYOP}} = 3.61$ ,  $p < .01$ ), and posted prices ( $M_{\text{Posted Price}} = 2.53$ ,  $p < .001$ ), while NYOP generated higher levels of perceived control than posted prices ( $p < .001$ ). Hence, H1 is supported.

In the test of H2, the results show a significant difference between the groups ( $F(2,124) = 29.07, p < .001$ ). PWYW ( $M_{PWYW} = 4.49$ ) generated greater levels of satisfaction than NYOP ( $M_{NYOP} = 3.61, p < .001$ ), and posted prices ( $M_{\text{Posted Price}} = 2.58, p < .001$ ), while NYOP generated higher levels of satisfaction than posted prices ( $p < .001$ ). Hence, H2 is supported.

The test of H4 shows a significant difference between the groups ( $F(2,224) = 22.35, p < .0001$ ). As predicted, PWYW ( $M_{PWYW} = 1.62$ ) generated lower pain of payment than NYOP ( $M_{NYOP} = 2.07, p < .05$ ) and posted prices ( $M_{\text{Posted Price}} = 3.08, p < .001$ ), and NYOP generated lower pain of payment than posted prices ( $p < .001$ ). Therefore, H4 is supported.

To test H3 and H5, the mediation analysis followed the method popularized by Preacher and Hayes (2004). Therefore, a mediation analysis was run using the Macro Process of Hayes (Model 4, 95% CI, 5000 bootstrap samples). In the H3 test, the direct effect of pricing mechanism on satisfaction was significant ( $c' = -.30, t(124) = -2.65, p < .01$ ), and so was the indirect effect of pricing mechanism on satisfaction ( $a \times b = -.66$ ), considering a 95% confidence interval excluding zero (-.9193, to -.4295). This confirms that satisfaction with the pricing mechanism works through the mediator (perceived control). None of the covariates significantly influenced the relationship ( $p > .05$ ). However, it is important to notice that because path  $c$  also had a negative coefficient sign ( $c = -.96, t(124) = -7.64, p < .001$ ), the model represents a complementary mediation (ZHAO et al., 2010), which suggests that there may exist omitted mediators. Therefore, H3 is supported.

In the test of H5, the direct effect of pricing mechanism on pain of payment was significant ( $c' = .29, t(124) = 2.45, p < .01$ ), and so was the indirect effect of pricing mechanism on pain of payment ( $a \times b = .44$ ), considering a 95% confidence interval excluding zero (.2658 to .6418). None of the covariates significantly influenced the relationship ( $p > .05$ ). This confirms that pain of payment works through the mediator (perceived control). Because path  $c$  also had a positive coefficient sign ( $c = .73, t(124) = 6.46, p < .001$ ), the model represents a complementary mediation (ZHAO et al., 2010). Therefore, H5 is supported.

The test of H6 did not find a significant difference between willingness to pay of individuals on NYOP and PWYW ( $F(2,124) = 3.25, p > .05$ ;  $M_{PWYW} = 70.4, SD = 105.64$ ;  $M_{NYOP} = 41, SD = 26.98$ ). Hence, the results of the first study did not find support for H6.

## 4.2 STUDY 2

Study 2 is a 2 (Pricing mechanism: PWYW and NYOP) x 2 (External Reference Price: present and absent) between-subject experiment. The purpose of study 2 was to investigate whether the presence (vs. absence) of an external reference price increases willingness to pay (H7a), decreases consumers' satisfaction (H7b) and increases consumers' pain of payment (H7c).

### 4.2.1 Sample

One hundred and fifty five people were recruited to participate on the experiment. Participants were residents of the United States, Canada, and the United Kingdom. 61.3% were female, and participants' age ranged from 18 to 83 years old ( $M_{age}=40.90$ ,  $SD=13.04$ ). Table 3 shows participants' highest level of education, while Table 4 shows their family's income.

Table 3. Participants' highest level of education (Study 2)

<b>Highest level of education</b>	<b>Frequency</b>	<b>Percent</b>
Primary education	5	3.2
Secondary education	49	31.6
Bachelor or equivalent	81	52.3
Master or equivalent	18	11.6
Doctoral or equivalent	2	1.3
Total	155	100

Source: the author (2018).

Table 4. Participants' family's yearly income, in US dollars (Study 2)

<b>Family's income</b>	<b>Frequency</b>	<b>Percent</b>
Under \$15,000 dollars	14	9
Between \$15,000 and \$30,000	22	14.2
Between \$30,000 and 60,000	59	38.1
Between 60,000 and 120,000	49	31.6
Above \$120,000	11	7.1
Total	155	100

Source: the author (2018).



## 4.2.2 Procedures

Participants were recruited on Figure Eight platform, and were paid 30 cents of US dollar to participate. The instrument was formulated on Qualtrics, which randomly and evenly assigned participants to one of the four possible conditions.

The study manipulated the same situation as presented on Study 1, which was an online shopping experience of a concert ticket, adapted from the experimental studies of Soule and Madrigal (2015). Before reading the manipulation texts, participants were asked the name of their favorite band, which was later used on the manipulation texts and in the questions in order to increase participants' involvement with the task.

The manipulation texts of the PWYW and NYOP scenarios were the same as in Study 1. However, participants on the scenarios with external reference price saw an additional information. Participants on the PWYW with external reference price scenario read the following text: *“The ticket usually costs \$116 dollars, but you can choose to pay any amount for your ticket”*, while participants on the NYOP with external reference price scenario read the following text: *“The ticket usually costs \$116 dollars. You can offer to pay any amount for your ticket, but your offer may be refused if your bid is too low”*.

## 4.2.3 Measures

### 4.2.3.1 Manipulation checks

The manipulation checks used in Study 2 were the same questions adopted in Study 1. Additionally, participants assigned to the scenarios with an external reference price saw two extra questions. First, they indicated their level of agreement with the following statement, on a 5-point-Likert-scale, ranging from 1=totally disagree to 5=totally agree: *“The website informed me how much the ticket usually costs”*. Finally, to check whether participants saw the value of the external reference price they were asked how much the ticket usually costs. One attention check question was displayed amongst one of the dependent variables scales, as in Study 1. Participants who failed to pass the attention check were removed from the sample prior to analysis for the same reason already mentioned in Study 1.

#### 4.2.3.2 Control variables

The experiment used demographic variables and participants' involvement with music concerts as control variables, with the same scales used in Study 1. The same demographic questions as in Study 1 were also collected and used as covariates on the Analysis of Variance. The control variables were tested and a significant effect of income on willingness to pay, and involvement on satisfaction and pain of payment was found.

#### 4.2.3.3 Dependent and mediator variables

The dependent variables were: pain of payment, satisfaction with the pricing mechanism, and willingness to pay; and the mediator variable was perceived control. The scales were the same as in Study 1. The order in which the dependent variables were displayed to each participant was randomized in order to avoid any presentation effects (e.g., participants could be more tired at the end of the survey). After the dependent variables, participants saw the mediator variable, the control questions and manipulation-check questions, and the demographic variables were presented last. All measures were adapted from validated studies (the same used in Study 1). A complete list of the scale items is available on Appendix 1, along with the scales' Cronbach's alpha.

### 4.2.4 Results

#### 4.2.4.1 Manipulation checks

On the first manipulation check question, 92.19% of participants on the PWYW scenario selected the correct alternative, followed by 95.83% of NYOP ( $\chi^2 = 105.83$ ,  $df = 1$ ,  $p < .0001$ ). On the second manipulation check question, 97.1% of participants on the PWYW and NYOP scenarios perceived that the website asked them how much they wished to pay for the ticket.

The participants better perceived that they could make an offer for the ticket but the website could refuse the bid in the NYOP ( $M_{NYOP} = 4.80$ ), compared to the PWYW condition ( $M_{PWYW} = 1.91$ ;  $F(1,153) = 346.83$ ,  $p < .0001$ ). The participants better perceived that they could pay what they wanted for the ticket and the website would not refuse to sell in the PWYW

condition ( $M_{PWYW} = 4.34$ ) than in the NYOP condition ( $M_{NYOP} = 1.53$ ;  $F(1,153) = 257.95$ ,  $p < .0001$ ). Finally, the participants better perceived that the website informed how much the ticket usually costs on the external reference price-present condition ( $M_{Ext Ref Price} = 4.77$ ) in comparison to the external reference price-absent condition ( $M_{No Ext Ref Price} = 1.44$ ;  $F(1,153) = 667.82$ ,  $p < .0001$ ), and answered the correct price on the external reference price scenarios ( $M = 116.30$ ). Therefore, the manipulations were successful.

#### 4.2.4.2 Hypotheses tests

A two-way ANCOVA shows a significant main effect of the pricing mechanism on willingness to pay ( $F(1,154) = 30.47$ ,  $p < .001$ ). A significant effect of the external reference price on willingness to pay was also found ( $F(1,154) = 70.72$ ,  $p < .001$ ). The interaction (external reference price \* pricing mechanism) was not significant ( $p > .05$ ). As predicted, consumers' willingness to pay was higher when an external reference price was present on the PWYW condition ( $M_{NoERP} = 26.00$  vs.  $M_{ERP} = 55.40$ ,  $p < .0001$ ), as well as in NYOP ( $M_{NoERP} = 41.12$  vs.  $M_{ERP} = 83.44$ ,  $p < .0001$ ). Hence, H7a is supported. The results also show that consumers' willingness to pay was significantly greater than zero in the four conditions ( $t(154) = -24.01$ ,  $p < .0001$ ). Figure 2 shows these results.

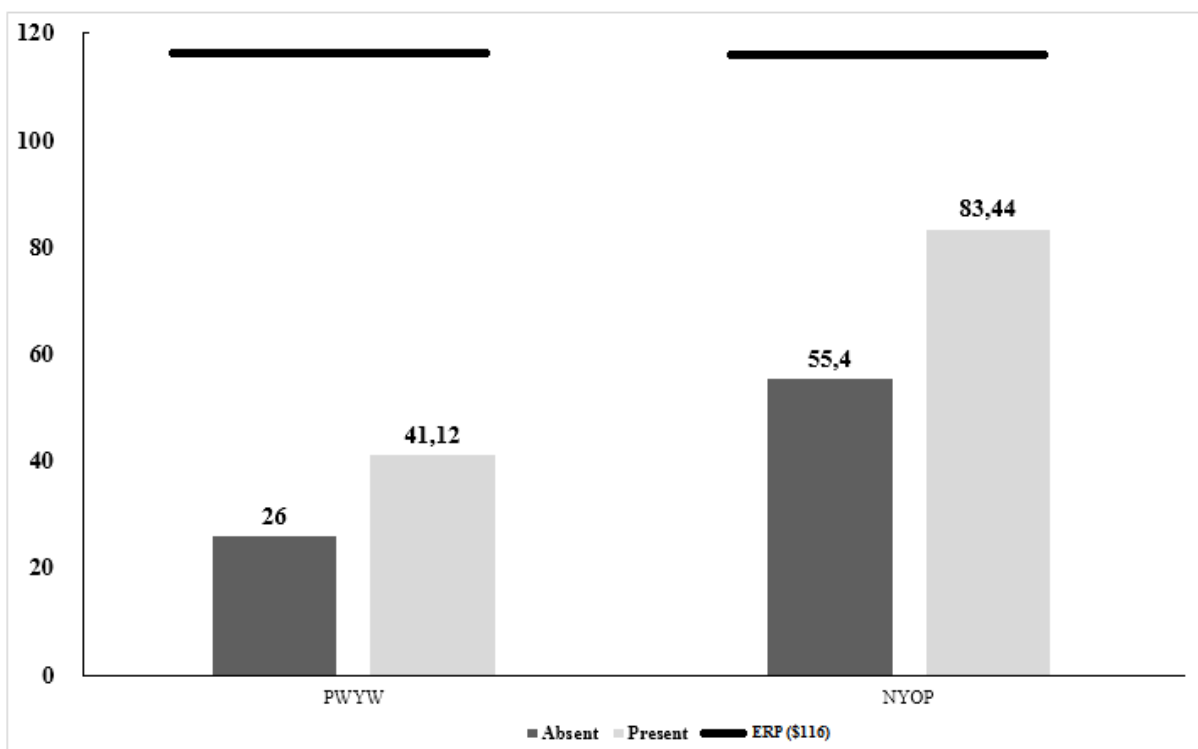


Figure 2. Means of willingness to pay according to the presence or absence of an external reference price

Source: the author (2018).

The ANCOVA shows that there was a significant main effect of the pricing mechanism on satisfaction ( $F(1,150)= 18.24, p< .001$ ), and a significant effect of the external reference price on satisfaction ( $F(1,150)= 7.58, p<.001$ ). The interaction (external reference price \* pricing mechanism) was not significant ( $p>.05$ ). As predicted, consumers' satisfaction was lower when an external reference price was present on the PWYW condition ( $M_{NoERP}= 4.62$  vs.  $M_{ERP}= 4.11$   $p< .05$ ), as well as in NYOP ( $M_{NoERP}= 3.86$  vs.  $M_{ERP}= 3.37$   $p< .05$ ). Hence, H7b is supported. Figure 3 shows these results.

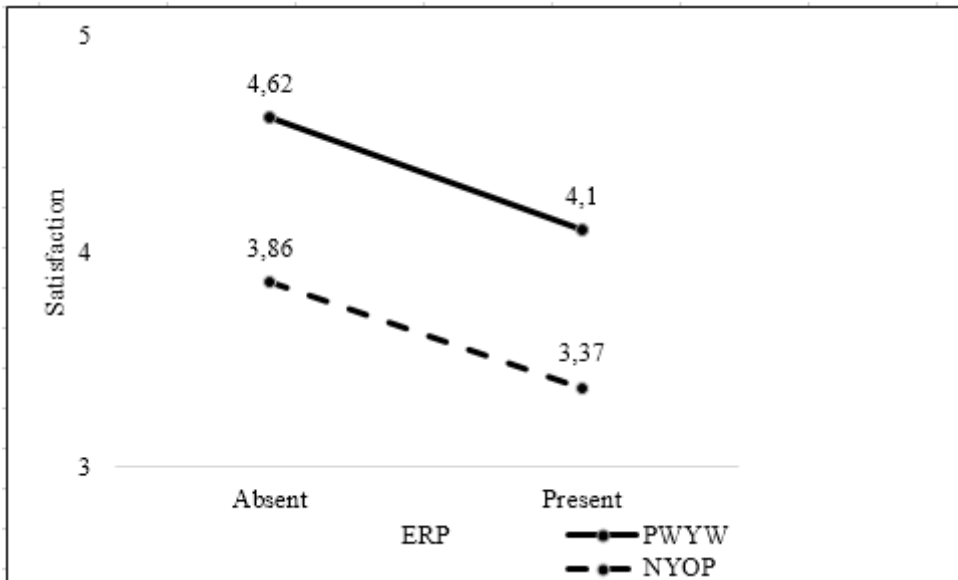


Figure 3. Means of satisfaction according to the presence or absence of an external reference price

Source: the author (2018).

The ANCOVA was used to test H7c. A significant effect of the pricing mechanism on pain of payment was found ( $F(1,154)= 19.72, p<.001$ ), as well as a significant effect of the external reference price on pain of payment ( $F(1,154)= 9.6, p<.01$ ). The interaction (external reference price \* pricing mechanism) was not significant ( $p>.05$ ). Participants' involvement with music concerts significantly influenced the effect of the dependent variable on the independent variable ( $p<.05$ ). As predicted, consumers' pain of payment was higher when an external reference price was present on the PWYW condition ( $M_{NoERP}= 1.21$  vs.  $M_{ERP}= 1.75$   $p<$

.01), as well as in NYOP ( $M_{NoERP} = 1.91$  vs.  $M_{ERP} = 2.24$   $p < .05$ ). Hence, H7c is supported. Figure 4 shows these results.

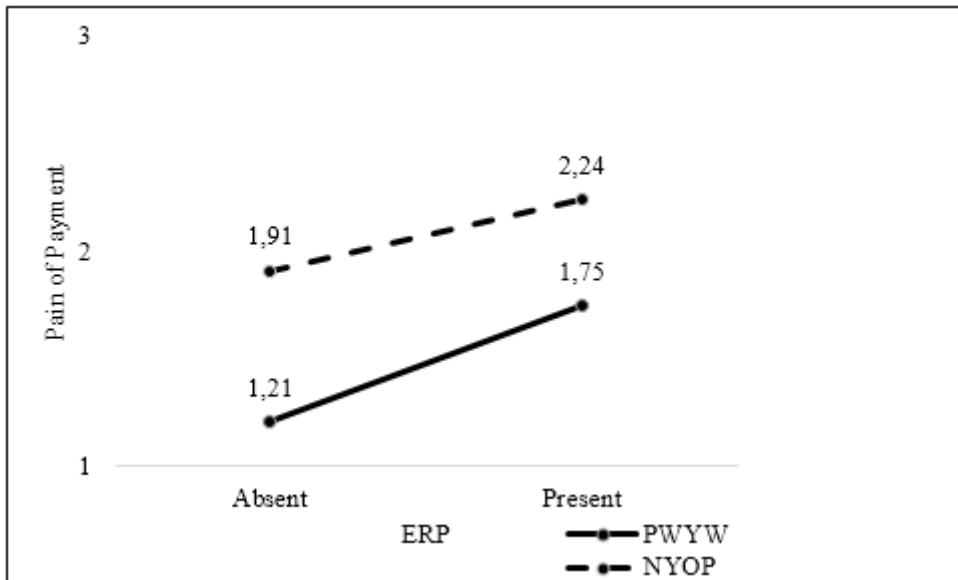


Figure 4. Means of pain of payment according to the presence or absence of an external reference price

Source: the author (2018).

The Macro Process of Hayes was used to test the mediations predicted on H3 and H5. In the test of H3, the direct effect of pricing mechanism on satisfaction was significant ( $c' = -.26$ ,  $t(2,152) = -2.62$ ,  $p < .01$ ), and so was the indirect effect of pricing mechanism on satisfaction through perceived control ( $a \times b = -.42$ ), considering a 95% confidence interval excluding zero (-.6943 to -.1623). The covariates did not impact the mediation ( $p > .05$ ). Similarly to Study 1, the test of H3 on this study also confirms that the mediation is complementary ( $c = -.42$ ,  $t(1,153) = -4.12$ ,  $p < .001$ ). In the test of H5, the direct effect of pricing mechanism on pain of payment was significant ( $c' = .26$ ,  $t(2,152) = 2.7$ ,  $p < .001$ ), and so was the indirect effect of pricing mechanism on pain of payment through perceived control ( $a \times b = .27$ ), considering a 95% confidence interval excluding zero (.1031 to .4384). The covariates did not impact the mediation ( $p > .05$ ). Similarly to Study 1, the test of H5 on this study also confirms that the mediation is complementary ( $c = .53$ ,  $t(1,153) = 4.16$ ,  $p < .001$ ). Therefore, the results of this study offer additional support for the predictions of H3 and H5, as perceived control mediated the relationship between satisfaction and pain of payment.

In the test of H6, the results show that consumers' willingness to pay on NYOP ( $M_{NYOP} = 41.11$ ) was significantly higher than in PWYW ( $M_{PWYW} = 26.00$ ;  $F(1,69) = 6.97$ ,  $p < .01$ ). Hence,

H6 is supported on the second study. The results offered additional support to H1, because consumers on the PWYW condition had higher levels of perceived control ( $M= 3.98$ ) than those on the NYOP condition ( $M=3.50$ ) ( $F(3,154)= 10.93$ ,  $p< .001$ ). Participants' age and involvement with music concerts significantly impacted the effects of the independent variable on the dependent variable ( $p<.05$ ). Finally, the results also offered additional support to H4, because participants in the PWYW condition felt less pain of payment ( $M= 1.56$ ) than those in the NYOP condition ( $M= 2.04$ ) ( $F(2,152)= 16.34$ ,  $p< .0001$ ). Participants involvement with music concerts had a significant impact on this analysis ( $p<.05$ ).

### 4.3 STUDY 3

Study 3 is a 2 (Pricing Mechanism: PWYW and NYOP) x 3 (external reference price: Injunctive, Descriptive or Absent) with between-subjects experiment. The purpose of this study was to investigate whether the type of the external reference price moderates the relationship between the participative pricing mechanism, and willingness to pay (H8a), satisfaction (H8b), and pain of payment (H8c).

#### 4.3.1 Sample

In total, 229 participants were recruited on Figure Eight to participate on the experiment. Participants were residents of the United States, Canada, and the United Kingdom. 64.2% were female, and participants' age ranged from 18 to 83 years old ( $M=41.99$ ,  $SD=12.77$ ). Table 5 shows participants' highest level of education, while Table 6 shows their family's income.

Table 5. Participants' highest level of education (Study 3)

Highest level of education	Frequency	Percent
Primary education	2	.90
Secondary education	97	42.4
Bachelor or equivalent	105	45.9
Master or equivalent	22	9.6
Doctoral or equivalent	3	1.3
Total	229	100

Source: the author (2018).

Table 6. Participants' family's yearly income, in US dollars (Study 3)

<b>Family's income</b>	<b>Frequency</b>	<b>Percent</b>
Under \$15,000 dollars	23	10
Between \$15,000 and \$30,000	47	20.5
Between \$30,000 and 60,000	73	31.9
Between 60,000 and 120,000	71	31
Above \$120,000	15	6.6
<b>Total</b>	<b>229</b>	<b>100</b>

Source: the author (2018).

### 4.3.2 Procedures

Participants were recruited on Figure Eight platform, and were paid 30 cents of US dollar to participate. The instrument was formulated on Qualtrics, which randomly and evenly assigned participants to one of the six possible conditions.

The study manipulated the same situation as presented on Study 1 and Study 2, which was an online shopping experience of a concert ticket, adapted from the experimental studies of Soule and Madrigal (2015). Before reading the manipulation texts, participants were asked the name of their favorite band, which was later used on the manipulation texts and in the questions in order to increase participants' involvement with the task.

The manipulation texts of the PWYW and NYOP scenarios were the same as in Study 1 and Study 2. However, participants on the scenarios with external reference price saw an additional information, as presented in Table 7.

Table 7. Manipulation texts of the external reference price scenarios (Study 3)

	<b>PWYW</b>	<b>NYOP</b>
<b>Injunctive external reference price</b>	We suggest that you pay at least \$116 dollars for the ticket.	We suggest that you offer to pay at least \$116 dollars for the ticket.
<b>Descriptive external reference price</b>	Most people are paying at least \$116 dollars for the ticket.	Most people are offering at least \$116 dollars for the ticket.

Source: adapted from Soule and Madrigal (2015).

### 4.3.3 Measures

#### 4.3.3.1 Manipulation checks

The success of the manipulations were assessed with the same questions asked in Study 1 and Study 2. Additionally, participants assigned to the scenarios with external reference price saw extra questions. First, they indicated their level of agreement with the following statement, on a 5-point-Likert-scale, ranging from 1=totally disagree to 5=totally agree: “The website informed me how much most people are paying (offering) for the ticket” and “The website suggested me how much I should pay (offer) for the ticket.” Then, to check whether participants saw the value of the external reference price they were asked how much most people are paying (offering) for the ticket or how much the website expects them to pay (offer) for the ticket.

One attention check question was displayed amongst one of the dependent variables scales, as in Study 1. Participants who failed to pass the attention check were removed from the sample prior to analysis.

#### 4.3.3.2 Control variables

The experiment used demographic variables and participants’ involvement with music concerts as control variables, with the same scales used in Study 1 and Study 2. The same demographic questions as in Study 1 and Study 2 were also collected and used as covariates at the Analysis of Variance. A significant effect of involvement on satisfaction and pain of payment was found.

#### 4.3.3.3 Dependent variables

The dependent variables were: pain of payment, satisfaction with the pricing mechanism, and willingness to pay; and the mediator variable was perceived control. The scales were the same as in Study 1 and Study 2. The order in which the dependent variables were displayed to each participant was randomized in order to avoid any presentation effects (e.g., participants could be more tired at the end of the survey). After the dependent variables, participants saw the mediator variable, the control questions and manipulation-check questions, and the demographic variables were presented last. All measures were adapted from validated



studies (the same used in Study 1 and Study 2). A complete list of the scale items is available on Appendix 1, along with the scales' Cronbach's alpha.

#### 4.3.4 Results

##### 4.3.4.1 Manipulation checks

On the first manipulation check question, 91.96% of participants on the PWYW scenario selected the correct alternative, followed by 77.68% of NYOP ( $\chi^2 = 104.91$ ,  $df = 2$ ,  $p < .001$ ). On the second manipulation check question, 94.8% of participants agreed that the website asked them how much they wished to pay for the ticket.

The participants better perceived that they could make an offer for the ticket but the website could refuse the bid in the NYOP ( $M_{NYOP} = 4.51$ ), in comparison to the PWYW scenarios ( $M_{PWYW} = 2.11$ ;  $F(1,227) = 227.09$ ,  $p < .0001$ ). The participants better perceived that they could pay what they wanted for the ticket and the website would not refuse to sell in the PWYW scenario ( $M_{PWYW} = 3.92$ ) in comparison to the NYOP scenarios ( $M_{NYOP} = 1.9$ ;  $F(1,227) = 125.84$ ,  $p < .0001$ ).

For the injunctive external reference price scenarios, the participants perceived that the website informed how much it expects consumers to pay (offer) for the ticket ( $M_{Injunctive} = 4.41$ ) against the two other conditions ( $M_{Descriptive\ Ext\ Ref\ Price} = 2.84$ ,  $M_{Ext\ Ref\ Price\ Absent} = 1.59$ ,  $F(2,226) = 87.39$ ,  $p < .0001$ ). For the descriptive scenarios, the participants perceived that the website informed them how much most people are paying (offering) for the ticket ( $M_{Descriptive} = 4.88$ ) against the two other conditions ( $M_{Injunctive\ Ext\ Ref\ Price} = 2.85$ ,  $M_{Ext\ Ref\ Price\ Absent} = 1.61$ ,  $F(2,226) = 173.39$ ,  $p < .0001$ ). Finally, participants answered the correct price on the external reference price scenarios ( $M = 111.00$ ,  $SD = 22.52$ ). Therefore, the manipulations were successful.

##### 4.3.4.2 Hypotheses test

In the test of H8a, the ANOVA shows that there was a significant effect of the pricing mechanism on willingness to pay ( $F(1,228) = 9.13$ ,  $p < .01$ ). The interaction effect was not significant ( $p > .05$ ). A significant effect of the external reference price on willingness to pay

was also found ( $F(2,227)= 40.87, p<.001$ ). However, the LSD *post-hoc* test shows that the type of external reference price (injunctive or descriptive) did not significantly affect consumers' willingness to pay ( $p>.05$ ). The significant effects were found between the groups where an external reference price was provided, in comparison to the groups where it was absent.

Thus, the results of this study provide additional support for H6 and H7a. A two-way ANOVA was run using willingness to pay as a dependent variable, and external reference price (present or absent, despite the type of external reference price) as independent variable. As predicted by H6, a significant effect of the pricing mechanism on willingness to pay was found ( $F(1,228)= 9.52, p<.001$ ). Participants in the PWYW scenarios ( $M_{PWYW}= 63.8$ ) had lower willingness to pay than those in the NYOP scenarios ( $M_{NYOP}= 75.96$ ).

In addition, a significant effect of the external reference price (present or absent) on willingness to pay was found ( $F(1,228)= 81.28, p<.001$ ). As predicted by H7a, when an external reference price was present, participants were willing to pay significantly more than when it was absent, in the PWYW scenarios ( $M_{Ext Ref Price Absent} = 31.70, M_{Ext Ref Price Present}= 78.28, p<.001$ ) and in the NYOP scenario ( $M_{Ext Ref Price Absent} = 50.19, M_{Ext Ref Price Present}= 89.03, p<.001$ ), despite the type of ERP. The interaction was not significant ( $p>.05$ ). Figure 5 shows these results.

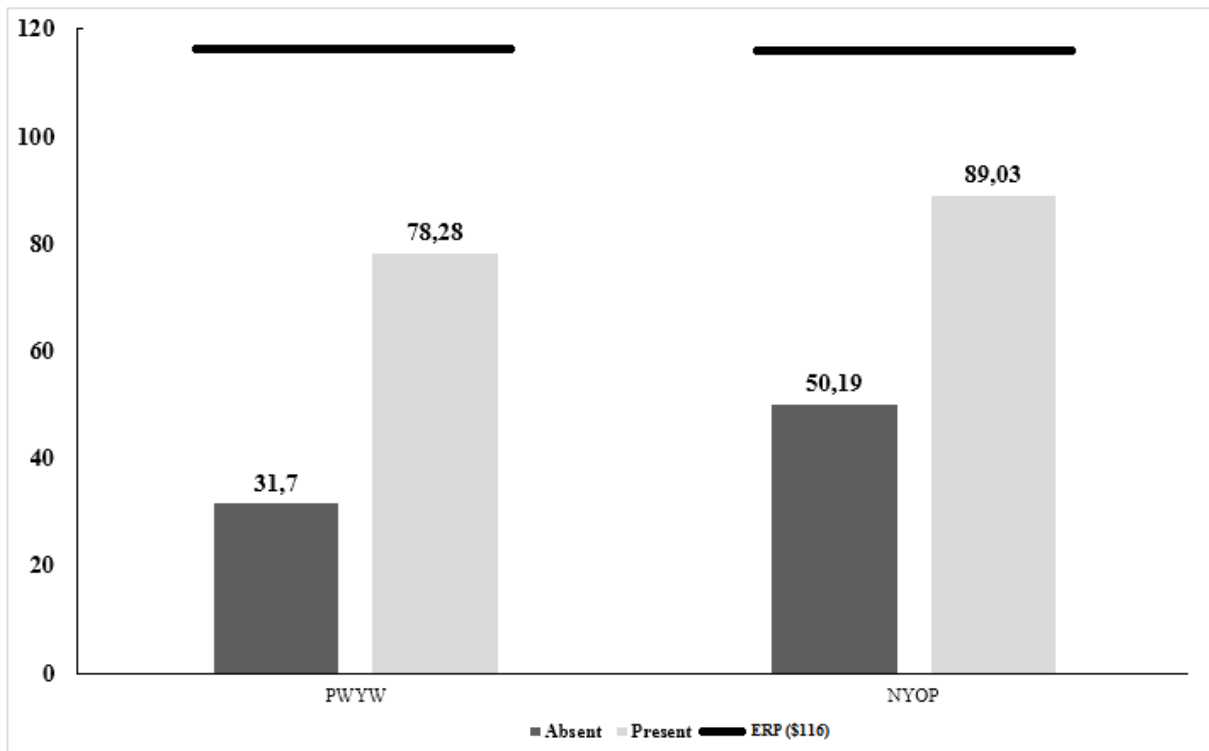


Figure 5. Willingness to pay according to the presence or absence of an external reference price (Study 3).

Source: the author (2018).

In the test of H8b, the ANCOVA shows that there was a significant effect of the pricing mechanism on satisfaction ( $F(1,228)= 25.3, p<.001$ ). The interaction effect was not significant ( $p>.05$ ). A significant effect of the external reference price on satisfaction was also found ( $F(2,227)= 16.86, p<.001$ ). However, the LSD *post hoc* test shows that the type of external reference price (injunctive or descriptive) did not significantly affect consumers' satisfaction with the pricing mechanism ( $p>.05$ ). As before, the significant effects were found between the groups where an external reference price was provided, in comparison to the groups where it was absent.

Thus, the results of this study provide additional support for H2 and H7b. A two-way ANCOVA was run using satisfaction as a dependent variable, external reference price (present or absent, despite the type of external reference price) as independent variable, and involvement as a covariate. A significant effect of the pricing mechanism on satisfaction was found ( $F(1,228)= 24.69, p<.001$ ). As predicted by H2, participants in the PWYW scenarios ( $M_{PWYW}= 3.84$ ) had higher satisfaction with the pricing mechanism than those in the NYOP scenarios ( $M_{NYOP}= 3.16$ ).

In addition, a significant effect of the external reference price (present or absent) on satisfaction was found ( $F(1,228)= 31.86, p<.001$ ). As predicted by H7a, when an external reference price was present, participants were less satisfied than when it was absent, in the PWYW scenarios ( $M_{Ext Ref Price Absent}= 4.52, M_{Ext Ref Price Present}= 3.54, p<.001$ ), as well as in the NYOP scenarios ( $M_{Ext Ref Price Absent}= 3.65, M_{Ext Ref Price Present}= 2.91, p<.001$ ), despite the type of external reference price. The interaction was not significant ( $p>.05$ ). Figure 6 shows these results.

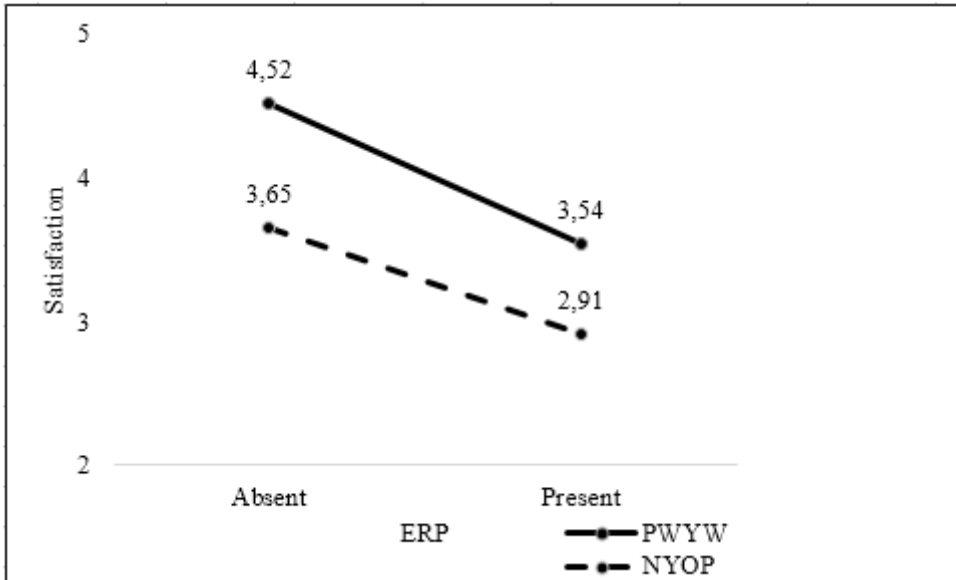


Figure 6. Means of satisfaction according to the presence or absence of an external reference price (Study 3)

Source: the author (2018).

In the test of H8c, the ANCOVA shows that there was a significant effect of the pricing mechanism on pain of payment was found ( $F(1,228)= 24.68, p<.001$ ). The interaction effect was not significant ( $p>.05$ ). A significant effect of the external reference price on pain of payment was also found ( $F(2,227)= 14.37, p<.001$ ). However, the LSD *post hoc* test shows that the type of external reference price (injunctive or descriptive) did not significantly affect consumers' satisfaction with the pricing mechanism ( $p>.05$ ). As in the two previous analyses, the significant effects were found between the groups where an external reference price was provided, in comparison to the groups where it was absent.

Therefore, the results of this study provide additional support for H4 and H7c. A two-way ANCOVA was run using pain of payment as a dependent variable, external reference price (present or absent, despite the type of external reference price) as independent variable, and involvement as a covariate. A significant effect of the pricing mechanism on pain of payment was found ( $F(1,228)= 24.98, p<.001$ ). As predicted by H4, in general, participants in the PWYW ( $M_{PWYW}= 1.96$ ) had lower pain of payment than those in the NYOP condition ( $M_{NYOP}= 2.56$ ).

In addition, a significant effect of the external reference price (present or absent) on pain of payment was found ( $F(1,228)= 28.8, p<.001$ ). As predicted by H7a, when an external reference price was present, participants felt less pain of payment than when it was absent, in the PWYW condition ( $M_{Ext Ref Price Absent}= 1.37, M_{Ext Ref Price Present}= 2.23, p<.001$ ) and in the NYOP

condition ( $M_{\text{Ext Ref Price Absent}} = 2.17$ ,  $M_{\text{Ext Ref Price Present}} = 2.75$ ,  $p < .01$ ), despite the type of external reference price. The interaction effect was not significant ( $p > .05$ ) Figure 7 shows these results.

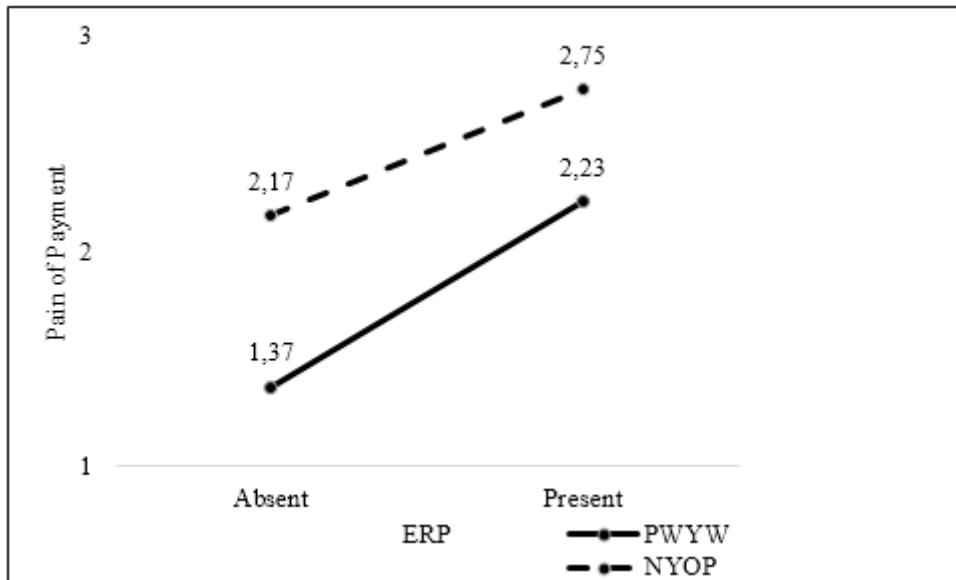


Figure 7. Means of pain of payment according to the presence or absence of an external reference price (Study 3)

Source: the author (2018).

The results of this study offered additional support to H1, as perceived control was higher in PWYW ( $M = 3.68$ ) than in NYOP ( $M = 3.17$ ) ( $F(1,227) = 14.64$ ,  $p < .001$ ). In addition, the Macro Process of Hayes was used to test the mediations predicted by H3 and H5.

In the test of H3, the direct effect of pricing mechanism on satisfaction was significant ( $c' = -.22$ ,  $t(3,225) = -2.07$ ,  $p < .05$ ), and so was the indirect effect of pricing mechanism on satisfaction ( $a \times b = -.51$ ), considering a 95% confidence interval excluding zero (-.7433 to -.2723). Participants' age and involvement with music concerts impacted the effects of the independent variable on the dependent variable ( $p < .05$ ). The test of H3 on this study also confirms that the mediation is complementary ( $c = -.73$ ,  $t(3,225) = -4.68$ ,  $p < .001$ ).

In the test of H5, the direct effect of pricing mechanism on pain of payment was significant ( $c' = .30$ ,  $t(3,225) = 2.56$ ,  $p < .01$ ), and so was the indirect effect of pricing mechanism on pain of payment ( $a \times b = .33$ ), considering a 95% confidence interval excluding zero (.1755 to .4950). Participants' age and involvement with music concerts also impacted the effects of the independent variable on the dependent variable ( $p < .05$ ). The test of H5 on this study also confirms that the mediation is complementary ( $c = .63$ ,  $t(3,225) = 4.65$ ,  $p < .001$ ). Therefore, the results of the third study also offered additional support for the predictions of H3 and H5, as

perceived control mediated the relationship between satisfaction and pain of payment. Table 8 shows a summary of the supported and rejected hypotheses.

Table 8. Summary of supported and rejected hypotheses

	<b>Study 1</b>	<b>Study 2</b>	<b>Study 3</b>
<b>H1 (pricing mechanism → perceived control)</b>	Supported	Supported	Supported
<b>H2 (pricing mechanism → satisfaction)</b>	Supported	Supported	Supported
<b>H3 (pricing mechanism → perceived control → satisfaction)</b>	Supported	Supported	Supported
<b>H4 (pricing mechanism → pain of payment)</b>	Supported	Supported	Supported
<b>H5 (pricing mechanism → perceived control → pain of payment)</b>	Supported	Supported	Supported
<b>H6 (pricing mechanism → willingness to pay)</b>	Not supported	Supported	Supported
<b>H7a (pricing mechanism * external reference price → willingness to pay)</b>	-	Supported	Supported
<b>H7b (pricing mechanism * external reference price → satisfaction)</b>	-	Supported	Supported
<b>H7c ((pricing mechanism * external reference price → pain of payment)</b>	-	Supported	Supported
<b>H8a (pricing mechanism * type of external reference price → willingness to pay)</b>	-	-	Not supported
<b>H8b (pricing mechanism * type of external reference price → satisfaction)</b>	-	-	Not supported
<b>H8c (pricing mechanism * type of external reference price → pain of payment)</b>	-	-	Not supported

Source: the author (2018).

## 5. DISCUSSION AND CONCLUSIONS

Participative pricing mechanisms have gained popularity in retailing, especially in firms that carry high fixed costs, low variable costs and fluctuating demands, such as restaurants, airlines, hotels, and entertainment, for example (KRÄMER et al., 2017). This thesis empirically compared how two participative pricing mechanisms (i.e., PWYW and NYOP) influence consumers' behavior (i.e. perceived control, satisfaction, pain of payment, and willingness to pay).

The results show that PWYW leads to higher satisfaction and lower pain of payment than the NYOP and traditional posted prices mechanisms, and that this effect is mediated by consumers' perceived control. In addition, consumers' willingness to pay in NYOP is higher than in PWYW. When retailers use an external reference price, satisfaction is negatively affected, and pain of payment and willingness to pay are positively affected.

Aligned with previous studies, this thesis showed that enhancing consumers' perceived control leads to a more pleasant experience (e.g., HUI; BATESON, 1991; UHRICH, 2011), because as consumers' perceived control increased due to the participation on the formation of the price, satisfaction with the pricing mechanism was increased, and pain of payment was decreased. The results of this thesis also showed that both participative pricing mechanisms generate higher levels of consumer satisfaction and lower levels of pain of payment, when compared to the traditional posted price mechanism. However, PWYW is the one that generates the highest levels of satisfaction and the lowest levels of pain of payment.

Regarding consumers' willingness to pay, the results showed that consumers are willing to pay more in NYOP than in PWYW. When an external reference price is presented, consumers' willingness to pay is increased in PWYW and in NYOP. This result is aligned with the findings of previous researches (e.g., KIM; NATTER; SPANN, 2009; KIM; KAUFMANN; STEGEMANN, 2014; ISAAC; LIGHTLE; NORTON, 2015; SOULE; MADRIGAL, 2015). However, the presence of an external reference price reduces perceived control and satisfaction with the pricing mechanism, and increases pain of payment.

The results of study 3 did not find a significant effect of the type of the external reference price (i.e., injunctive vs. descriptive) on consumers' willingness to pay, satisfaction, pain of payment and perceived control. Therefore, despite of how the external reference price is framed, the same effects are expected to be found (i.e., reduction of satisfaction and perceived control, and increase of willingness to pay and pain of payment).

The results of Soule and Madrigal's (2016) studies tested different reference price levels (e.g., a low vs. a high external reference price value) according to the type of external reference price (i.e., injunctive or descriptive). The main information tested on Study 3 of this thesis was not the price *per se* (e.g., a high or low level), but the information that accompanied the price information (e.g., a descriptive or injunctive reference price). The price levels were kept constant in the studies of this thesis, and perhaps this is the reason why the differences were not significant.

This study contributes to the pain of payment literature by studying how this variable is influenced by different pricing mechanisms, instead of different payment methods. In addition, it contributes to the satisfaction literature by exploring and comparing the effects of PWYW and NYOP on it. Previous researches of the role of perceived control in pricing mechanisms had only investigated its role in auctions (e.g., CHANDRAN; MORWITZ, 2005), not PWYW and NYOP. Therefore, this research also contributes to the literature by showing that the effects of PWYW and NYOP on satisfaction and pain of payment is mediated by perceived control.

## 5.1 MANAGERIAL IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH AGENDA

The results of the experimental studies may help managers design a participative pricing mechanism according to its strategic goals. For instance, the results may be useful for managers by showing which of the two pricing mechanisms can bring higher profits per unit sold, and which of the two creates the best shopping experience for consumers (e.g., satisfaction, perceived control, pain of payment, etc.).

For example, if retailers wish to create a more pleasant service experience adopting a participative pricing mechanism (e.g., higher satisfaction and lower pain of payment), they should adopt PWYW. However, this pricing mechanism could lead to lower willingness to pay, and is consequently less profitable than NYOP. Therefore, aligned with previous studies (e.g., KRÄMER et al., 2017), PWYW it is more indicated when companies seek to pursue additional benefits, such as word of mouth recommendations, press coverage, or wish to penetrate a new market.

In addition, the results show that if retailers wish to increase the revenue per unit sold, they may adopt external reference prices to increase consumers' willingness to pay. However, consumers are less satisfied and feel more pain of payment than when an external reference



price is presented. Therefore, retailers should employ external reference prices according to their strategic objectives: if they wish to strongly penetrate new markets and are not too worried about short-term profits, they should not use an external reference price; however, if retailers consider using PWYW or NYOP as a long-term strategy, using external reference prices seem more sustainable.

This thesis has some limitations. First, simulated experiments only show consumers' behavioral intentions, which may differ if the same problem is faced on a real situation. Therefore, it would be interesting to replicate this study in a field situation, where real payments are made. The sample used in the experiments is also a limitation, as only data collected from participants recruited through online platforms were used.

In addition, the context of the studies may also be a limitation. First, it is possible that consumers felt more obligated to pay or offer higher amounts because of the high involvement with the service (i.e., favorite band). Therefore, future studies could attempt to assess the dependent variables investigated in this study in other contexts (e.g., different product or service categories). Future research could also explore and compare how participative pricing mechanisms can be applied under different circumstances (e.g., as a temporary promotional tool).

The mediation analysis showed that perceived control does not fully explain the relationship between participative pricing mechanisms and satisfaction and pain of payment; therefore, future researches could investigate other mediators that are antecedents of these (and other) variables.

Finally, previous research on NYOP often explored how allowing customers to bid more than once for a product or service impact their behavior (e.g., pain of payment, and satisfaction) (e.g., FAY, 2004; SPANN; SKIERA; SCHÄFERS, 2004; GUPTA; ABBAS, 2008; CAI; CHAO; LI, 2009). The design of the experimental studies of this thesis did not include instructions on whether participants could make another offer if their bid was rejected. It was implicit that only one bid was allowed. Therefore, it would be interesting to replicate the studies of this thesis manipulating different bidding policies on NYOP.

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## APPENDIX 1 – SCALES AND MEASURES

**WILLINGNESS TO PAY:** How much would you like to pay for the ticket, in US dollars?

**SATISFACTION WITH THE PRICING MECHANISM** - Wen, Prybutok and Xu (2011)  
( $\alpha$ : Study 1= .977;  $\alpha$ : Study 2= .964;  $\alpha$ : Study 3= .968).

A pricing policy is the way companies set the price for consumers to pay. Based on the pricing policy of the website, please indicate your agreements with the statements below, on a scale of 1=totally disagree to 5=totally agree.

- S1. I was very satisfied with this pricing policy.
- S2. I was very pleased with this pricing policy.
- S3. I was very contented with this pricing policy.
- S4. I was absolutely delighted with this pricing policy.

**PAIN OF PAYMENT** – Thomas, Desai and Seenivasan (2011). ( $\alpha$ : Study 1= .943;  $\alpha$ : Study 2= .913; Study 3= .940).

**PP1.** A store's pricing policy can influence how consumers feel while spending money. How did you feel while spending money on this ticket of [Favorite Band Name]?

1	2	3	4	5
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Please indicate your level of agreement with the statements below on a scale of 1 to 5, where 1=totally disagree and 5=totally agree:

- PP2 I felt irritated with this pricing method.
- PP3. I felt restricted with this pricing method.
- PP4. I felt annoyed with this pricing method.
- PP5. I felt powerless with this pricing method.
- PP6. I felt controlled with this pricing method.
- PP7. I felt suffocated with this pricing method.



**ATTENTION CHECK:** In order to assure survey's quality, please select the last option (5 - totally agree).

**PP8.** I felt inhibited with this pricing method.

**PERCEIVED CONTROL** - Van-Rompay et. al. (2008) ( $\alpha$ : Study 1= .925;  $\alpha$ : Study 2= .868; Study 3= .877).

Please indicate your level of agreement with the statements below on a scale of 1 to 5, where 1=totally disagree and 5=totally agree, :

**PC1.** In this website, I feel in control over the situation.

**PC2.** In this website, I can easily find what I am looking for.

**PC3.** In this website, I am the center of attention.

**PC4.** In this website, the customer is in control.

#### **MANIPULATION CHECKS**

**MC1.** In your opinion, how did the website price your ticket of [Favorite Band Name]? (a) I could not pay what I wanted for the ticket. The website informed the price of the ticket, and I must pay it if I wish to go to the concert; b) I could make an offer of the price I wished to pay and the website could accept it or not; c) I could pay whatever I wanted for the ticket, my offer would not be refused).

**MC2.** Did the website ask you how much you wished to pay for the ticket? (Yes; No).

**MC3:** The price of the ticket of [Favorite Band Name] was informed by the website, so I did not indicate how much I wanted to pay for it. (1 = totally disagree, 5 = totally agree).

**MC4:** I could make an offer of the price that I wanted to pay for the ticket of [Favorite Band Name] but the website could refuse my bid. (1 = totally disagree, 5 = totally agree).

**MC5:** I could pay the price I wanted for the ticket of [Favorite Band Name], and the website could not refuse my offer. (1 = totally disagree, 5 = totally agree).

**MC Posted Price 1 (Study 1 only):** Did you see the price of the ticket? (Yes; No).

**MC Posted Price 2 (Study 1 only):** How much did the ticket cost?

**MC external reference price 1 (Study 2 only):** The website informed me how much the ticket usually costs (1-totally disagree; 5-totally agree).

**MC external reference price 2 (Study 2 only):** How much does the ticket normally cost?



**MC Descriptive external reference price (Study 3 only):** The website informed me how much most people are paying (offering) for the ticket (1-totally disagree; 5-totally agree).

**MC Injunctive external reference price (Study 3 only):** The website suggested me how much I should pay (offer) for the ticket.

**MC external reference price (Study 3 only):** The website provided a reference price for the ticket, which is either how much they suggest you to pay, or how much most people are paying for it. How much was this reference price?

### CONTROL VARIABLES:

**C1.** On a scale of 1 to 5, where 1=very rare, and 5=very often, how often do you go to concerts?

**C2.** When was the last time you went to a music concert? [1-I have never been to a music concert; 2-More than a year ago; 3-Less than six months ago; 4-Less than a month ago];

**C3.** Adapted from Zaichkowsky (1994) ( $\alpha$ : Study 1= .926;  $\alpha$ : Study 2= .906;  $\alpha$ : Study 3= .936).

Now, please answer the questions below about your perceptions with music concerts. For you, music concerts are:

		1	2	3	4	5	
<b>C3.1</b>	Unimportant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Important
<b>C3.2</b>	Boring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Interesting
<b>C3.3</b>	Irrelevant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Relevant
<b>C3.4</b>	Unexciting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Exciting
<b>C3.5</b>	Means nothing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Means a lot to me
<b>C3.6</b>	Unappealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appealing
<b>C3.7</b>	Mundane	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fascinating
<b>C3.8</b>	Worthless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Valuable
<b>C3.9</b>	Uninvolving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Involving
<b>C3.10</b>	Not needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Needed

### DEMOGRAPHIC QUESTIONS

**D1.** How old are you?

**D2.** What is your gender?

**D3.** What is your highest level of education? (Primary education, secondary education, bachelor or equivalent, master or equivalent, doctoral or equivalent).

**D4.** What is your family's yearly income, in US dollars? [1-under \$15,000 dollars; 2-between \$15,000 and \$30,000; 3-between \$30,000 and 60,000; 4- between 60,000 and 120,000; 5- above \$120,000].