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RESEARCH ARTICLE

The influence of external reference price strategies in a nonprofit arts organization's "pay-what-you-want" setting

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Nonprofit arts organizations face conflicting objectives to balance—or more specifically, to create—artistic and educational value and to generate financial income from various sources. Pay-what-you-want (PWYW), a participative pricing mechanism where services have no fixed price and customers actively decide what to pay, is a novel pricing mechanism and is of high interest for organizations and researchers alike. Based on the concepts of loss aversion and gain, this study presents a field experiment to test the effects of different PWYW pricing strategies on the amount of money paid by visitors of a German photo biennial. Explicitly, the provisions of minimum, maximum, and suggested external reference prices are compared to a setting with no external reference prices. We test the derived hypotheses, discuss the results, and provide implications for future research, as well as for the management of nonprofit arts organizations.

KEYWORDS

external reference price, internal reference price, nonprofit arts organizations, pay-what-you-want, pricing strategy

1 | INTRODUCTION

Nonprofit arts organizations have different and sometimes conflicting objectives to balance: in addition to their aim to create artistic and educational value, nonprofit arts organizations must generate financial income by attracting public or private funding in terms of grants, donations, entrance fees, or the like. Since Baumol and Bowen (1965) first analyzed the economics of performing arts organizations, the financial dilemmas of and implications for arts organizations such as museums, theaters, and orchestras have been a constant subject to research in the nonprofit management discipline (e.g., Frey & Steiner, 2012; Lindqvist, 2012; Rentschler, Hede, & White, 2007). Hereby, various pricing schemes with the aim of relaxing nonprofit arts organizations' financial constraints are discussed, with fixed entry fees or free entry with exit donations being the classical models (Frey & Steiner, 2012). However, a relatively new participatory pricing mechanism—pay-what-you-want (PWYW)—remains under researched in the context of nonprofit art organizations.

PWYW is a popular pricing method and study object in marketing and management research (Gerpott, 2017). It is a pricing mechanism where the seller does not rely on a fixed price but rather the customers actively decide what price they find appropriate and want to pay. In doing so, "the buyer can set any price above or equal to zero, and the seller cannot reject it" (Kim, Natter, & Spann, 2009, p. 44). PWYW is supposed to have multiple positive implications, including an improved awareness of the offerings and the overall image of the seller, which, in turn, translates into increased sales volume and/or higher average unit prices (Kim, Natter, & Spann, 2010; Riener & Traxler, 2012).

So far, PWYW has been researched to a vast extent in various product and service categories in the for-profit world, such as restaurants and bars, amusement parks, online media, concerts, cinema, or hotel overnight stays (Kim et al., 2009). Based on this rich body of

research, Gerpott (2017) identifies antecedents that influence customer perceptions of PWYW and, consequently, their buying behavior in a literature review. According to the derived conceptual framework, factors influencing the success of PWYW are the characteristics of the buyer (e.g., sociodemographic), the seller (e.g., its size or reputation), the sales object (e.g., typical level of fixed prices), and the market context (e.g., competition and transparency). In addition, customers' perceptions of the PWYW scheme (e.g., perceived fairness of the PWYW scheme) and elements of the procedural design of the PWYW setting, such as information given at the point of payment, are related to PWYW success. Providing external reference prices is such information that affects consumers' chosen prices in PWYW pricing.

In PWYW, external reference prices are price suggestions stated by the seller which fulfill the function of a normative anchor for the customer's payment decision (Kim, Kaufmann, & Stegemann, 2014). With respect to external reference prices, different pricing strategies such as minimum, maximum, and suggested price exist. Research in for-profit settings reveals inconclusive results on external reference prices (see Table 1 for an exemplary list of studied pricing strategies). Some literature studies suggest an increase in prices paid when external pricing strategies are used (Armstrong Soule & Madrigal, 2015; Kim et al., 2009; Regner, 2015), for example, the experiments by Armstrong Soule and Madrigal (2015) show that the presence of numbers in the exchange context influences the amount of voluntary payment. Others find no effects of external reference prices (Gneezy, Gneezy, Riener, & Nelson, 2012; Jung, Perfecto, & Nelson, 2016). In contrast, negative results are also reported (e.g., Johnson & Cui, 2013; Roy, Rabbanee, & Sharma, 2016). Based on an elaborate theoretical framework, laboratory experiments by Johnson and Cui (2013) indicate that using an external reference price is not advisable and that setting no reference price is the most beneficial strategy for companies to yield the highest return.

Gerpott (2017) concludes that the results on external reference prices in a PWYW setting are ambiguous, and there is a need for theory-grounded empirical PWYW studies. In particular, Johnson and Cui (2013) call for studies to investigate detected biasing effects caused by external reference prices in a nonprofit PWYW setting. This call links to the peculiarities of buying and paying behavior within a

TABLE 1 Pricing strategies as frequent subject of research in the for-profit context

Author	For-profit product or service	Pricing strategy	Main results
Armstrong Soule and Madrigal (2015)	Concert tickets	PWYW+ERP: Suggested price	Higher ERP and information on what others paid (descriptive norm), not what should be paid (injunctive norm), lead to higher payment reporting.
Gautier and van der Klaauw (2012)	Hotel stay	PWYW+ERP: Posted regular price	Participants not knowing about the PWYW scheme beforehand were influenced by ERP and paid more than hotel guest who knew about PWYW.
Gneezy et al. (2012)	Amusement park: Photo during ride, tour boat: Photo during cruise, restaurant	Fixed price, PWYW: None, charity share	Consumers are more likely to buy products when given a fixed and low price compared to PWYW pricing. Charity-shares with PWYW increase purchase but reduce number of sold products as customers avoid bad feelings for payments below an appropriate price.
Johnson and Cui (2013)	Concert tickets	PWYW +ERP: Minimum price, maximum price, suggested price and none	ERP function as anchors in buying decisions with minimum and maximum have a negative and suggested price have a positive effect on paid price. Providing no ERP is seen as overall most beneficial pricing strategy.
Jung et al. (2016)	Online media retailing, doughnuts, Vodo	PWYW+ERP: Suggested price, previous payment, maximum price	Low ERP leads to socially acceptable low payments, high ERP has little effect, with the distributional gap of the anchor and the payment to be one of the main drivers.
Kim, Natter, and Spann (2014)	Razors, photo portraits	Free sampling, price discount, PWYW+ERP: None	ERP leads to higher prices paid compared to no ERP and PWYW is suitable for low and medium value products.
Kim et al. (2009)	Restaurant, cinema, delicatessen	PWYW+ERP: None, posted regular price	In PWYW setting, prices paid significantly differ from zero.
Regner (2015)	Online music	PWYW+ERP: Price range	Customers pay more than the suggested price within a given price range.
Roy et al. (2016)	Fitness gym	PWYW+ERP: Posted regular price	In private context, under intrinsic motivation to purchase, the prices paid ratio is closer to internal reference price, similarly when extrinsic or altruistic motives co-occur with a public payment situation. Without ERP these effects are stronger.

Note: See Gerpott (2017) for a comprehensive overview.
Abbreviations: ERP, External reference prices; PWYW, pay-what-you-want.

nonprofit context, as pull and push effects seem to work differently. In a fixed price setting, when faced with the choice to buy products from for-profit or nonprofit organizations, customers tend to favor the products from profit-oriented organizations as they assume for-profits to be more competent at providing higher quality products (Aaker, Vohs, & Mogilner, 2010). However, in a PWYW setting, this decision rationale may shift, as customers pay higher amounts to organizations when prosocial goals are involved (Gneezy et al., 2012). So far, the charitable aspects within PWYW are analyzed in contexts where the purchase of a product is combined with an additional pro-rata donation to charity (Gneezy, Gneezy, Nelson, & Brown, 2010). Therefore, it is a research imperative to analyze whether different push and pull effects by variations of external reference prices found in the for-profit sector hold true in a nonprofit PWYW context.

Furthermore, as knowledge of pricing mechanisms in nonprofit art organizations can optimize their "organizational outcomes […] while continuing to meet their social responsibilities" (Rentschler et al., 2007, p. 163), it is important for these organizations to understand the underlying mechanisms of customers' willingness to pay in PWYW settings. Burton, Louviere, and Young (2009) argue that understanding characteristics of customer choice and levels of pricing is an essential element in marketing strategies for nonprofit arts organizations active in a competitive leisure marketplace. Consequently, this study asks how different pricing strategies, namely, minimum and maximum price, suggested price or no external reference price, influence the amount voluntarily paid in an arts nonprofit PWYW setting. To answer this research question, we conduct a field experiment during a photo biennial in a medium-sized city in Germany.

Our contribution to research is twofold. As one of the first studies on PWYW in the nonprofit sector, we generate new insights into the potential of PWYW as a voluntary pricing mechanism for nonprofit arts organizations. Additionally, the optimal external reference price strategy in this setting is identified and valuable implications for nonprofit arts organizations' managers are formulated. Second, with this study, we aim at overcoming a methodological drawback of recent PWYW research. So far, most research has evaluated PWYW in student samples and in fictitious purchase scenarios, in which only claimed intentions to pay are measured (Gerpott, 2017). The majority of existing studies analyze just one specific buyer group, which makes deriving valid and general conclusions highly controversial. Furthermore, relying on hypothetical prices and intentions to pay bares the risk of overestimating the corresponding amounts in the case of real transactions (Gerpott, 2017; Jung et al., 2016; Kim, Kaufmann, & Stegemann, 2014). Field experiments have a strong external validity, as they allow for context-specific, real-world data generation and causal inference (Gerber & Green, 2012). In addition, field experiments allow for evaluating theory in a real context and permit informing an organization's practices and policies (Moseley et al., 2018).

The proceeding of our study is as follows. We first present our theoretical background and hypotheses based on Johnson and Cui's (2013) theoretical framework. We then present the experimental setting using quantitative data collected via a survey of visitors to a nonprofit biennial photo festival in Germany followed by the hypotheses testing. Finally, we discuss the results and derive managerial implications and fields for future research.

2 | THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

PWYW is one "participative" price-setting approach that has attracted considerable attention in research and in practice. PWYW does not rely on any fixed price but, rather, leaves the price setting completely to the customer and allows for additional price differentiation and individualization (Gerpott, 2017). The seller agrees to accept any price set by the buyer, which, therefore, can vary between zero and—theoretically—infinity. Gerpott (2017) distinguishes PWYW from other voluntary payments, for example, tipping, donations, gift giving, and trust-based billing methods. PWYW is applied in direct exchange for a product or service and is not paid for any ancillary service, charitable reasons, or in situations where the seller cannot control, whether the buyer pays the posted price, for example, honesty-based payments for flowers on a field. PWYW is used in many contexts, especially cultural organizations and street artists have used this pricing mechanism for a long time (Gerpott, 2017). In contrast to the theory of the economic man, the outcome of PWYW is not zero (Kim et al., 2009). Social, psychological, or moral transaction costs lead to a generation of income for the organizations applying PWYW. In addition to the monetary income, other beneficial effects, such as an increasing awareness or better image, are also attributed to PWYW, which, in turn, potentially lead to higher sales volume or higher prices than in conventional fixed prices settings (Riener & Traxler, 2012).

Based on this potential, a large body of scientific literature on PWYW exists. Gerpott (2017) develops a conceptual framework with relevant categories and dimensions for PWYW. Drivers of PWYW effects are market dynamics, such as competition and transparency, the selling organization, for example, its size or reputation, and the product or service (Kim, Kaufmann, & Stegemann, 2014; Krämer, Schmidt, Spann, & Stich, 2017). In addition, characteristics of the customer, such as sociodemographic characteristics, or past payments for similar products or services, known as internal reference prices, guide payment decisions (Gautier & van der Klaauw, 2012; Roy et al., 2016). Furthermore, the design of the payment procedure determines the economic success of PWYW, such as the payment timing, anonymity of the buyer, or textual cues at the point of payment (Gneezy et al., 2012; Regner, 2015). Another important part of the procedural design is the reference price. Prior research provides insights into external and internal reference prices influencing buyers' willingness to pay (Mazumdar, Raj, & Sinha, 2005).

An internal reference price is defined as "a memory-resident price based on actual, fair, or other price concepts" (Roy et al., 2016, p. 818). Internal reference prices can be found within the buyer as an internal judgment scale to evaluate offered prices (Mazumdar et al., 2005; Winer, 1986). These internal prices can be the recalling of observed or paid prices for similar goods in the past (Gerpott, 2017). In a PWYW setting, consumers use the internal reference price as a

memory-based cue that helps them to decide which price they are willing to pay (Kim et al., 2009). Consequently, internal reference prices are an important and individual buyer characteristic, which cannot be influenced by the provider directly. Nevertheless, Chandrashekaran and Grewal (2006) argue that sometimes buyers adjust their internal reference prices to be closer to an externally provided anchor price.

These so-called external reference prices are stimuli or information provided by the seller in the purchase environment when offering a product or service (Roy et al., 2016). These can be fixed prices on display and any additional information presented by the seller. This information can make an offering seem more appealing or evoke the impression of a discounted price (Johnson & Cui, 2013). Consequently, in a regular buying situation, consumers use external reference prices along with their internal reference prices to first make their purchasing decisions (Roy et al., 2016), second, find an opportunity to make a surplus (Alford & Biswas, 2002), and third, adjust their willingness to pay (Mazumdar et al., 2005). In a PWYW setting, no fixed prices are given; therefore, sellers use other external reference pricing strategies to communicate their price expectations to the buyer (Narwal & Nayak, 2019).

Four variants of external reference price strategies are known in the literature: the minimum price set by the seller, which buyers should not underbid (Thomas & Gierl, 2014); a maximum price, which buyers should not overbid (Jung et al., 2016; Regner, 2015); and the provision of a small number of predetermined prices, from which the buyers can choose the price level they want to pay (Lynn, 1990). In addition to binding external prices, the sellers can also use "various types of less restrictive price nominations" (Gerpott, 2017, p. 41) stated in recommendations such as "we suggest you pay ⟨…⟩." Gerpott (2017) criticizes that providing external references can be regarded as an illegitimate attempt by the sellers to influence buyers' payments against the PWYW agreement to accept any given price. Moreover, buyers might perceive external reference prices as an undesired limitation of their freedom in naming their own prices. Nevertheless, these four pricing strategies are the most commonly applied in a PWYW context.

Research provides evidence that such suggested prices function as anchor points reducing customers' uncertainty "with respect to an 'appropriate' or 'fair' price, because buyers can use them to calibrate their PWYW price setting decisions" (Gerpott, 2017, p. 41). The majority of empirical studies show that PWYW offers with external reference prices evoke higher prices paid in comparison to offers without price suggestions. Moreover, higher levels of external reference prices should result in higher amounts of payments (see Gerpott, 2017 for an overview). However, zero or insignificant relationships between external reference prices and the amount paid are also detected (Gautier & van der Klaauw, 2012; Gneezy et al., 2012; Jung et al., 2016). Furthermore, studies show a negative effect between the external reference prices and the amount paid (Johnson & Cui, 2013; Jung et al., 2016; Kunter, 2015; Roy et al., 2016; Thomas & Gierl, 2014). In sum, research on the relationship between reference prices and the amount paid has produced ambiguous findings so far. Jung et al. (2016) as well as Gerpott (2017) argue that the existing mixed findings are due to methodological problems. Studies reporting significantly positive effects of external reference prices often rely only on hypothetical payments of students. These effects cannot be detected in field studies using real purchasing settings.

In addition to the recent research results and their methodological issues, theoretical considerations help to disentangle possible working mechanisms at play in PWYW price setting. As a starting point, there is the interplay between internal and external reference prices, which influences the amount paid by buyers. This interplay unleashes a motivational force on buyers by social exchange norms and economic gains. In situations with no fixed price buyers rely on their internal reference prices when making funding decisions. At the same time, they are afraid of social disapproval or sanctions when paying too little (Gneezy et al., 2012) or zero (Kim et al., 2009) by being perceived as poor or cheap (Lynn, 1990). For buyers, external reference prices indicate a socially desirable price. Thus, buyers use these external reference prices as anchors in their price decisions. By doing so, the anchors shift the actually paid price away from the internal reference price and toward the socially accepted external reference price (Roy et al., 2016). In addition, buyers base their payment decisions on perceived economic outcomes, which can be described with the concept of loss aversion as part of the prospect theory (Kahnemann & Tversky, 1979). First, consumers value prices in comparison to their internal point of reference or reference price. Second, whenever they perceive a price as being above their reference point, they consider it a "loss." Vice versa, a price below the reference point is considered a "gain." A gain increases consumers' surplus or savings over the amount they initially expected to pay. However, consumers weigh losses more heavily than equivalent-sized gains and show a greater desire to avoid losses (e.g., Hardie, Johnson, & Fader, 1993; Thaler, Tversky, Kahnemann, & Schwartz, 1997; Tversky & Kahnemann, 1991). Based on this assumption, in PWYW external reference prices that are perceived as losses influence buyers more strongly than perceived gains (Bearden, Carlson, & Hardesty, 2003). Consequently, in a PWYW setting, buyers have a higher interest in underpaying than overpaying, hence gaining instead of losing (Johnson & Cui, 2013).

So far, the loss and gain considerations in PWYW relate to typical commercial consumption situations. In a nonprofit PWYW setting, there might be additional mechanisms, such as altruism, self-image effects, and fairness perceptions, that evoke pro-social behavior and higher prices paid. Recent findings indicate that altruism and loyalty are no relevant mechanisms explaining payment decisions in PWYW across industries (Drevs, 2013; Kim et al., 2009). Instead, self-signaling effects can be linked to pro-social behavior (Gneezy et al., 2010; Gneezy et al., 2012). In a PWYW experiment, people paid five times more for a photograph that comes with a donation to a charity than other people who could only buy a photograph. Although the product in combination with the contribution to a good cause resulted in higher payments, only half as many people decided to buy the photograph. According to Gneezy et al. (2010), people prefer to forgo

buying than paying too little to avoid appearing "cheap" and harming their own pro-social self-image. However, no implication can be drawn from these findings directly on how people will decide on their payment for a product or service from a nonprofit organization in a PWYW setting.

We assume that in nonprofit PWYW situations, motives typically associated with nonprofit organizations, such as altruism, are secondary as the purchase itself is already a contribution to the organization's mission. This argument is supported by Regner's (2015) findings on motives and pro-social behavior of online music store customers in a PWYW setting. In Regner's (2015) study, customers claim in a survey that fairness and support of the artist are reasons for their payment above the suggested price. However, results from the experiment reveal reciprocity as the main driver for music customers' generosity. Guilt and a "warm glow of giving" have low explanatory value, fairness, and self-image none. Reciprocity is a pivotal mechanism of gift exchange, where individuals are motivated by general and relative monetary payoffs (Bolton & Ockenfels, 2000). Transferring this rationale to the context of PWYW in nonprofit arts organizations, customers engage in a reciprocal exchange with the nonprofit organization by visiting the museum or exhibition in the first place. In this case, customers pay a certain amount of money in exchange for the organization's services. At the same time, the arts organization receives monetary compensation as well as an audience, one prerequisite for an arts organization to act on its mission. These considerations above allow us to model different effects of external reference prices in PWYW for nonprofit organizations in line with the general economic rationale of loss and gain considerations in payment decisions.

Independent from the operating sector, we expect the average impact on buyers' prices paid to depend on whether the external reference price exerts an upward or a downward pressure on buyers. The directions of executed pressure are provoked by the interplay between internal and external references in a PWYW setting (Johnson & Cui, 2013). When an external reference price exceeds the internal reference price, an upward pressure increases the buyers' paid price and vice versa. Thus, pressure varies according to the sellers' external reference price strategy.

In particular, two effects are likely to occur with an **external minimum price** strategy set by the seller: most likely, the minimum price is below the internal reference price of the buyers and thus exerts a downward pressure for most buyers, consequently leading them to lower their paid prices closer to the minimum (Jung et al., 2016; Kim et al., 2009). If for the minority of buyers, the minimum price exceeds the internal reference price, then the minimum price exerts an upward pressure, forcing them to adjust their paid prices closer to the listed minimum price (Johnson & Cui, 2013). Although an external minimum price aims at obviating low paid prices, it is a possibility to perceive a gain for those buyers whose internal reference price is above the external minimum price (Kahnemann & Tversky, 1979). Therefore, in this situation, the average paid price is lowered relative to a setting with an absent external reference price. Thus, we hypothesize:

H1 *In a real purchasing setting, external reference pricing in the form of a minimum price: (a) decreases the mean paid price and (b) changes the distribution of the paid prices, causing the paid prices to cluster closer to the minimum price.*

Both effects occur in reverse for **maximum price strategies**. A maximum price creates upward pressure for most buyers with lower internal reference prices and a downward pressure for the minority of buyers with greater internal reference prices (Mazumdar et al., 2005; Roy et al., 2016). However, since the experienced upward pressure for buyers whose internal reference prices are below the external maximum price is perceived as a loss, it will have a weaker impact on buyers' paid prices, leading to lower payments (Bearden et al., 2003; Jung et al., 2016). Additionally, an external maximum price cuts off the high end of the distribution of paid prices and increases the likelihood of a negative net effect on the average prices paid in comparison to using no reference price at all (Johnson & Cui, 2013). Based on this argumentation, we hypothesize:

H2 *In a real purchasing setting, external reference pricing in the form of a maximum price: (a) decreases the mean paid price and (b) changes the distribution of the paid prices, causing the paid prices to cluster closer to the maximum price.*

In an external reference price setting with a **suggested price strategy**, the suggested price also works as an anchor for the buyer. For all buyers with lower internal reference prices than the suggested external reference price, the suggested price exerts an upward pressure, and for all buyers with greater internal reference prices than the suggested external reference price, the suggested price creates a downward pressure effect (Gneezy et al., 2012). On average, the effect varies, depending on whether the majority of buyers have an internal reference price below or above the suggested price (Johnson & Cui, 2013). Nevertheless, the suggested price influences the distribution of paid prices, clustering them closer to the suggested price and reducing their variance. Therefore, we hypothesize:

H3 *In a real purchasing setting, external reference pricing in the form of a suggested price changes the distribution of the chosen prices, causing the chosen prices to cluster closer to the suggested price.*

Figure 1 shows the postulated effects.

3 | METHODOLOGY

To study the effects of different pricing strategies, we cooperate with a photo biennial in Germany run by a nonprofit organization that introduced PWYW as a novel pricing system. To make payment decisions, a minimum level of certainty about the product or service is necessary. Services such as performing arts shows or museum exhibitions are ambiguous by nature and individuals subjectively perceive their value (Hume, Sullivan Mort, Liesch, & Winzar, 2006). In such

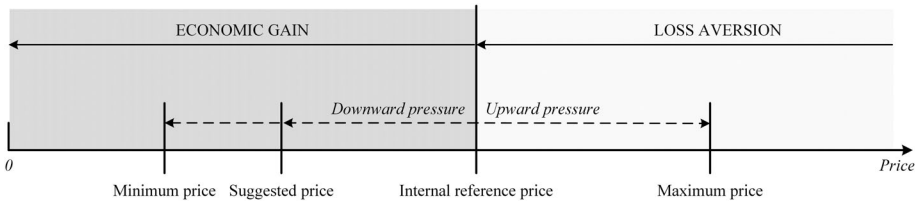

FIGURE 1 Anchoring effects interplay between external and internal reference prices driven by economic gain and loss aversion

environments, where consumers lack certainty about an appropriate payment for products or services, sellers can provide external reference prices. These function as a compass to enhance a customer's level of certainty. Thus, according to the literature, the anchoring effects of external reference prices are more easily identifiable in situations of high uncertainty (Jung et al., 2016). Therefore, this particular setting allows for uncertainty in two ways. First, the value of art, especially photography, and art exhibitions is ambiguous by nature, and its perception highly subjective (Hume et al., 2006). Second, the biennial frequency of the festival, which in that particular year was also rebranded, allows for little value comparison with past editions of the festival.

The festival took place in seven different exhibition venues and attracted over 41,000 visitors during a two-month time period in 2018. At each exhibition venue, information point poles were situated at the entrance and functioned as post-visit payment and survey stations. In one of the exhibition venues, we conducted our experiment. We chose a between-subjects 1 × 4-level posttest-only control group design with four different conditions of external reference prices within the PWYW setting: minimum price, maximum price, suggested price, and no external reference price (control group). To determine the minimum and maximum prices of the manipulation, we ran a prestudy in the first 2 weeks of the photo festival in this particular venue similar to Johnson and Cui (2013). We asked visitors in a survey, the amount of money they paid for their visit. From that information, we derived the minimum and maximum values.

For the execution of the experiment, we manipulated the external reference price information printed on the information point pole inside the exhibition venue. Since the experiment includes three treatments and one control treatment, we ran each treatment for 1 week (Tuesdays until Sundays; Mondays the exhibition was closed). External reference prices were manipulated twofold: first, at the station where the visitors of the exhibition paid after their visit. For the minimum price, the call to action was labeled "Contribute what feels right! At least 4 euros." For the maximum treatment "At least 4 euros" was replaced with "Maximum 15 euros," and "Suggestion 7 euros" for the suggested external reference. Seven euros is chosen because it is the fixed entry fee for that particular museum venue where the field experiment took place. During the time of no reference price—our control group—the slogan was on display with no price suggestions. Second, within the visitor survey, an item referring to the perceived appropriateness of each of the reference prices, or none at all (for scenario 4), was included.

During the four-week period of the experiment, data on the number of visitors and the total amount of money paid were collected. Considering Gerpott's (2017) critique on minimum and maximum pricing strategies as a violation of the PWYW agreement, in each treatment of the experiment, visitors were not restricted in the individual price paid and were not sanctioned if they gave less than the minimum or more than the maximum price. Additionally, surveys were distributed to visitors at the end of the visit after they had passed the information and payment point pole. In the questionnaire, visitors were asked: how much money they paid for their visit (Kim et al., 2009) and their internal reference price, measured as single item question; and how much money they paid for their latest visit to a similar cultural activity (Bearden, Kaicker, Smith de Borrero, & Urbany, 1992). Additionally, general questions on participants' age, gender, education, and income are included as control variables (Coleman, 1983; Kim et al., 2009).

A total of 132 out of 2015 visitors participated in the survey (6.55% response rate). We checked the data for outliers and excluded two cases that named 108 euros as payment for the visit, which refers to the amount paid for a year-long valid museums pass. Of the 130 valid responses, 60 (45.5%) visitors are female. The majority (24.2%) is between 50 and 59 years old, followed by 18.9% who are 40–49 years old. Furthermore, 56.1% have a university degree, and 50.8% are employed; 11.3% are students, and 9.1% are retired. Considering earnings, 29.6% earn more than 2,000 € each month. Furthermore, the yearly spending on cultural activities varies from 8.3% of visitors who spend less than 50 euros, 60.6% who spend between 51 and 500 euros, and 15.9% who spend between 501 and 1,000 euros per year. Descriptive information of the average amount paid, as well as the internal reference price and control variables, is given in Table 2. As the analysis shows, no significant differences occur between gender and income above 2,000 euros among the experimental groups; the randomly assigned treatment groups are sufficiently homogeneous.

4 | RESULTS

We run a one-way ANOVA on the amount paid for the visit. The results show a significant main effect of the different reference prices ($F[3.126] = 5.970$, $p = .001$, partial $\eta^2 = .124$). The corrected *R-squared* indicated that 10.4% of the mean's variance of the price paid can be explained with this main effect. The significance of the mean value differences has a medium effect (.341) (Cohen, 1988), which is calculated as the square root of the partial η^2 divided by 1—the partial η^2. A comparison of the means of the prices paid in the treatments to the means of the control group (Table 2) shows that providing an external

TABLE 2 Baseline characteristics of sample

	Price paid				Internal reference price				Gender (female)	Income (>2.000 €)
	Mean	SD	Min	Max	Mean	SD	Min	Max	%	%
Minimum price 4 € (N)	5.60 (31)	4.29	0	20	12.5 (16)	10.08	0	40	41.9 (28)	32.3 (10)
Maximum price 15 € (N)	7.95 (33)	4.42	0	15	9.90 (29)	5.96	0	28	45.5 (32)	33.4 (11)
Suggested price 7 € (N)	3.97 (33)	3.64	0	10	8.05 (21)	5.01	0	15	45.5 (28)	24.3 (8)
No reference price (N)	4.41 (33)	4.38	0	20	9.90 (19)	6.72	0	25	51.7 (29)	30.4 (10)
All (N)	5.48 (130)	4.43	0	20	9.93 (85)	6.91	0	40	45.5 (60)	30.0 (39)

Note: Figures and percentage rounded to two decimal points and nearest percentage.

reference price has a negative effect on the price paid in the suggested price scenario and a positive effect in the minimum and maximum price treatments.

To investigate if the differences regarding the mean price paid are significant, we run a two-sided Dunnett's post hoc test. The results reveal that only the mean paid price in the maximum price group (MD = 3.539, p = .002) is significantly higher than the mean chosen price in the control condition (Table 3). Neither H1a nor H2a can be supported, with H2a showing significant effects in the opposite direction as postulated.

Next, the effect of the different pricing strategies on the shape of the distribution of the money paid is analyzed regarding hypothesis 1b, 2b, and 3 (Figure 2). Looking at the standard deviations of the prices paid for the control group (No Reference Price) (M = 4.41 €, SD = 4.38), minimum price (M = 5.60 €, SD = 4.29), maximum price (M = 7.95 €, SD = 4.42), and suggested price (M = 3.97 €, SD = 3.64), the latter has the lowest value. The other treatments and the control group rarely differ in the standard deviation of the paid amount. This finding indicates that the suggested price reduces variance in the chosen prices.

To statistically assess the distributions of prices paid, the nonparametric method Kruskal–Wallis test analyzes the variance among the four groups by ranks. The results suggest that prices paid are not the same across categories of the experiment, and we can assume differences between the tendencies of the groups (Chi-squared [3] = 15.289, p = .002). As a post hoc test, the Dunn–Bonferroni test provides insights into significant differences for each group through pairwise comparison. The results indicate that the suggested price and maximum price groups differ significantly, with z = − 3.452, p = .003, as do the no reference price and maximum price groups, with z = 3.312, p = .006. The effects for both differences are medium (Cohen, 1992), with correlation coefficient values, r = .425, for the former and, r = .408, for the latter.[1] For the other pairwise comparison, no significant effects were found (Table 4). A comparison of the SD for the two significant pairs in Table 2 shows that using the maximum price slightly increases the variance of prices paid in contrast to using no reference price or a suggested price.

Next, the absolute distance between the paid prices and external reference prices is examined for clustering patterns. The absolute distance measures are calculated using Euclidean distance for each treatment group between the external reference price and the paid prices. Since the control group has no external reference price, we calculated absolute distance measures for each external reference price and the paid price. The independent sample Levene test shows that the maximum price strategy significantly decreases the paid price distance and the maximum price distance (p = .000). The other external reference price strategies show no significant effect on the distances between the paid prices' and the treatment's distances (Table 5). Hypothesis 2b is supported, whereas hypothesis 1b and hypothesis 3 are rejected. Table 6 summarizes the results of the tested hypotheses.

To assess the interplay between the internal and external reference prices underlying our hypotheses, we investigate the effect of the internal reference price (IRP) on the actual prices paid. We define internal reference prices in two ways. In model 1, the average price paid in the control group, henceforth IRP_1 (4.41 euros, Table 2), functions as proxy for an internal reference price (Johnson & Cui, 2013). In model 2, the self-reported average price paid for a previous visit for a similar cultural activity in the control group is calculated (9.90 euros, Table 2) as the internal reference price proxy, named IRP_2 (Bearden et al., 1992). In addition, absolute distance measures were calculated for each treatment group: in model 1, between price paid and $IRP_{1;}$ and in model 2, between price paid and IRP_2. In a paired sample t-test, these distance measures are compared with the distance measures used above in Table 5. Figure 3 illustrates this procedure exemplarily for the maximum price setting in model 1.

In model 1 (Table 7), the mean distance of the maximum price differs significantly from that of the internal reference price (p < .10) with a medium effect of .337. As the distance to the IRP_1 of 4.37 is shorter than to the maximum price, visitors in the setting with the maximum price strategy pay prices closer to the internal reference price. For the other treatment groups, no significant effects between the different distance measures occur.

Analyzing model 2 with the self-reported internal reference prices reveals different results. In the minimum and suggested price settings, prices paid cluster closer to the external instead of to the internal reference price (t = 1.905, p = .066 and t = 6.487, p = .000) with medium and strong effects. In both cases, the mean distance is smaller for paid prices and the external price than for the internal reference price. In contrast to the maximum price treatment group, the effect of IRP_2 is similar to model 1 with significant distance differences of prices clustering closer to the internal reference price (t = −4.623, p = .000) (Table 8).

TABLE 3 Results of Dunnett *t*-test (2-sided)

					95% confidence interval	
(I) Experiment	Control group	Mean difference	Std. error	Sig.	Lower bound	Upper bound
Minimum price 4 €	No reference price	1.188	1.048	.535	−1.306	3.681
Maximum price 15 €	No reference price	3.539	1.032	.002	1.085	5.994
Suggested price 7 €	No reference price	−.439	1.032	.952	−2.894	2.015

Note: Dunnett t-tests treat one group as a control, and compare all other groups against it.

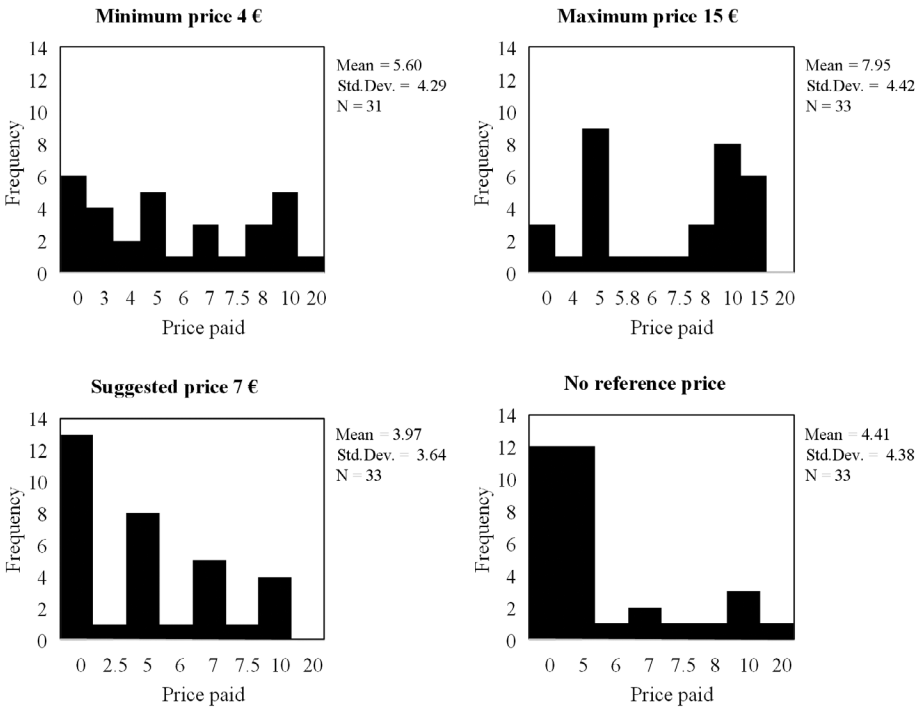

FIGURE 2 Distribution of paid price by reference price strategy

	Test statistics	Std. error	*z*-value	Adj. Sig.
Suggested price 7 €– no reference price	−1.273	9.086	−.140	1.000
Suggested price 7 €– minimum price 4 €	−11.959	9.231	−1.295	1.000
Suggested price 7 €– maximum price 15 €	−31.364	9.086	−3.452	.003
No reference price – minimum price 4 €	10.686	9.231	1.158	1.000
No reference price – maximum price 15 €	30.091	9.086	3.312	.006
Minimum price 4 €– maximum price 15 €	−19.405	9.231	−2.102	.213

TABLE 4 Results of post-hoc Dunn–Bonferroni-test

Note: Results of post hoc Dunn–Bonferroni-test. Each row tests the null hypothesis that the sample 1 and sample 2 distributions are the same. 2-sided test with significance level of .05. Significant values have been adjusted by the Bonferroni correction.

TABLE 5 Results of independent-samples Levene test

	TMD	CTMD	F	*t*-value	df	Sig.	MD	Effect size
Minimum price D – control minimum D	3.40	3.32	.132	.116	62	.908	.085	
Maximum price D – control maximum D	7.05	10.89	1.163	−3.906	64	.000	−3.842	.4
Suggested price D – control suggested price D	3.79	4.02	.226	−.313	64	.755	−.227	

Abbreviations: CTMD, control treatment mean distance; D, distance; MD, mean difference; TMD, treatment mean distance.
Effect size: absolute value of the square root of the quotient of the squared *t*-value and the squared *t*-value plus the degree of freedom. Independent sample *t*-test: Levene's test for equality of variances, 2-tailed.

TABLE 6 Overview results of hypotheses testing

Hypothesis		Test	Result	Decision
H1a)	In a real purchasing setting, external reference pricing in the form of a minimum price decreases the mean paid price.	Dunnett *t*-test (Table 3)	Decrease of mean price paid but not significantly different compared to control group.	—
H1b)	In a real purchasing setting, external reference pricing in the form of a minimum price changes the distribution of the paid prices causing the paid prices to cluster closer to the minimum price.	Dunn–Bonferroni-test (Table 4), independent-samples Levene test (Table 5)	No clustering around the minimum price detected.	—
H2a)	In a real purchasing setting, external reference pricing in the form of a maximum price, decreases the mean paid price.	Dunnett t-test (Table 3)	In the maximum price condition, the mean price is significantly higher than in the control setting.	—
H2b)	In a real purchasing setting, external reference pricing in the form of a maximum price changes the distribution of the paid prices causing the paid prices to cluster closer to the maximum price.	Dunn–Bonferroni-test (Table 4), independent-samples Levene test (Table 5)	In the maximum price strategy setting the paid price distance and the maximum price distance significantly decreases (p = .000), indicating a significant clustering closer to the maximum price.	✓
H3	In a real purchasing setting, external reference pricing in the form of a suggested price changes the distribution of the chosen prices causing the chosen prices to cluster closer to the suggested price.	Dunn–Bonferroni-test (Table 4), independent-samples Levene test (Table 5)	No clustering around the minimum price detected.	—

Note: —, hypothesis not supported; ✓, hypothesis supported.

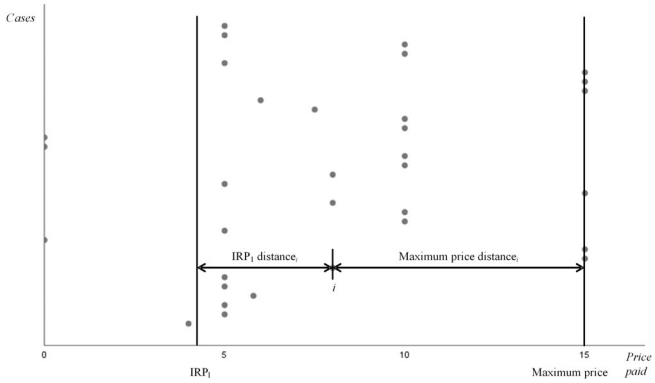

FIGURE 3 Example of calculating different distance measures with IRP_1 in case *i* for the maximum price setting

Overall, comparing the detected significant distances in the maximum price setting in model 1 and 2, payments cluster more strongly around IRP_2 with a strong effect of .633 (Cohen, 1992) in comparison to the effect of .337 around IRP_1 (Table 7). This effect is also stronger than the clustering of the prices paid around the externally provided maximum price with .439 (Table 5).

5 | DISCUSSION AND MANAGERIAL IMPLICATIONS

Since external reference prices are one driver for customers' pricing choices (Burton et al., 2009) and research finds mixed results of PWYW pricing strategy effects, the aim of this study is to analyze the effects of different pricing strategies on the amount of money paid within an arts nonprofit PWYW setting. We conducted a field experiment at a German photo biennial, alternating the external reference price in minimum, maximum, suggested, and no reference prices. Based on the concepts of economic gain and downward pressure in an interplay between internal and external reference prices, we hypothesize that a minimum reference price will reduce the mean payment of visitors.

The results of the experiment show a tendency that smaller numbers in the form of a minimum price and suggested price in an external price setting lead to smaller amounts paid as an ethical "carte blanche" for low payments (Jung et al., 2016). However, these values do not differ significantly from a situation with no external reference price, which matches the previous results that find no effects for an external reference price provision on payment behavior (Johnson & Cui, 2013). Investigating possible underlying pushing mechanisms, the clustering of prices informs if the pricing behavior of visitors is motivated either by external or internal reference prices. Providing a suggested price decreases the variance of prices paid, which indicates an anchoring effect, however, not significant. In a minimum price setting, no significant anchoring effects occur. Only in the maximum price setting do external numbers guide visitors' payment decisions.

Comparing the payment distribution with internal reference prices as "internal compasses," a more nuanced picture about payment behavior emerges. In a setting where the external reference price is smaller than the internal reference price—measured as the self-reported price paid in a previous similar context (Bearden et al., 1992)—economic gain drives payments closer to the external reference price and further away from the internal reference price. This effect occurs for the minimum and suggested price settings. When

TABLE 7 Results of Paired Sample *t*-test on internal reference price distance (Model 1)

	TMD	$TMID_1$	*t*-value	df	Sig	MD	Effect size
Minimum price D – minimum price IRP_1 D	3.40	3.31	−1.270	30	.214	−.093	
Maximum price D – maximum price IRP_1 D	7.05	4.37	−2.028	32	.051	−2.686	.337
Suggested price D – suggested price IRP_1 D	3.79	3.15	−1.620	32	.115	−.639	

Note: Effect size: absolute value of the square root of the quotient of the squared *t*-value and the squared *t*-value plus the degree of freedom. Paired sample *t*-Test, 2-tailed.
Abbreviations: D, Distance; IRP_1, internal reference $price_1$ (control mean); MD, mean difference; TMD, treatment mean distance; TMID, treatment mean internal reference $price_1$ distance.

TABLE 8 Results of paired sample *t*-test on internal reference price distance (Model 2)

	TMD	$TMID_2$	*t*-value	df	Sig	MD	Effect size
Minimum price D – minimum price IRP_2 D	3.40	4.99	1.905	30	.066	1.584	.329
Maximum price D – maximum price IRP_2 D	7.05	3.85	−4.623	32	.000	−3.198	.633
Suggested price D – suggested price IRP_2 D	3.79	5.95	6.487	32	.000	2.167	.754

Note: Effect size: absolute value of the square root of the quotient of the squared *t*-value and the squared *t*-value plus the degree of freedom. Paired sample *t*-test, 2-tailed.
Abbreviations: D, Distance; MD, mean difference; IRP_2, Internal reference $price_2$ (mean self-reported IRP from control); TMD, Treatment mean distance; $TMID_2$, Treatment mean internal reference $price_2$ distance.

visitors have shown a willingness to pay higher prices in the past than the external reference price, they follow the lower external reference price. Thus, in this particular PWYW scenario, the external reference price functions as an anchor, and visitors pay less than they have done previously and, thus, experience an economic gain by saving money.

Referring to upward pressure and loss aversion in a situation where the external reference price exceeds the internal reference price, a decreasing effect on the average price paid was hypothesized for the presence of a maximum reference price. The results point in the opposite direction. This is in line with previous findings that find a significant effect of providing higher numbers as external prices on the average amount paid (Armstrong Soule & Madrigal, 2015). Here, an upward pressure closer to the external reference price increases the average payment, indicating an anchoring function for this strategic price setting. This trend could hint at underlying pro-social motives, such as altruism or self-image, that drive payment decisions (Gneezy et al., 2010; Kim et al., 2009). However, looking more closely at the interplay between external and internal reference prices, this assumed anchoring effect of the external reference price dissolves. The internal reference price clustering is stronger than the maximum reference price clustering. Thus, the results show that when the external reference price exceeds the internal one, the latter functions as the main anchor to guide the payment decisions of visitors (Mazumdar et al., 2005; Roy et al., 2016). Although the general spending level is higher in the maximum price setting, the average amount paid is still lower than the reported internal reference price. Thus, visitors experience economic gain since, on average, they pay less than they did for a similar service in the past. Moreover, the payment volume remains in the visitor's usual spending range of cultural goods. The absence of extreme deviations from usual cultural spending behavior denies implications about a heightened pro-social funding behavior or donation awareness in a PWYW nonprofit arts context. This indicates that visitors, when making pricing decisions, do not differentiate between nonprofit arts organizations that rely on donations or public arts institutions that are funded mainly through tax money. This rationale allows to extend findings by Regner (2015) to assume that reciprocal aspects override altruistic motives in purchase situation of nonprofit arts services.

Summing up, this experiment reveals that also in nonprofit arts contexts, PWYW triggers economic considerations of loss aversion and gain and that the internal reference price guides payment decisions. In a setting where the external reference price is below the internal one, the former functions as an anchor driven by economic gain. Additionally, in a setting with an external reference price that is higher than an internal reference price, the anchor point shifts to the lower value, namely, the internal reference price. Although social norms may increase the pressure to pay the external reference price, loss aversion is a stronger driver (Gautier & van der Klaauw, 2012; Tversky & Kahnemann, 1991).

Furthermore, placing the study's findings in a general discussion about the economic outcome of PWYW, two conclusions can be drawn. First, in contrast to previous studies, many visitors choose to pay nothing (Gerpott, 2017). The tendency to pay zero may be due to the study design as a field experiment in contrast to laboratory experiments. This may also indicate that when confronted with the spending of one's own real money, customers' behaviors may change towards a stronger economic gain orientation. In addition, the high frequency of nonpayers can be specific to the culture sector. For example, in Germany, most museums provide free entry, indicating an acceptable social norm to pay nothing (Institute for Museum Research, 2018). The common practice of free entry to cultural programs may guide visitors. Furthermore, the overall low funding volume generated in the

PWYW scheme could result from crowding out effects of private philanthropy due to large government funding activities in the arts and culture sector. On the one hand, relying mainly on government support, arts nonprofit organizations in Germany may appear as public institutions, which are financially supported by individuals through mandatory tax fees but rarely through additional donations (Brooks, 2000). On the other hand, if an arts program appears as niche it may signal the need of public or corporate support since traditional market demand will not suffice. Thus, this situation evokes free-rider effects and induces low self-efficacy for the individual, both incentives to pay no or little money for "public" services.

Second, the overall mean price paid (Table 2) for each treatment but the maximum pricing strategy setting is below the standard market price of 7 euros, defined as the fixed entry fee for that particular museum venue where the field experiment took place. The visitors' average payment below the standard market price level matches general findings in the PWYW research field on economic outputs (Gerpott, 2017).

These results lead to managerial implications for nonprofit (cultural) organizations. First, using PWYW as payment mechanism, managers should decide on project calculations and pricing strategies against the background of paid prices below the standard market price level. Second, to avoid a potential revenue gap, the results of this experiment indicate that setting an external reference price above a general internal reference price may activate a pull effect, increasing overall prices paid. To increase net benefits, nonprofit (arts) organizations should, beforehand, identify the internal reference price level of its customers. When the distance between the internal and external reference price is sufficiently large, upward pressure influences the payment decisions and increases payment. Third, in cultural contexts, cost structures are nontransparent, and the quality and value of intangible arts products is difficult to assess. Thus, for this missing information, providing visitors with an external reference price can function as orientation point for payment decisions.

6 | LIMITATIONS AND FUTURE RESEARCH

This study is one of the first experiments that shows that PWYW pricing strategies in nonprofit organizations have different effects than in a for-profit context and, therefore, contributes to the recent scientific debate on sector differences in PWYW (Johnson & Cui, 2013). However, future research on different nonprofit services applying PWYW should validate our results to overcome some of the following limitations. Methodically, this field experiment overcomes disadvantages from laboratory experiments; yet, the data collection had its limitations. Visitors of the biennial stated their monetary contribution in the questionnaire, which may be affected by a social desirability bias and lead to a discrepancy between real prices paid and the report of prices paid. As a remedy for this shortcoming, the biennial provided, weekly, the number of visitors and the sum of revenues. A quota of the actual price paid per visitor could be calculated and compared to the average amount paid reported by the survey participants. Comparing for each treatment, the average payments for the real and reported prices paid, the results are similar. Only in the setting of the suggested price was the real average price paid higher (in second place) compared to the self-reported mean (fourth place). Thus, the results of the suggested price need to be interpreted with caution as the self-reported prices paid may be overestimated (Jung et al., 2016). Furthermore, in the experimental design, the anchoring values lay close together. To isolate and compare the effects of internal and external reference prices on prices paid, future research should use increased distance between reference prices.

Another methodological shortcoming is the lack of additional behavioral data of the visitors—qualitative and quantitative—which would have been useful to explain individual psychological aspects when facing payment decision in a pro-social context and to provide an in-depth understanding of unexpected results. Future PWYW studies can profit from implementing a mixed-method approach (Creswell, 2014) to overcome these limitations by combining survey data with on-site observations and interviews.

Furthermore, this study's main focus is to analyze effects of different PWYW pricing strategies within a nonprofit arts setting. To enrich an understanding for different pressure mechanisms, particularly in the nonprofit context, future research should investigate additional social mechanisms, such as social norms, social identity, and social orientation as well as general pro-social behavior like volunteering simultaneously with economic gain aspects. Researchers should further conduct cross-national comparative studies on PWYW to capture differences of culture and social norms regarding general paying and donation behaviors. Replicating this study in other countries with different funding structures of the arts sector would allow a more nuanced picture of possible crowding out effects of government spending, corporation, and private philanthropy on individual pro-social behavior in exchange relationships with nonprofit and public (arts) organizations (Brooks, 2000).

Moreover, no statement can be made about whether the underlying scaling effect of PWYW on the overall revenue generation has taken place. For such an assessment, data on the number of visitors in a PWYW setting and a fixed-price setting and overall revenues are needed. Future research designs should include measures to capture these potential scaling effects in a field experiment.

Finally, PWYW can possibly lower financial entry boundaries and reach low-income citizens as a target audience for the cultural product or services. Thus, for the debate in the nonprofit context, a potential impact on the social mission fulfillment might occur. PWYW may be a suitable marketing strategy for nonprofit (arts) organizations to increase and diversify their audiences in line with their educational missions. This seems to be a very promising new research area in line with participative and democratizing decision-making processes and behaviors.

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CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

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ENDNOTE

[1]The correlation coefficient is calculated as the absolute value of the quotient of the *z*-value and square root of the sample size, *n*, of the compared groups.

REFERENCES

Aaker, J., Vohs, K. D., & Mogilner, C. (2010). Nonprofits are seen as warm and for-profits as competent: Firm stereotypes matter. *Journal of Consumer Research*, *37*(2), 224–237. https://doi.org/10.1086/651566

Alford, B. L., & Biswas, A. (2002). The effects of discount level, price consciousness and sale proneness on consumers' price perception and behavioral intention. *Journal of Business Research*, *55*(9), 775–783. https://doi.org/10.1016/S0148-2963(00)00214-9

Armstrong Soule, C. A., & Madrigal, R. A. (2015). Anchors and norms in anonymous pay-what-you-want pricing contexts. *Journal of Behavioral and Experimental Economics*, *57*, 167–175. https://doi.org/10.1016/j.socec.2014.10.001

Baumol, W. J., & Bowen, W. G. (1965). On the performing arts: The anatomy of their economic problems. *The American Economic Review*, *55* (1/2), 495–502.

Bearden, W. O., Carlson, J. P., & Hardesty, D. M. (2003). Using invoice price information to frame advertised offers. *Journal of Business Research*, *56* (5), 355–366. https://doi.org/10.1016/S0148-2963(01)00225-9

Bearden, W. O., Kaicker, A., Smith de Borrero, M., & Urbany, J. E. (1992). Examining alternative operational measures of internal reference prices. In J. F. Sherry, Jr. & B. Sternthal (Eds.), *Advances in consumer research* (Vol. 19, pp. 629–635). Provo, UT: Association for Consumer Research.

Bolton, G. E., & Ockenfels, A. (2000). ERC: A theory of equity, reciprocity, and competition. *The American Economic Review*, *90*(1), 166–193. https://doi.org/10.1257/aer.90.1.166

Brooks, A. C. (2000). Is there a dark side to government support for nonprofits? *Public Administration Review*, *60*(3), 211–218. https://doi.org/10.1111/0033-3352.00081

Burton, C., Louviere, J., & Young, L. (2009). Retaining the visitor, enhancing the experience: Identifying attributes of choice in repeat museum visitation. *International Journal of Nonprofit and Voluntary Sector Marketing*, *14*(1), 21–34. https://doi.org/10.1002/nvsm.351

Chandrashekaran, R., & Grewal, D. (2006). Anchoring effects of advertised reference price and sale price: The moderating role of saving presentation format. *Journal of Business Research*, *59*(10-11), 1063–1071. https://doi.org/10.1016/j.jbusres.2006.06.006

Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd ed.). New York, NY: Academic Press.

Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Coleman, R. P. (1983). The continuing significance of social class to marketing. *Journal of Consumer Research*, *10*(3), 265–280. https://doi.org/10.1086/208966

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Los Angeles, CA: SAGE Publications.

Drevs, F. (2013). The challenge of the unknown – The effect of pay-what-you-want on the market success of publicly subsidized films. *Journal for Public and Nonprofit Services*, *36*(4), 255–270.

Frey, B. S., & Steiner, L. (2012). Pay as you go: A new proposal for museum pricing. *Museum Management and Curatorship*, *27*(3), 223–235. https://doi.org/10.1080/09647775.2012.701994

Gautier, P. A., & van der Klaauw, B. (2012). Selection in a field experiment with voluntary participation. *Journal of Applied Econometrics*, *27*(1), 63–84. https://doi.org/10.1002/jae.1184

Gerber, A. S., & Green, D. P. (2012). *Field experiments: Design, analysis, and interpretation* (1st ed.). New York, NY and London, England: W. W. Norton & Company.

Gerpott, T. J. (2017). Pay-what-you-want pricing: An integrative review of the empirical research literature. *Management Science Letters*, *7*(1), 35–62. https://doi.org/10.5267/j.msl.2016.11.004

Gneezy, A., Gneezy, U., Nelson, L. D., & Brown, A. (2010). Shared social responsibility: A field experiment in pay-what-you-want pricing and charitable giving. *Science*, *329*(5989), 325–327. https://doi.org/10.1126/science.1186744

Gneezy, A., Gneezy, U., Riener, G., & Nelson, L. D. (2012). Pay-what-you-want, identity, and self-signaling in markets. *Proceedings of the National Academy of Sciences of the United States of America*, *109*(19), 7236–7240. https://doi.org/10.1073/pnas.1120893109

Hardie, B. G. S., Johnson, E. J., & Fader, P. S. (1993). Modeling loss aversion and reference dependence effects on brand choice. *Marketing Science*, *12*(4), 378–394. https://doi.org/10.1287/mksc.12.4.378

Hume, M., Sullivan Mort, G., Liesch, P. W., & Winzar, H. (2006). Understanding service experience in non-profit performing arts: Implications for operations and service management. *Journal of Operations Management*, *24*(4), 304–324. https://doi.org/10.1016/j.jom.2005.06.002

Institute for Museum Research (2018). Number of museums in Germany in 2016 grouped by entrance fees. Retrieved from https://de.statista.com/statistik/daten/studie/168495/umfrage/museen-gruppiert-nach-eintrittspreisen/

Johnson, J. W., & Cui, A. P. (2013). To influence or not to influence: External reference price strategies in pay-what-you-want pricing. *Journal of Business Research*, *66*(2), 275–281. https://doi.org/10.1016/j.jbusres.2012.09.015

Jung, M. H., Perfecto, H., & Nelson, L. D. (2016). Anchoring in payment: Evaluating a judgmental heuristic in field experimental settings. *Journal of Marketing Research*, *53*(3), 354–368. https://doi.org/10.1509/jmr.14.0238

Kahnemann, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*(2), 263–292.

Kim, J.-Y., Kaufmann, K., & Stegemann, M. (2014). The impact of buyer - seller relationships and reference prices on the effectiveness of the pay what you want pricing mechanism. *Marketing Letters*, *25*(4), 409–423. https://doi.org/10.1007/s11002-013-9261-2

Kim, J.-Y., Natter, M., & Spann, M. (2009). Pay what you want: A new participative pricing mechanism. *Journal of Marketing*, *73*(1), 44–58. https://doi.org/10.1509/jmkg.73.1.44

Kim, J.-Y., Natter, M., & Spann, M. (2010). Kish: Where customers pay as they wish. *Review of Marketing Science*, *8*(2), 44. https://doi.org/10.2202/1546-5616.1118

Kim, J.-Y., Natter, M., & Spann, M. (2014). Sampling, discounts or pay-what-you-want: Two field experiments. *International Journal of Research in Marketing*, *31*(3), 327–334. https://doi.org/10.1016/j.ijresmar.2014.03.005

Krämer, F., Schmidt, K. M., Spann, M., & Stich, L. (2017). Delegating pricing power to customers: Pay what you want or name your own Price? *Journal of Economic Behavior & Organization*, *136*, 125–140. https://doi.org/10.1016/j.jebo.2017.01.019

Kunter, M. (2015). Exploring the pay-what-you-want payment motivation. *Journal of Business Research*, *68*(11), 2347–2357. https://doi.org/10.1016/j.jbusres.2015.03.044

Lindqvist, K. (2012). Museum finances: Challenges beyond economic crises. *Museum Management and Curatorship*, *27*(1), 1–15. https://doi.org/10.1080/09647775.2012.644693

Lynn, M. (1990). Choose your own price: An exploratory study requiring an expanded view of price's functions. In M. E. Goldberg, G. Gorn, & R. W. Pollay (Eds.), *Advances in consumer research* (Vol. 17, pp. 710–714). Provo, UT: Association for Consumer Research.

Mazumdar, T., Raj, S. P., & Sinha, I. (2005). Reference price research: Review and propositions. *Journal of Marketing*, *69*(4), 84–102. https://doi.org/10.1509/jmkg.2005.69.4.84

Moseley, A., James, O., John, P., Richardson, L., Ryan, M., & Stoker, G. (2018). The effects of social information on volunteering: A field experiment. *Nonprofit and Voluntary Sector Quarterly*, *47*(3), 583–603. https://doi.org/10.1177/0899764017753317

Narwal, P., & Nayak, J. K. (2019). How consumers respond to social norms: An evidence from pay-what-you-want (PWYW) pricing. *Journal of Consumer Marketing*, *36*(4), 494–505. https://doi.org/10.1108/JCM-05-2018-2677

Regner, T. (2015). Why consumers pay voluntarily: Evidence from online music. *Journal of Behavioral and Experimental Economics*, *57*, 205–214. https://doi.org/10.1016/j.socec.2014.10.006

Rentschler, R., Hede, A.-M., & White, T. R. (2007). Museum pricing: Challenges to theory development and practice. *International Journal of Nonprofit and Voluntary Sector Marketing*, *12*(2), 163–173. https://doi.org/10.1002/nvsm.289

Riener, G., & Traxler, C. (2012). Norms, moods, and free lunch: Longitudinal evidence on payments from a pay-what-you-want restaurant. *The Journal of Socio-Economics*, *41*(4), 476–483. https://doi.org/10.1016/j.socec.2011.07.003

Roy, R., Rabbanee, F. K., & Sharma, P. (2016). Exploring the interactions among external reference price, social visibility and purchase motivation in pay-what-you-want pricing. *European Journal of Marketing*, *50*(5/6), 816–837. https://doi.org/10.1108/EJM-10-2014-0609

Thaler, R., Tversky, A., Kahnemann, D., & Schwartz, A. (1997). The effect of myopia and loss aversion on risk taking: An experimental test. *The Quarterly Journal of Economics*, *112*(2), 647–661.

Thomas, S., & Gierl, H. (2014). Pay what you want: How to affect the price consumers are willing to pay. Paper presented at: Proceedings of the 13th ICORIA: International Conference on Research in Advertising.

Tversky, A., & Kahnemann, D. (1991). Loss aversion in riskless choice: A reference-dependent model. *The Quarterly Journal of Economics*, *106*(4), 1039–1061. https://doi.org/10.2307/2937956

Winer, R. S. (1986). A reference price model of brand choice for frequently purchased products. *Journal of Consumer Research*, *13*(2), 250–256. https://doi.org/10.1086/209064

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