Is it really worth it? A test of pay-what-you-want pricing strategies in a German consumer behaviour context

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Abstract: This paper focuses on the factors that significantly influence an individual’s decision in establishing a price for a standardised product under so-called pay-what-you-want (PWYW) circumstances. Current research has identified seven influential constructs that are assumed to be the main drivers of consumer behaviour when making a pricing decision in a PWYW environment: fairness, altruism, loyalty, price consciousness, income, satisfaction and reference price. This paper extends the list of influential factors with an additional construct, situational factors and examines the constructs’ relative importance with regard to their influence on a PWYW decision. Moreover, the positive effect of personal interaction on a buyer’s willingness to pay during a payment situation in the PWYW context was confirmed.

Keywords: pay what you want; PWYW; pricing; behavioural pricing; Big Mac index; willingness to pay; situational influences; pay as you wish; participative pricing; service pricing; Germany.


Biographical notes: Tim Dorn is a graduate student of Business Administration at the University of Cologne, Germany. He holds a Bachelor’s degree in Business Psychology from the Leuphana University of Lueneburg, Germany. Currently, he is pursuing his studies abroad at the Warsaw School of Economics in Warsaw, Poland. His academic education focuses on the impact of psychological aspects in an economic environment. His current research focuses on behavioural pricing issues in a globalised world, trying to grasp differences and similarities between various cultures.
1 Introduction

To determine the optimal price for a product or service is one of the hardest and also most important managerial decisions. The price of a product is a meaningful differentiation criterion for companies and a firm’s pricing strategy is a significant part of the marketing mix. In recent years, participative pricing strategies have gained popularity (Kim et al., 2009), the option to assign a certain extent of control with regard to the product price to the consumer was scientifically studied (Chandran and Morwitz, 2005; Gneezy et al., 2010, 2012) and participative pricing mechanisms are no longer limited to the classic auction model. An especially promising area of the participative genre is the so-called pay-what-you-want (PWYW) mechanism, through which buyers exert full control over the price of a product and literally pay what they want. Because of the unexpected but considerable economic success of this pricing strategy (Smith and Telang, 2012), which ranges from online music offers to real-life lunch buffets and services, both the functionality and the underlying behavioural basis of the innovative pricing mechanism have recently been the subject of discussion (Kim et al., 2009; Spann and Tellis, 2006).

As demonstrated by Kim et al. (2009), human beings are influenced by seven different constructs when they make pricing decisions under PWYW circumstances: fairness, altruism, loyalty, price consciousness, income, satisfaction and reference price. Because of the novelty of the PWYW pricing mechanism, the scientific basis for its underlying behavioural components is fairly limited and there have as yet been no examinations of, for instance, the relative importance of influential constructs on a PWYW decision. It is therefore essential to examine the influential constructs presented by Kim et al. (2009) in terms of their influence on a consumer’s willingness to pay (WTP).

The aim of this study is twofold: to begin with, we reveal a ranking of the constructs of influence with regard to their importance on the process of decision-making by means of an empirical study conducted in Germany. To further assess the situational character as well as the influence of varying levels of personal interaction between seller and buyer in the course of a PWYW decision, test subjects were put into three different social-interaction-oriented scenarios to test for a different ranking of influential
constructs for each respective situation. In addition, we discuss the effect of the situational context and the level of personal interaction of a PWYW decision on a customer’s WTP.

Section 2 starts with a theoretical discussion of the PWYW pricing mechanism and delves into the present state of scientific research projects that have focused on participative pricing, resulting in the deduction of the study’s research question and hypotheses. Subsequently, the research project’s methodological approach as well as the study design, the construction of the questionnaire and an explanation of its structure and contents are outlined, followed by a discussion of the preparation of the obtained data and their adjustment. The results of the study are presented, subdivided into findings relative to the consumer’s WTP and to outcomes relative to the ranking of influential constructs on a buyer’s PWYW decision. The final section reflects on the results of the study and concludes with a critique of the implementation and the methods used in the project and an outlook for further scientific projects.

2 Theoretical background

2.1 Participative pricing and PWYW

Among others, Kim et al. (2009) indicated that the most innovative feature of participative pricing strategies is the fact that consumers participate in the price-setting process, therefore exerting some control over the final price for the transaction. Chandran and Morwitz (2005) stated, “Participative pricing mechanisms differ on many dimensions, such as the nature and extent of participation required, the participants in the participative environment (number of buyers and sellers), whether it is computer mediated or not, whether participants can collude, and so on” (p. 258). Kunter (2012) mentioned that the main difference in participative pricing mechanisms lies in the number of consumers who participate: if more than two consumers participate in the same transaction, a differentiation between pricing mechanisms with competition between the buyers (auctions), the sellers (reverse auction) or on both sides (exchange) can be made. Moreover, he defined the difference in price negotiations and pricing mechanisms in cases in which only two participants (a seller and a buyer) are involved in the pricing process.

A final distinction is made between participative pricing mechanisms that involve two players: according to this criterion, Kunter (2012) named two mechanisms: name-your-own-price (NYOP) strategies and the PWYW model. In both, buyers are allowed to indicate their personal WTP for a specific product as an offer or bid to the seller. The difference between the two mechanisms is found on the seller side. Kunter stated that under NYOP conditions, the seller determines a threshold price, which is unrevealed to the buyer. Accordingly, Kim et al. (2009) noted that the seller in this scenario has the possibility to reject a buyer’s offer if it does not exceed or meet the predefined threshold price or to accept offers above the undisclosed threshold price (Spann and Tellis, 2006). NYOP sellers, therefore, have an influence on the final price of a product, thus protecting themselves to a certain extent. The most extreme example of a participative pricing mechanism might be the relatively new idea of PWYW. The distinctive feature of this pricing mechanism, according to Marett et al. (2012), is that
buyers are allowed to pay what they want for a product with no required minimum, including a prize of zero.

An understanding this pricing strategy, as well as its prerequisites and its use might be a critical success factor relative to regular pricing strategies. Jang and Chu (2012) presented two reasons why it has become an increasingly significant issue to understand why and how PWYW works: on the one hand is the economic success that can be achieved by diverse PWYW applications. On the other hand, an understanding of PWYW also helps all stakeholders understand consumers’ behaviour. Moreover, Spann and Tellis (2006) suggested that companies should not purely rely on behavioural models that assume strict rationality, as these models may neglect real behaviour in various contextual settings and ultimately lead to an application of suboptimal pricing strategies. This paper focuses on these situational factors and the influential decision aspects of the context in which a decision under PWYW conditions is made.

2.2 Prerequisites, success factors, instruments

First, the characteristics of the offered products are essential for the success or failure of a PWYW offer. As stated by Kim et al. (2009), ideal products for PWYW offers have high fixed costs but low variable costs (such as lunch buffets or drinks). Because of the low variable cost of a product, the seller could still achieve profits even if the prices paid are low; thus, low variable costs narrow the risk for the seller. Moreover, Kim et al. (2009, 2010) proposed that the PWYW pricing mechanism could be applied most successfully in capacity-constrained services if the capacity of the applying organisation is not fully used; that is, excess capacity (e.g., empty tables in a restaurant) is available. Therefore, PWYW offers are suitable as short-term promotional offers to use spare capacities and winning new customers. Schmidt et al. (2012) suggested that PWYW is most likely to be a successful pricing strategy for products with low marginal costs, which create a high value for the consumer, such as tickets for cultural events or museums. The authors also added that PWYW is best suited as a pricing mechanism for non-profit organisations and small shops rather than for highly profitable and large companies. Furthermore, Kim et al. (2009) noted that high-priced products are not suitable for the PWYW approach as the incentive to obtain a good deal may outweigh other potential factors that have a positive influence on a customer’s WTP for lower priced products.

Concerning the spread of participative pricing mechanisms, a significant role has been attributed to the internet. Chandran and Morwitz (2005) and Haws and Bearden (2006) indicated that such mechanisms have recently re-emerged as viable strategies, with the internet making these mechanisms available for a wide range of services and products. Spann and Tellis (2006) located the reason for this spread via the internet in the low transaction costs of trade on the internet. Marett et al. (2012) described an online store as the ideal marketplace in which to realise the benefits of PWYW transactions because of the low marginal costs of reproduction and the suitable method of distribution of digital products. Based on the assumption of a consumer’s rationale, the internet in particular seems to represent a tricky environment for PWYW pricing mechanisms, as many consumers may take advantage of the anonymity of the internet and buy products for a price of zero, a practice known as free riding. Nonetheless, Spann and Tellis (2006) showed that the majority of consumers do not decide solely by this rationale despite the convenience of the internet to the consumers. Additionally, the continuing success of internet-based PWYW products such as the Humble Bundle gives proof that very few
consumers make use of the anonymity the internet provides to free ride. Thus, it is essential to analyse the PWYW pricing mechanism in terms of consumer behaviour and the factors and constructs that influence consumers’ decisions to pay for the product, even if they are given the possibility to free ride.

2.3 Consumer behaviour within PWYW

According to Greiff et al. (2013), the theories discussed in this context refer to the concepts of reciprocity, fairness or consumer satisfaction with the product. Kim et al. (2009) also included social exchange norms in their explanations of consumer behaviour in a PWYW environment, as a PWYW decision is more likely to be driven by behavioural aspects than by mere economic exchange norms.

Gneezy et al. (2010) and Marett et al. (2012) suggested that a PWYW offer above the price of zero indicates that the potential buyer is interested in the product’s continuous availability in the market, as he pays a minimum price for it. According to the authors, the implementation of a PWYW strategy also signals retailers’ confidence in their product’s quality, as lower prices also can compensate for cheap quality. Marett et al. (2012) also were convinced that retailers should have a strong and firm customer relationship, as social factors are crucial for the success of a PWYW pricing strategy. Gneezy et al. (2012) most recently discovered the importance of individuals’ self-image on their non-selfish behaviour in markets. People who are especially concerned about their self-image are most likely to pay for products they could also get for free, as they do not want to look cheap, even to themselves.

Finally, the aspect of exceeded or perceived control is influential in PWYW decisions. Chandran and Morwitz (2005) showed that individuals with high levels of perceived control have a greater intent to purchase and prefer participative pricing mechanisms to predetermined prices.

Kim et al. (2009, 2010) conducted two series of experiments to detect the motives that underlie a payment under PWYW conditions and to prove them scientifically. The authors located seven influential factors they referred to as ‘constructs’ [Kim et al., (2009), p.50] to examine the prices paid under PWYW conditions. These influential constructs are: fairness, altruism, loyalty, income, price consciousness, satisfaction and reference price.

Additionally, another factor is currently thought to have a major influence on a buyer’s WTP under PWYW circumstances. As shown in practical experience, the outcomes of PWYW offers on the internet and in ‘offline’ interaction settings sometimes differ. Whereas ‘offline’ PWYW offers generally lead to increased revenues and increased numbers of customers, online PWYW deals are sometimes used by free riders. Because of this dissimilar consumer behaviour, it is likely that another contextual factor has an increased influence on the PWYW decision.

The main difference between these two PWYW environments is the level of personal interaction between buyer and seller. Thus, the different findings of online and offline PWYW offers could be based on some form of social exchange/interaction/norms that only influence buyers if they step into a direct, personal interaction with the seller. Regner (2010), Lee et al. (2011) and Santana and Morwitz (2011) all found strong support for the effects of social forces on the consumer’s payment behaviour. Kunter (2012) examined the concept of social norms in more detail and differentiated between two types of social influences. Whereas intrinsic motivational aspects on the buyer side
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are already accounted for in Kim et al.’s (2009) constructs of altruism and fairness, Kunter (2012) further examined the extrinsic dimension of motivation and referred to it as social pressure. In this case, the buyer does not actually care about the seller but does not want his/her disapproval or to be perceived as egoistic. Therefore, Kunter (2012) concluded that the observance of the payment (made by the buyer in a PWYW context) by the seller or a third party influences the buyer’s WTP.

Regner and Riener (2012) and Regner (2010) cited social pressure as an additional influence on the buyer’s WTP in the PWYW context in interaction with the vendor. Finally, Lee et al. (2011) discovered that buyers show a higher WTP if they are motivated to make a favourable impression on others, mainly based on individual concerns about what their WTP signals. Lee et al. (2011) suggested that the influence of impression motivation is predominantly mediated by prestige concerns and by the presence of other persons.

Because of the fact that this construct tries to grasp the agreeableness of the behaviour in a social context and has not yet been named uniformly, we use the term social agreeableness in this paper.

2.4 Research question and hypotheses

Based on the preceding considerations about social agreeableness, the influence of this social construct on a buyer’s WTP was outlined. On the basis of current research findings, the amount of social interaction in a PWYW offer has been proved to have an impact on a customer’s WTP. Carter and Curry (2010) found evidence that transparent pricing mechanisms (such as PWYW) trigger social components of utility, which in turn have a positive impact on an individual’s WTP. Lee et al. (2011) and Regner (2010) examined the positive influence of the observation of third parties (e.g., friends or sellers) on a customer’s WTP. Marett et al. (2012) noted that the buyer-seller interaction, which is strongly influenced by social exchange, makes consumers choose to pay a price higher than zero. Furthermore, the authors suggested that this form of face-to-face interaction is reduced in an online marketplace; therefore, impression-management concerns are of less influence in situations with reduced social presence between parties. Because impression-management concerns are a main driver of the social agreeableness construct, it can be hypothesised that:

H1 With an increased amount of social presence and observation between the parties, social agreeableness gains more importance as an influential construct on a PWYW decision.

Closely related to the influence of social agreeableness in various situations are considerations about an individual’s WTP in scenarios with various levels of personal interaction between buyer and seller. Regner and Barria (2009, as cited in Marett et al., 2012) presented the online PWYW marketplace as an option one can use to avoid the experience of guilt from paying a price equal to zero for a product because of the lack of face-to-face interaction between buyer and seller. Marett et al. (2012) explained this phenomenon by stating that consumers do not perceive a sufficient level of social interaction when purchasing products online under PWYW conditions and therefore are able to pay low prices without the fear of social disapproval. Equally, the authors outlined findings that suggest that impression-management concerns in interactions with strong social presence ultimately lead to a higher buyer WTP than required. Jang and Chu
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(2012) inferred that the awareness of a second party (i.e., sellers or friends) in a PWYW decision has a positive influence on the consumer’s WTP. Thus:

$H_2$ With an increased amount of social presence and observation between the parties, the buyer’s WTP also increases.

Finally, Marett et al. (2012) noted that reduced social presence also influences the impact of related constructs such as fairness, loyalty and altruism. Other studies from Gneezy et al. (2012), Haws and Bearden (2006) and Mills (2011) have examined participative pricing or PWYW in various situative settings and found different constructs to be of major influence for the particular situation. Kim et al. (2010) suggested that some variables, such as the type of contact or situational factors, have an impact on the underlying influential constructs of a PWYW decision. Thus:

$H_3$ The importance of the influential constructs for a PWYW decision depends on the situation in which the PWYW decision is made and differs between these various situations.

3 Methodology

3.1 Data collection

An experimental setting was chosen; the research was conducted online, presenting hypothetical scenarios to create a suitable measurement to assess the price a consumer would pay under PWYW circumstances for a product. The amount of money exchanged in the PWYW offers in the online questionnaire was determined by the consumer’s WTP. The WTP measures the monetary value a potential buyer would be willing to spend on a specific product and, according to Homburg et al. (2005) and Marett et al. (2012), represents a significant and well-established instrument in the marketing and economics literature.

To examine the situational character of a PWYW decision, the participants needed to face different PWYW payment scenarios. For all situations, the amount of social presence and interaction was the independent variable, whereas the WTP and the influence of the constructs on the WTP are the dependent variables. Based on the proof of various scientific studies about the effect of social pressure and observation in the PWYW context (e.g., Santana et al., 2011; Gneezy et al., 2012; Lee et al., 2011), the participants were asked to put themselves into three different scenarios. The only difference between the scenarios was the amount of personal interaction between buyer, seller and a third party. Therefore, the questionnaire manipulated whether the payment was made privately (situation 1), publicly (situation 2) or publicly under observation by a third party (situation 3). With $ceteris paribus$, this manipulation allowed an assessment of the influence the amount of social presence on the consumer’s WTP and on the influence of the constructs.

The most important choice that was made concerning the underlying method of the questionnaire was the selection of the method for the assessment of the importance of the influential constructs. Jungermann et al. (2010) suggested multiple ways to obtain data about the importance if the consequences of a decision have a multi-attribute structure. For this purpose, the ranking method was chosen and applied to assess the important of
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the influencing construct. According to this method, the participants were asked to form a ranking through which they sequenced the five factors that influenced them the most during the process of decision-making. The participants were asked to rank the potential influencing constructs for each situation from 1 to 5, with rank 1 representing the most influential factor in making the decision.

3.2 Reference product

Because the questionnaire was processed by a heterogeneous sample, it was necessary to have a homogeneous reference product that is standardised, comparable and equal for all participants to guarantee a bias-free comparison of the data. For this purpose, the McDonald’s Big Mac was chosen as the ideal, standardised product.

First, McDonald’s Big Mac has been used for other scientific research projects. In 1986, The Economist introduced the Big Mac as the perfect product for examining the purchase power parity (PPP) aspects of different currencies. Furthermore, the Big Mac is an end product that is ready for immediate consumption without further processing.

Finally, the Big Mac is a quite popular product, what makes it plausible to assume that most participants have already eaten one. Therefore, the user experience in most cases already exists. Thus, the buyer has an existing reference system for this product and the processing of the questionnaire can be achieved without the direct consumption of the named product.

3.3 Structure and contents of the questionnaire, sample

Overall, the questionnaire, which was distributed to the sample, consisted of 43 questions. The first three questions dealt with the participant’s personal experience with the reference product of the survey. After having been asked about the prominence and the consumption of the Big Mac, the participants had to make their first PWYW decision concerning the Big Mac. This question did not simulate any specific situation but was employed to make the survey participants familiar with the PWYW pricing mechanism and the indication of a personal WTP.

Afterward, the first scenario (S1) was presented. All scenarios confronted the participants with a PWYW offer to purchase a Big Mac, only differing in the level of social presence and observation. Throughout the first situation, the participants had the option to purchase a coupon for a Big Mac (under PWYW conditions) online and totally anonymously. The price they would pay for the voucher would neither be remarked upon nor be traceable on the coupon and the coupon could be used any time at McDonald’s. Therefore, full anonymity and no personal interaction were guaranteed in S1. Thus, question six asked for the survey participant’s WTP considering the circumstances of S1.

After asking each participants consent to a variety of verbalised statements that represent the distinctive features of each construct, the second situation (S2) was presented to the survey participants. In S2, the participants were enabled to name their own price while purchasing a Big Mac at McDonald’s in direct contact with the staff. Repeatedly, the consumer’s WTP was request using a free-text field. Subsequently, questions 16 to 22 constituted the second series of operationalised items of influential constructs.

Afterward, the third situation (S3, in which the survey participants are accompanied by their friends, who have been observing the PWYW decision and the individual WTP
while buying a Big Mac) was presented and the participants were asked to indicate their WTP for a Big Mac considering these circumstances. The special difference in this scenario was related to the observation of third parties categorised as friends. Lee et al. (2011) observed that individuals’ WTPs increase when they are observed by a person on whom they wish to make a favourable impression.

Because the study aims to obtain a deeper understanding of the constructs that influence the decision-making process as well as the hierarchical order among them, the respondents also were asked to form a ranking of the influential factors in terms of their importance. The introductory explanation was followed by a register that listed 10 possible answers (eight influential constructs and two free-text passages). The answer choices were composed of a verbalisation of the influential constructs.

The participants were asked to form a ranking, in which they ranked the five factors that influenced them the most during the process of decision-making. To form the ranking, every rank (1–5) was assigned one of the answer options from the given list of constructs, with rank 1 representing the most influential factor in the decision. In case that the provided eight constructs were regarded as inapplicable by the study participants, the possibility to name two additional influential factors was given at the end of the register by means of two free-text passages. According to this scheme, the ranking for all three scenarios was formed consecutively.

At the end, participants were asked for the price paid during their last visit at McDonald’s for the Big Mac (i.e., the reference price). To conclude the questionnaire, demographics such as gender, nationality, age, monthly net income and profession/occupation were requested.

The participants in this study were German persons, mainly students and members of a university. Recruiting and processing were conducted online. The survey then was conducted online via Google Docs, taking place from 12 December 2012 to 12 February 2013. During the mentioned period, a sample of N = 157 persons, with an average age of 22.3 years, answered the online questionnaire.

3.4 Data preparation

Participants who indicated that they did not know the Big Mac were excluded from the subsequent analysis (only three cases). Because those participants did not have a mental valuation model for the reference product, their answers would impose a certain bias upon the survey.

Final adjustments were made according to the answers given to the questions that asked for the participant’s WTP. If no WTP was indicated for one or more of the three pricing situations, the survey participant was excluded from the final evaluation (four participants were eliminated for this reason). This process further increased the comparability of the WTP between the situations, as all scenarios had the same sample size. Moreover, this approach increased the validity of the hypothesised price increase between the situations, as every average price was calculated for the same number of cases.

Outliers were not subject to adjustment, as their existence characterises the PWYW pricing strategy. A WTP of zero Euros represents the lower boundary of the possible price spectrum and depicts a thoroughly realistic option for the buyer. Also, seemingly high prices cannot be classified as outliers without further ado, as they also belong to the range of possible prices under PWYW conditions and support the attractiveness of the
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Another adjustment was made during the process of evaluating the free-text responses of the ranking. By choosing ‘Other, namely’, participants were given the possibility of indicating further influences on their decision. The first step was controlled if the free-text responses matched one of the given influential constructs. If an analogy was found, the corresponding predetermined construct was put in the appropriate ranking position instead of ‘other, namely’.

If a participant chose ‘Other, namely’ but did not write a response in the free-text field, the assigned rank was coded as invalid, as no assumptions about the potential influence could be made. Subsequent constructs that have been ranked as valid were assigned their initial ranks so that the zero in between the ranking did not influence the primary form of the ranking. This approach ensured incorporation only of various concrete, influential answer choices. Moreover, the use of invalid within the ranking ensured that the initial form of the ranking and constructs were not upgraded or revalued because of shifts, displacements and speculations.

Subsequently, the received data about the relative importance of the influential constructs on the consumer’s decision needed to be transformed to create a ranking of the influential constructs.

As a result of the ranking process within the questionnaire, an ordinal-scaled ranking of each individual’s top five most influential constructs was revealed. In a further process of transformation, a score was assigned to each rank, representing the rank number score 1 for rank 1, etc.). In the end, all scores received by a construct were summed up and divided by the number of participants who attributed that score to the construct. The resulting average ranks were transformed to real ranks (rank 1 to 9) according to their ranking.

4 Results

First, the indicated WTP in the three scenarios was the initial subject of examination. To evaluate these findings in terms of a normal distribution, a Kolmogorov-Smirnov test was executed (Table 1). Because none of the three situations showed a normal distribution of their values, the obtained data could not be controlled for homogeneity of variances and a non-parametric test for dependent samples was needed. Thus, the Wilcoxon test was used to examine these differences.

<table>
<thead>
<tr>
<th>Test for normal distribution</th>
<th>Kolomogorov-Smirnoff Statistics</th>
<th>df</th>
<th>Significance</th>
<th>Shapiro-Wilk Statistics</th>
<th>df</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1€</td>
<td>.256</td>
<td>147</td>
<td>.000</td>
<td>.842</td>
<td>147</td>
<td>.000</td>
</tr>
<tr>
<td>S2€</td>
<td>.172</td>
<td>147</td>
<td>.000</td>
<td>.905</td>
<td>147</td>
<td>.000</td>
</tr>
<tr>
<td>S3€</td>
<td>.173</td>
<td>147</td>
<td>.000</td>
<td>.897</td>
<td>147</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: *Lilliefors correction
Table 2a  Wilcoxon test for the statistical significance of the differences of the means in S1 and S2

<table>
<thead>
<tr>
<th>Ranks</th>
<th>N</th>
<th>Medium rank</th>
<th>Rank-sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2€–S1€</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative ranks</td>
<td>28</td>
<td>37.70</td>
<td>1,055.50</td>
</tr>
<tr>
<td>Positive ranks</td>
<td>59</td>
<td>46.99</td>
<td>2,772.50</td>
</tr>
<tr>
<td>Ties</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>147</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: aS2€ < S1€, 
bS2€ > S1€, 
cS2€ = S1€

Table 2b  Wilcoxon test for the statistical significance of the differences of the means in S1 and S2

<table>
<thead>
<tr>
<th>Statistics for testa</th>
<th>S2€–S1€</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>-3.651</td>
</tr>
<tr>
<td>Asymptotic significance (two-sided)</td>
<td>.000</td>
</tr>
</tbody>
</table>

Notes: aWilcoxon test, 
bBased on negative ranks

The differences of the means of S1 and S2 are highly significant (Table 2). Twenty-eight participants indicated that they would pay a lower price in S2 than in S1. Nevertheless, 60 test participants would have paid the identical price they had paid in the preceding situation and 59 participants were willing to pay a higher price. The resulting level of significance is \( p = .000 \), which is highly significant.

The comparison of the means of S1 and S3 was even more considerable, as only 18 persons paid a lower price in S3 than in S1, 58 paid the identical price and 71 indicated a higher WTP, leading to a highly significant difference with \( p = .000 \). Because of the high number of equal prices between S2 and S3 (101 identical prices), the level of significance between these scenarios was only very significant, with \( p = 0.003 \). This finding attributes definite importance to the differences between each situation and requires a further examination of the circumstances under which each WTP was indicated.

The second part of the statistical evaluation dealt with the ranks the participants attributed to the various constructs in each situation [Tables 3(a)–3(c)]. Because all participants were asked to indicate their five most influential constructs (out of a selection of ten answer choices), many survey participants’ results displayed different constructs as influential factors for each situation. However, the Wilcoxon test can only indicate the differences in the average ranks of the constructs, which have been ranked in both situations that should be compared. If a construct did not appear in the first ranking but was influential in the second ranking, the Wilcoxon test is not able to consider this change and does not include this case. Thus, this test examines only the difference of the results of participants who indicated the construct in both situations as influential.
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Table 3a  Ranking of S1 constructs (Germany)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Rank</th>
<th>Average rank</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairness</td>
<td>1</td>
<td>2.3</td>
<td>106</td>
</tr>
<tr>
<td>Price consciousness</td>
<td>2</td>
<td>2.44</td>
<td>127</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>3</td>
<td>2.86</td>
<td>111</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>2.92</td>
<td>49</td>
</tr>
<tr>
<td>Income</td>
<td>5</td>
<td>2.95</td>
<td>124</td>
</tr>
<tr>
<td>Reference price</td>
<td>6</td>
<td>3.44</td>
<td>66</td>
</tr>
<tr>
<td>Loyalty</td>
<td>7</td>
<td>3.94</td>
<td>19</td>
</tr>
<tr>
<td>Altruism</td>
<td>8</td>
<td>3.96</td>
<td>28</td>
</tr>
<tr>
<td>Social agreeableness</td>
<td>9</td>
<td>4.18</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 3b  Ranking of S2 constructs (Germany)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Rank</th>
<th>Average rank</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fairness</td>
<td>1</td>
<td>2.43</td>
<td>112</td>
</tr>
<tr>
<td>Price consciousness</td>
<td>2</td>
<td>2.49</td>
<td>124</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.53</td>
<td>32</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4</td>
<td>2.71</td>
<td>109</td>
</tr>
<tr>
<td>Income</td>
<td>5</td>
<td>3.09</td>
<td>112</td>
</tr>
<tr>
<td>Reference price</td>
<td>6</td>
<td>3.37</td>
<td>68</td>
</tr>
<tr>
<td>Social agreeableness</td>
<td>7</td>
<td>3.56</td>
<td>48</td>
</tr>
<tr>
<td>Altruism</td>
<td>8</td>
<td>3.97</td>
<td>33</td>
</tr>
<tr>
<td>Loyalty</td>
<td>9</td>
<td>4.13</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 3c  Ranking of S3 constructs (Germany)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Rank</th>
<th>Average rank</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price consciousness</td>
<td>1</td>
<td>2.54</td>
<td>119</td>
</tr>
<tr>
<td>Fairness</td>
<td>2</td>
<td>2.63</td>
<td>116</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.79</td>
<td>28</td>
</tr>
<tr>
<td>Social agreeableness</td>
<td>4</td>
<td>2.86</td>
<td>77</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>5</td>
<td>2.93</td>
<td>104</td>
</tr>
<tr>
<td>Income</td>
<td>6</td>
<td>3.14</td>
<td>106</td>
</tr>
<tr>
<td>Altruism</td>
<td>7</td>
<td>3.31</td>
<td>32</td>
</tr>
<tr>
<td>Reference price</td>
<td>8</td>
<td>3.33</td>
<td>63</td>
</tr>
<tr>
<td>Loyalty</td>
<td>9</td>
<td>4.06</td>
<td>18</td>
</tr>
</tbody>
</table>
Table 4: Wilcoxon test for the examination of the statistical significance of the differences of the means of the ranks of all situations (Germany)

<table>
<thead>
<tr>
<th>Statistic for test</th>
<th>S2 altruism–S1 altruism</th>
<th>S3 altruism–S1 altruism</th>
<th>S3 altruism–S2 altruism</th>
<th>S2 loyalty–S1 loyalty</th>
<th>S3 loyalty–S1 loyalty</th>
<th>S3 loyalty–S2 loyalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td>–.042 b</td>
<td>–2.156 b</td>
<td>–1.728 b</td>
<td>.000 a</td>
<td>–1.732 b</td>
<td>–1.265 b</td>
</tr>
<tr>
<td>Asymptotic significance (two-sided)</td>
<td>.967</td>
<td>.031</td>
<td>.084</td>
<td>1.000</td>
<td>.083</td>
<td>.206</td>
</tr>
</tbody>
</table>

| Z                 | –1.039 b                  | –2.345 b                | –2.702 c                | –.922 b              | –.690 b              | –1.278 b             |
| Asymptotic significance (two-sided) | .299                      | .019                    | .007                    | .356                 | .400                 | .201                 |

| Asymptotic significance (two-sided) | .800                      | .401                    | .549                    | .580                 | .933                 | .861                 |

| Asymptotic significance (two-sided) | .057                      | .026                    | .573                    | .010                 | .000                 | .000                 |

Notes: a Wilcoxon test, b Based on negative ranks, c Based on positive ranks, d Sum of negative ranks equals sum of positive ranks
Nonetheless, the results of the test can be considered expressive, as a new appearance of a construct in a participant’s ranking for a different situation shows the increased importance of the construct for the noted scenario. Because the construct did not belong to the five most influential constructs in the preceding situation, its rank must have been at maximum rank six. If this result had been included in the ranking for the construct in the preceding situation, the construct’s average rank would have been lower. Therefore, an incorporation of the missing constructs would widen the difference between the average ranks of the constructs and the results would become more significant.

The results of the Wilcoxon test (Table 4) concerning the statistical significance of the differences of the average ranks of social agreeableness in S1 and S2 have been highly significant with $p = .010$. Thus, the ascent of the construct social agreeableness from rank 9 to rank 7 is statistically highly significant. Otherwise, no further change in the ranking of the constructs from S1 to S2 could be proven to be of statistical significance.

In comparison to S2, the ranking of the influential constructs changed drastically in S3 [Table 3(c)]. The most influential construct in S3 was price consciousness with an average rank of 2.54. With an assigned average rank of 2.63, fairness obtained rank two for the German participants in S3. This descent from rank 1 in S1 and S2 to rank 2 in S3 was significant for the comparison of S1 and S3 with $p = .019$ and very significant for the comparison of S2 and S3 with $p = .007$.

Social agreeableness obtained rank four within the overall ranking of S3. Also, for the two comparisons with S2 and S1, the differences were highly significant with $p = .000$, which indicates the increased importance of the construct social agreeableness on a participant’s decision in S3 compared to the preceding situations.

The influence of satisfaction and income decreased in S3 in comparison with S1 and S2, resulting in an average rank of 2.93 and overall rank of 5 for satisfaction and 6 with an average rank of 3.14 for income. Altruism was ranked seventh with an average rank of 3.31, which is a statistically significant change in comparison to the average rank of 3.97 in S1 with $p = .31$. Reference price obtained rank 8 in S3 and loyalty was chosen as the least influential construct with an average rank of 4.06.

Therefore, these findings show that the level of social presence and the situation in which a PWYW decision is made impact the ranking of influential constructs with regard to their relative importance as well as the respective customer’s WTP.

5 Discussion and outlook

5.1 Interpretation

Hypothesis one assumed that the construct social agreeableness would gain importance throughout the three situations. The higher the level of social presence in a specific situation, the higher the relative rank of social agreeableness compared to the other influential constructs. The results of this study reflect these considerations: social agreeableness obtained higher ranks in S2 and S3 than in S1. With a statistical significance of $p = .01$, the change in ranks of social agreeableness from rank 9 in S1 to rank 7 in S2 is very significant. Also, the ascent of the construct to rank four in S3 was highly significant in comparison with the two other scenarios, with $p = .000$ respectively. Thus, $H_1$ is confirmed for the underlying sample: the amount of social presence and
personal interaction of a situation significantly affects the impact of the influential construct social Agreeableness on a PWYW decision. An increased level of personal interaction results in a higher influence of social Agreeableness on an individual’s decision.

Further, this finding casts doubt on an assumption made by Lee et al. (2011): in an outlook, the authors stated that buyers might become less price conscious in situations in which they are motivated to make a favourable impression. Assuming that this kind of situation can be compared with S2 and S3 of the present study (as what others think of the individual is of significantly higher importance for S2 and S3), the influence of price consciousness in the situations can be investigated. Most interestingly, the influence of price consciousness on the WTP of the participants did not change significantly between the situations, even though social Agreeableness had a significantly higher impact on the survey participant’s WTP. Therefore, it can be assumed that the level of social presence in a situation (and thus also the image concerns related to the specific situation) does not influence the price consciousness of buyers in such situations.

Hypothesis two, which assumes that an increased amount of personal interaction and social presence has a positive effect on a consumer’s WTP, was unrestrictedly confirmed. An increase in the consumer’s WTP from S1 to S2 and from S2 to S3 was noted and was examined in terms of statistical significance. The executed Wilcoxon tests assigned every increase either high or very high statistical significance. Thus, the increase in a buyer’s WTP between two situations is not coincidental but can be ascribed to the situational context of each scenario. Because the only difference between the three situations was the level of social interaction, the increased WTP can be seen as a product of the increased amount of personal interaction.

These findings further confirm preceding results of various PWYW studies. Santana and Morwitz (2011) noted that the visibility of a payment decision in a participative pricing environment positively influences a consumer’s WTP. Also, Lee et al. (2011) found that the presence of a third party on whom persons want to make a good impression positively influences the prices paid. In particular, the increase in the participant’s WTP from S2 to S3 supports this finding. Finally, the present study affirms the observations of Jang and Chu (2012), who stated that the observance of a PWYW decision is not a necessary condition for the success of a PWYW offer, as people also show a WTP above zero in scenarios that involve total anonymity (identical results have been obtained in S1 of this study). Nevertheless, the present study proves that customers’ PWYW decisions increase their WTP.

Finally, the third hypothesis assumed that the importance of influential constructs also differs with regard to the situational context of a PWYW decision. This hypothesis basically represents an extension of H1 as it expects social presence as a situational driver to influence the ranking of importance of the constructs between the situations. This assumed alteration in the ranking between S1, S2 and S3 is illustrated in Tables 3(a)–3(c) and the situational differences of the influences seem apparent. The results show a significant change in the importance of the constructs altruism, fairness and income on the participants’ WTP from S1 to S3, revealing that fairness and income are less influential in S3 than in S1. Moreover, the influence of altruism increased from S1 to S3, which suggests that consumers’ altruistic concerns are of increased importance in S3 than in S1. These findings seem plausible, as the level of social presence and personal interactions also increased from S1 to S3. Fairness concerns (the main reason that people pay even if they do not have to), which have been a main driver of influence under total
anonymity, are less influential in situations with social presence. Vice versa, altruistic thoughts play a bigger role in situations with a high level of face-to-face interaction (S3). Additionally, the statistically significant decrease of importance of fairness from S2 to S3 underlines these assumptions. As already noted in the discussion of H1, the increasing influence of social agreeableness in S2 and S3 also was proven to be statistically significant. Thus H3 also is confirmed: the situational context of a decision (in this case, the amount of social presence and personal interaction of a situation) significantly affects the underlying motives and influential constructs of a PWYW decision.

However, one apparent contradiction needs to be examined in more detail: although price consciousness was named as the most influential construct throughout S3, the WTP in that situation was the highest. This finding seems to be inconsistent at first, as a more price-conscious customer is not likely to show a higher WTP but instead would be expected to be willing to pay less for the offer than in the previous situations. Yet, this inconsistency can be assessed fairly easily: as the method of average rank was used to align the influence of the constructs on a customer’s WTP, the final ranking of the constructs in each situation only explains the relation of the constructs among themselves for this specific situation; it is not appropriate to compare the situations only on the basis of the absolute ranks. Accordingly, price consciousness obtained an average rank of 2.44 in S1 and 2.49 in S2 but only an average rank of 2.54 in S3. However, as the highest average rank in S3 was 2.54, price consciousness became the most influential construct in S3, as the other constructs received overall lower average ranks. To assess the statistical significance of these findings further, a Wilcoxon test then showed the relations of the constructs between the situations in terms of their significance. As shown by the results of this test (Table 4), the change in absolute ranks between the situations of the construct price consciousness have not been statistically significant, meaning that the seemingly increased influence of price consciousness on a customer’s WTP from S1 to S3 could not be proven statistically. This is why the reason for the statistically significant change in the customer’s WTP from S1 to S3 has to be related to other factors that have been proven to be statistically influential. The most apparent explanation, therefore, is the significant uplift of the construct social agreeableness from S1 to S2 and S3, alongside increased altruism considerations, which also are statistically significant and are attributable to greater social presence and observation in S2 and S3.

Another interesting finding is the fact that the spread of the average ranks decreased from S1 to S2 and to S3. This reveals that the importance of the influential constructs is much more balanced in S2 or S3 than in S1. In situations that involve a high level of personal interaction, all influential constructs become important. Scenarios that simulate a lower level of social presence or total anonymity enable the buyer to neglect certain influences in their decisions in these situations. Also, the level of social presence positively contributes to a balanced importance among the influential constructs.

5.2 Methodological critique

It has to be taken into consideration that the study dealt with imagined or simulated situations instead of real-life events. Whereas the circumstances of a PWYW offer can be simulated relatively easily, the individual situation of a participant cannot be modulated or considered. Especially for a product that requires a certain extent of a frame of mind to receive a higher WTP (as does the Big Mac with hunger or at least appetite), this
individual motive of a survey participant could be decisive and cannot be addressed by this questionnaire.

Moreover, the measurement of the WTP does not reflect the actual price paid in a buyer-seller interaction process. Actual prices paid are likely to be lower than indicated WTP in a questionnaire. Marett et al. (2012) tested this assumption in an actual PWYW context and found that the WTP and the actual prices paid represent conceptually distinct measures. By further referencing other studies, the authors suggested that the WTP indicates instead the maximum amount a survey participant intends to pay rather than reflecting the price that would be paid in a real PWYW situation.

5.3 Outlook for further research

Additional research that focuses on the importance of the underlying influences of a PWYW decision are necessary for further study of this topic. An important extension would be a thorough attempt to measure a buyer’s utility functions for the influential constructs to assess the measurement of the importance of behavioural components with a different approach. Building on this idea, an application of compensatory decision rules on the PWYW approach could create an extensive framework for sellers to optimise their PWYW offers and to predict consumer behaviour more accurately in participative pricing contexts.

Also, a further elaboration of social concerns in the PWYW environment is needed. The influence of social forces in addition to fairness motives or altruistic objectives was proven in this study. The development and application of a holistic social construct, which is distinctly selective form constructs such as altruism, fairness and loyalty, would be of great importance in evaluating these social influences precisely.

Furthermore, a detailed examination of the offered products and the suitable channels for PWYW offers would be interesting. A correlation between these two factors could be informative, as some channels might exclusively be suitable for PWYW offers of a certain type of product.

Finally, the field of intercultural PWYW research needs to be expanded. The obvious influence of cultural aspects on the way PWYW decisions are made, on the economical success of the pricing strategy or on the products that can be offered under PWYW conditions should be discussed. It is likely that individuals in culturally differing areas also have different motivations to take part in participative pricing.

Reference


Is it really worth it? A test of PWYW pricing strategies


Notes

1. ‘Offline’ interaction settings refer to all PWYW offers that have not been conducted online.
2. Such answers could not be given for specific products the buyer had not had any experience with, such as lunch buffets of different quantity and quality.
3. Altruism = I intended to do good towards the other; loyalty = I am a loyal customer of McDonalds; fairness = I wanted to pay a fair price for the Big Mac; satisfaction = by my satisfaction with the Big Mac; price consciousness = by my price consciousness; reference price = by the price I paid the last time, when I bought a Big Mac; income = by my own personal income; social agreeableness = by the things others think about me; other influence = other, namely – please use the description field.
5. I.e., subject A did not indicate ‘social agreeableness’ as an influential factor in S1, but included it in his/her rankings for S2 and S3.
6. Based on the relative ranks of influence the construct ‘price consciousness’ even gained in importance, which could not be proven statistically.
7. I.e., throughout S1, subjects ranked the construct ‘fairness’ with an average rank of 2.3 as their most influential construct and ‘social agreeableness’ as their least influential construct with an average rank of 4.18. In S3 the most influential construct (‘price consciousness’) had an average rank of 2.54 and ‘loyalty’ (least influential) was assigned the average rank of 4.06. The difference between the top position and the lowest rank in S1 was 1.88; in S3 this variation only was 1.52.