

# Buyers Beware: Online Pricing in Operation! How the Framing of Mandated Behavioral Pricing Disclosure Influences Intention to Purchase

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Online businesses collect a wealth of data on customers, often without properly informing them. Sometimes these data are used for behavioral pricing: the secret utilization of behavioral customer information and profiling techniques in online B2C commerce to set a reservation price that optimally captures the price an individual customer is willing to pay and which in reality may be different from prices offered to others. This article explores how consumers respond if businesses were under a duty to disclose the use of behavioral pricing techniques to customers. Using different disclosure frames, it studies the effects of disclosure on purchase intention and purchase probability. The findings indicate that specific disclosure frames affect purchase intentions and that different frames have different effects. Interestingly, it is not so much the frame per se, but rather the content of the information disclosure that affects purchase intentions. Specifically, a disclosure frame that is relatively more in line with self-interest, may increase purchase intentions. In this way, the study draws attention to a potentially unanticipated effect of regulatory intervention. Implications for future research and legal policy are discussed.

Key words: Behavioral Pricing; Mandatory Disclosure; Warning Frames; Intention to Purchase

## I. INTRODUCTION

Online traders have a wealth of information on their customers which they may process and use to the advantage of their customers and also to their own commercial advantage. Indeed, some have argued that traders will exploit any opportunity to take advantage of psychological or informational weakness of consumers, if necessary by use of manipulation and deception (Akerlof & Shiller, 2015). Nowadays, opportunities abound with the advent of sophisticated techniques for building customer profiles that enable online businesses to make personalized offers to their customers, both in terms of what is offered and at what price the offer is made. One of these practices, behavioral pricing, involves the use of customer profiling techniques in online B2C commerce to set a reservation price that optimally captures the price an individual customer is willing to pay and which in reality may be lower or higher than prices offered to others (Gelbrich, 2011; Kannan & Kopalle, 2001). As an effective form of third-degree price discrimination, behavioral pricing is known to increase a seller's profits (Elmaghraby & Keskinocak, 2003). Customers are typically unaware of the use of this technique, as is the case with several other marketing practices (e.g., Baker, Dickinson, & Hollander, 1986; Gelbrich, 2011; Goodwin, 1991; Rust, Kannan, & Na, 2002). However, the difference with pricing techniques based on differential factors such as day and time of sale, is that behavioral pricing enables traders to

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offer an individualized price to customer X based on its behavioural personal profile as stored in and derived from X's profile, not on whether the general demand for the item on sale is higher or lower at a given point in time. When informed of dynamic pricing practices, consumers may appreciate that the price they pay is higher because of a surge in demand on particular times of the day (Kahneman, Knetsch, & Thaler, 1986; Martin, Ponder, & Lueg, 2009). Yet, they may be less understanding if it turns out that the price they pay for exactly the same product on the exact same date and time is higher than the price paid by other consumers for the mere reason that computer algorithms can discretely estimate who is less price sensitive or has more to spend. Perhaps these consumers may feel tricked and abused if they found out. Indeed, the literature on perceived price fairness consistently and convincingly shows that individuals develop negative emotions and distrust towards businesses that engage in discriminatory pricing practices (Xia, Monroe, & Cox, 2004). Perceived fairness, trust and repurchase decisions of disadvantaged consumers' are negatively affected (Garbarino & Maxwell, 2010; Grewal, Hardesty, & Iyer, 2004; Haws & Bearden, 2006), whereas advantaged consumers tend to experience a host of positive and negative emotions (Gelbrich, 2011). Hence, behavioral pricing practices may erode trust in online commerce as a whole (Trading, 2013), and customer privacy in particular (Rust et al., 2002). This erosion could justify regulatory intervention (Zuiderveen Borgesius, 2014).

As of yet, in European law strictly speaking there is no rule demanding that customers are offered identical prices (apart from discrimination on the basis of, for example, gender). Moreover, there is no specific rule demanding that the use of personal profiles for the purpose of price-setting is disclosed to customers either (Rott, 2015). This noted, the general goal of the European legal framework for consumer protection is to enable consumers to make so-called informed transactional decisions; it prohibits commercial practices that withhold material information needed by the average consumer to take such decisions and thereby cause or potentially cause the average consumer to take a transactional decision that s/he would not have taken otherwise (art. 7 Unfair Commercial Practices Directive 2005/29/EC). Therefore, if there is strong evidence that consumers who are given information on the use of behavioral pricing respond substantially differently from those who are not, there may be a case for regulatory intervention at the European level. One important legal issue concerns the question whether we deem it fair and just that online prices may vary depending on seemingly irrelevant criteria without proper notification to customers.

In regulatory terms, the exposure of covert behavioral pricing practices by bringing them explicitly to the attention of the customer when entering the online purchasing process, may address some of the 'failures of privacy self-management' identified in the current consent practice (Solove, 2013). As observed by Acquisti, Brandimarte, and Loewenstein (2015), while privacy concerns are not always at the forefront of consumers' minds, when prompted they do display concern for their privacy and act accordingly. However, previous work on information regulation also shows that informing individuals ex-ante that they are about to be 'defaulted' or 'nudged' does not necessarily alter the impact of defaults, and neither does informing them ex-post (Loewenstein, Bryce, Hagmann, & Rajpal, 2015). So, whether information regulation can influence market behavior when consumers are discriminated through the online customization of prices still is a debated issue. What is clear is that with the spread of big data in marketing the question whether regulatory intervention is warranted is likely to become an important issue. And if it indeed becomes a key problem, one of the obvious regulatory options would be to introduce some form of mandatory disclosure to consumers (the rationale being that disclosure would empower consumers to act on the information given, to decide whether they feel comfortable with such practices and to shop elsewhere if they do not). So, the

questions arise what would be the actual effect of a disclosure statement? And would that effect depend on how the statement is framed? It is these two questions that we seek to explore.

This article contributes to the literature by investigating whether the framing of the disclosure influences consumer attitudes and purchase intentions in an online shopping context. This is important because regulatory interventions in online sale processes tend to depart from the neoclassic economic information paradigm; at least, European regulation seldom takes form, timing, framing and phrasing of information disclosure into account. Moreover, according to our knowledge, no research to date has studied whether the frame of a disclosure statement impacts upon the intended effect of the intervention. So, we seek to apply behavioral regulation insights in a mainstream information economics setting. In doing so, we explore the disclosure effect on purchase intention in a multiattribute compositional trade-off context. From the theory of planned behavior (Ajzen, 1991) it can be derived that purchase intentions are driven by attitude, subjective norm and perceived behavioral control. As attitude corresponds with utility, and utility is not derived from a product per se, but from the characteristics a product possesses (Lancaster, 1966; Vodopivec, 1992), it follows that purchase intention is driven by product attributes, attribute importances, and attribute levels. By applying these insights in a setting involving disclosure statements we seek to enhance existing knowledge on the effectiveness of policy interventions that aim to restore trust in online commerce. The empirical challenge of the study is to systematically manipulate multiple independent factors (i.e., attributes) to elicit preferences for combinations of attribute(level)s. To this purpose conjoint analysis was utilized in which fractional factorial arrays were designed to measure intention to purchase. Conjoint analysis is a stated preference elicitation method that is widely accepted in the marketing research community (Green, Krieger, & Wind, 2001).

This article is laid out as follows. Section II briefly describes the rationale for exploring disclosure framing effects. Section III explains the research methods used and Section IV describes the data. In Section V we present our empirical analyses. Section VI continues with a discussion of the findings and associated theoretical and policy implications. Section VII concludes with limitations and directions for future research.

## **II. FRAMING OF DISCLOSURES**

Markets are complex environments for consumers. Both informational ‘noise’ which causes obfuscation and overload as well as classic information asymmetries challenge consumers to compare offerings. Indeed, economic theory posits that where market actors fail to disclose essential information, the resulting asymmetries cause market failure (Radner, 1968). Mazis, Staelin, Beales, and Salop (1981, p. 12) argue that ‘when any informational market failure exists, i.e., when consumer decisions (signals) are based on false or limited information’, information regulation may be appropriate. In this light, a Pareto improving intervention such as a mandated disclosure of information serves to rectify asymmetries, to support informed consent in contract making decisions and to enhance competition (OECD, 2010; Ogus, 2004). Along these lines, European consumer law has developed numerous pre-contractual information duties (OECD, 2010). However, this line of legal thinking does not overly concern itself with how and when such information is filtered, phrased, framed and offered by the information provider, or received, processed and converted into action by the bounded receiver. Meanwhile, under influence of the behavioural sciences (e.g., psychology, marketing) our understanding of information processing by individuals has become more refined (Koehler & Harvey, 2008; Statt, 1998). Several of these insights are relevant for our purposes. One of the findings is that in written communication on a particular phenomenon the effectiveness of the

information is dependent on the context in which it is given. That is, information needs to be both comprehensible and specific in terms of the operative mechanism and the exact nature of the phenomenon involved in order to enable the receiver to assess both the content and implications of the message (Wogalter, 1999, 2006). The mere fact that information concerning a particular phenomenon is offered by a provider as well as received, perceived and processed by a receiver does not automatically cause the receiver to change attitudes and adapt behaviour. Here, the context matters in which the actual message operates (e.g., when, how, at what stage) and the poignancy of the message on the potential (adverse) consequences of the phenomenon (Pape, 2011). Therefore, it stands to reason that varying poignancy by varying the information disclosure framing can elicit varied behavioral responses in the receiver (i.e., consumer). This is what we explored in an experimental study by exposing participants in an online hotel booking experience context to disclosure messages that contained clear and concrete indications on the behavioral pricing mechanism in operation, or used more ambiguous indications of the behavioral mechanisms used.

### III. METHOD

#### A. Experimental Design

Our design consisted of five between-subjects conditions. Four different experimental groups were exposed to a disclosure statement. The fifth condition was a control group condition that was not exposed to a disclosure statement. In the experimental groups the following disclosure messages were presented to participants:

Table 1: Overview of Disclosure Frames per Experimental Group<sup>2</sup>

<i>Label</i>	<i>Disclosure Message</i>
Appropriate	Our website uses your buying habits to make you offers and to offer you an appropriate price.
Higher/Lower	Our website determines the price you are offered on the basis of your previous purchasing behavior. Your price is therefore higher or lower than the price offered to others.
Higher	Our website determines the price you are offered on the basis of your previous purchasing behavior. Your price is therefore higher than the price offered to others.
Lower	Our website determines the price you are offered on the basis of your previous purchasing behavior. Your price is therefore lower than the price offered to others.

#### B. Sample Characteristics

Data were collected through an online questionnaire and the responses were recorded using Sawtooth survey software. The participants were students from a large Dutch university. A student sample was preferred because of response homogeneity (Peterson, 2001). A total of 426 students participated. Over a period of six weeks students were randomly invited to participate at different moments during the day in different locations by four trained research assistants carrying iPads on which the experiment was presented to them. Students were also invited to participate by e-mail and then participated in the experiment via their computer (way of sampling did not affect the results obtained). The sample included 152 men (35.7%) and 274 women (64.3%), with an average age of 21.9 years ( $SD = 2.9$ ). There was no significant difference in gender [ $\chi^2(4) = 3.391, p = .495, \Phi = .089$ ] and age

<sup>2</sup> Upmost care was given to the translation of the disclosure messages in this article. The original texts were in Dutch, the native language of the participants.

[ $F(4, 422) = 0.624, p = .646, \eta_p^2 = .006$ ] between the five groups. Participants were randomly assigned to the groups by a randomizer in the software.

### C. Procedures and Measures

The questionnaire was divided into three parts. The first part included five items – rated on a Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*) – to measure attitude towards trust (Cronbach’s  $\alpha = 0.73$ ) and loyalty (Cronbach’s  $\alpha = 0.83$ ). The second part included a fixed Choice-Based Conjoint (CBC) question (i.e., choice task). At the start of this task all participants received the same instruction: to make an online hotel reservation for a local festivity well-known to the participants. Together with the instruction, a disclosure message (condition) was presented (per experimental group). Participants were asked the following CBC question: “If you were considering booking the hotel, which would you choose?” For task complexity, level overlap and design efficiency purposes three concepts (i.e., hotels) were given in the choice task. Each concept represented a hotel choice involving four attributes: star category, review rating, distance to city center, and price. Figure 1 illustrates the fixed task.

Figure 1: Fixed Choice-Based Conjoint Choice Task

If you were considering booking the hotel, which would you choose?					
Star category	4-star		2-star		3-star
Review rating	Fantastic: 9+		Acceptable: 6+		Very Good: 8+
Distance to Center	0.1 kilometer		3.3 kilometer		1.7 kilometer
Price	€111.80		€63.20		€89.90
	●		●		●

After choosing the preferred hotel concept participants were asked a question to indicate intention to purchase on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Finally, the third part of the questionnaire involved a brief survey on the sociodemographics gender and age, and included a question to check if the participants remembered the condition.

To explore the effects of the experimental conditions at *all* possible combinations of attribute levels, the fixed task (equal for all participants) was supplemented by 11 random tasks in which the three hotel concepts were randomly varied (per task per participant). Using specialist conjoint analysis software (Sawtooth SSI Web 8.3.8) an orthogonal design was produced for each participant and the levels of the attributes were systematically varied using complete enumeration (i.e., all possible concepts) as the randomization design strategy. The 11 random choice tasks were used to estimate part-worth (attribute level) utilities with a Hierarchical Bayesian Monte Carlo Markov Chain algorithm (Sawtooth CBC/HB 5.5.3). However, as all participants could not be drawn from a single multivariate-normal distribution, given the four different experimental conditions, group membership was included as a covariate in the Hierarchical Bayes (HB) run. With the estimated utilities per attribute level per participant an additive utility model (Fishbein, 1963) was utilized to determine the utility participants assigned to each of the three hotel concepts in the fixed “holdout” task:

$$U_{pi} = \sum_{k=1}^K B_k X_{ki},$$

where:

$X_{ki}$  = dummy variable indicates the presence of an attribute level k from a set of K attribute levels in fixed hotel concept i

$B_k$  = the marginal utility associated with attribute level k

The total utility per fixed hotel concept per participant then served as input for a multinomial logit (MNL) model:

$$\Pr(Y_p = i) = \frac{\exp(U_{pi})}{\exp(U_{ph}) + \exp(U_{pi}) + \exp(U_{pj})}$$

where:

$\Pr(Y_p = i)$  = the probability that participant p will choose i from a set (Zuiderveen Borgesius, 2014)

$U_{ph}$  = utility that participant p associates with fixed hotel alternative (concept) h

$U_{pi}$  = utility that participant p associates with fixed hotel alternative (concept) i

$U_{pj}$  = utility that participant p associates with fixed hotel alternative (concept) j.

Using this model we determined the probability that a participant would purchase a hotel concept in the fixed CBC task. *Probability to purchase* thus served as a second dependent variable, and provided an attribute-level measure to explore the effect of the disclosure frame on intention to purchase.

## IV. DATA AND DESCRIPTIVE ANALYSES

### A. Descriptive Statistics

As Table 2 shows, trust scores indicated that participants disagreed ( $M_{409} = 2.03$ ) that most people are trustworthy in general. Participants also scored low on loyalty ( $M_{409} = 2.00$ ). There were no significant effects on trust [ $F(4, 404) = 0.679, p = .607, \eta_p^2 = .007$ ] and loyalty [ $F(4, 404) = 0.118, p = .976, \eta_p^2 = .001$ ] between the five groups.

Table 2: Summary Statistics<sup>3</sup>

Variable <sup>a</sup>	Experimental Groups									
	High		High/Low.		Appropriate		Low		Control Group	
	M	SD	M	SD	M	SD	M	SD	M	SD
Trust	2.01	.752	2.07	.804	1.91	.761	2.11	.843	2.00	.812
Loyalty	2.00	.807	1.95	.848	1.94	.787	2.08	.799	1.97	.774
Fair Policy: Price is higher	1.82	1.11	1.76	1.17	1.70	1.20	1.83	1.27	1.59	0.90
Fair Pol.: P. is higher/lower	2.49	1.41	2.59	1.62	2.08	1.28	2.53	1.53	1.96	1.18
Fair P.: Price is appropriate	3.67	1.98	4.08	1.94	3.22	1.73	3.67	1.99	3.67	1.88
Fair Policy: Price is Lower	2.99	1.76	3.27	1.87	2.70	1.64	3.66	2.02	2.97	1.92
Intent. to Purchase	5.15	1.33	5.38	1.29	5.63	1.06	5.61	1.09	5.14	1.44
The price is fair	5.01	1.22	4.95	1.34	5.29	1.19	5.29	1.10	5.04	1.28
Prob. to Purchase option 1	36.17	38.22	45.31	41.89	50.20	39.13	50.31	39.90	34.99	37.68
Prob. to Purchase option 2	2.05	11.65	3.79	17.07	2.82	13.53	0.65	2.40	1.44	8.92
Prob. to Purchase option 3	61.78	38.44	50.90	41.43	46.99	38.75	49.05	39.80	63.57	37.42

<sup>3</sup> We report all manipulations, all data exclusions, and all measures in our studies (Simmons, Nelson, & Simonsohn, 2012), so we note that 17 participants who preferred Option 2 were removed from the analyses. Their choice probability in the Multinomial Logit Model (MNL) was 3.74 SDs above the mean. These results are available on request.

continued...

Variable <sup>a</sup>	Experimental Groups									
	High		High/Low.		Appropriate		Low		Control Group	
	M	SD	M	SD	M	SD	M	SD	M	SD
Importance of Star Level	21.69	1.54	17.98	13.94	24.64	14.42	24.24	13.75	23.95	1.60
Importance of Review	25.05	1.14	27.91	15.57	25.45	12.58	24.48	11.76	22.42	1.38
Importance of Location	25.41	1.51	25.68	17.19	25.11	11.97	26.30	12.79	26.86	1.29
Importance of Price	27.86	1.28	28.43	13.85	24.81	13.46	24.97	11.89	26.78	1.48
N (total) = 409	N=78		N=85		N=81		N=80		N=85	

<sup>a</sup> Note: trust and loyalty were measured before the disclosure message (condition). Option 1 (N=204), Option 3 (N=205).

Overall, participants did not feel treated fairly when a booking site utilized a pricing policy in which personal buying habits were used to offer individualized prices. Participants felt treated least fairly when personalized prices were higher ( $M = 1.74$ ), followed by higher/lower ( $M = 2.33$ ). Moreover, a behavioral pricing policy leading to a lower personal price was considered less fair ( $M = 3.12$ ) than a policy that resulted in an appropriate price ( $M = 3.69$ ). There were, however, significant effects on 'higher/lower' pricing policy [ $F(4, 393) = 3.234, p = .013, \eta_p^2 = .032$ ] and 'lower' policy [ $F(4, 393) = 3.109, p = .015, \eta_p^2 = .031$ ], indicating that these policies were not considered equally fair in all five conditions.

### B. Utility Estimates

Prior to administering the questionnaire the CBC design was tested for (OLS) efficiency. Compared to a precise orthogonal design the randomized design had a median efficiency of 99.98%. Standard errors remained within limits of less than 0.025 (for main effects) and 0.05 (for interaction effects), indicating that the simulated data met the minimum sample size and acceptable level of precision.

Table 3: Summary Statistics of Utility Estimates

Attribute <sup>a</sup>	Level	Utility		
		Mean	Std. Dev.	Std. Error.
Star category	5-star hotel	6.4824 <sup>***</sup>	4.81235	.23316
	4-star hotel	5.8390 <sup>***</sup>	4.22900	.20490
	3-star hotel	4.7221 <sup>***</sup>	3.32457	.16108
	2-star hotel	2.6580 <sup>***</sup>	2.06208	.09991
	1-star hotel	0.0000 <sup>***</sup>		
Review rating	Fantastic: 9+	7.6543 <sup>***</sup>	4.08816	.19807
	Very good: 8+	6.9115 <sup>***</sup>	3.70415	.17947
	Good: 7+	4.5728 <sup>***</sup>	2.76029	.13374
	Acceptable: 6+	0.0000 <sup>***</sup>		
Distance to city center	0.1km	7.7028 <sup>***</sup>	4.27910	.20732
	0.9km	6.8003 <sup>***</sup>	3.73721	.18107
	1.7km	4.7224 <sup>***</sup>	2.78318	.13485
	2.5km	2.2151 <sup>***</sup>	1.24114	.06013
	3.3km	0.0000 <sup>***</sup>		
Price	€63.20	8.3773 <sup>***</sup>	4.79801	.23246
	€76.50	7.3191 <sup>***</sup>	4.01288	.19442
	€89.90	5.8006 <sup>***</sup>	2.94524	.14270
	€103.10	2.2231 <sup>***</sup>	1.38523	.06711
	€111.80	0.0000 <sup>***</sup>		

<sup>a</sup> Sample means are provided for the full sample (N=426). One-Sample  $t$ -test (value = 0). <sup>\*\*\*</sup>  $p < 0.001$ .

To estimate utilities, 150,000 iterations were completed resulting in an acceptable Root Likelihood goodness of fit ( $RLH_m = 0.8255$ ). As Table 3 illustrates all utility values were significant ( $p < .001$ ).

## V. RESULTS

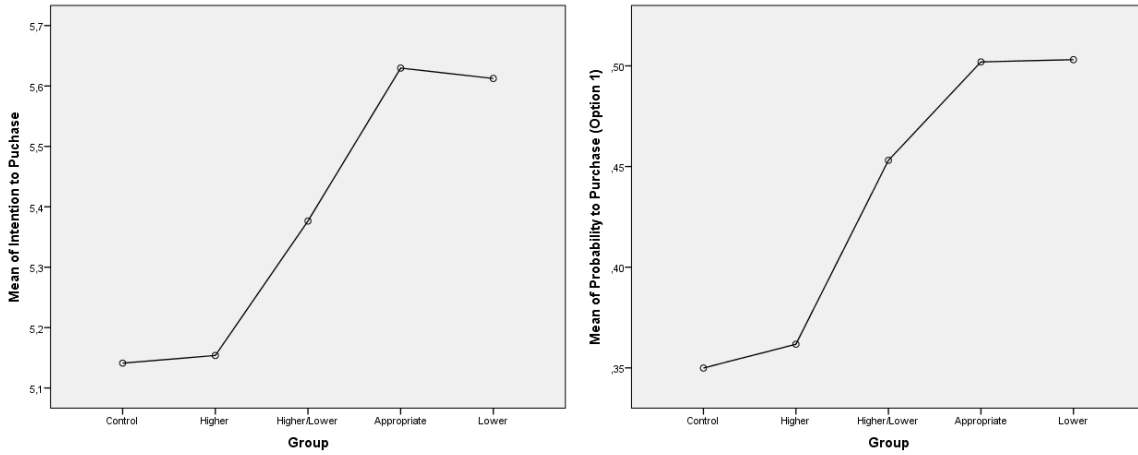
### A. Manipulation Check

At the end of the experiment, participants were asked to recall/select which pricing policy (none, higher, higher/lower, appropriate, lower) the booking site utilized. Analysis of the odds ratios using logistic regression indicated no significant difference [ $R_{Nagelkerke}^2 = .017$ ,  $\chi^2(4) = 4.42$ ,  $p = .35$ ] in remembering the correct pricing policy between the five groups.

### B. Purchase Intentions

To explore whether behavioral pricing disclosure influenced purchase intentions, a one-way analysis of variance (ANOVA) was conducted with 5 levels (no disclosure message, higher, higher/lower, appropriate, lower), and intention to purchase as dependent variable. This analysis yielded a significant effect on purchase intentions [ $F(4, 404) = 2.90$ ,  $p = .022$ ,  $\eta_p^2 = .028$ ]. Repeating the analysis on probability to purchase, hotel concept one [ $F(4, 404) = 2.88$ ,  $p = .022$ ,  $\eta_p^2 = .028$ ] and three [ $F(4, 404) = 3.12$ ,  $p = .015$ ,  $\eta_p^2 = .030$ ] supported this effect.<sup>4</sup> In other words, the specific information disclosure frame was shown to affect intention to purchase. Means relevant for these analyses are shown in Figure 2. Moreover, a one-way ANCOVA revealed that there was a significant effect for intention to purchase after controlling for trust [ $F(4, 404) = 2.82$ ,  $p = .025$ ,  $\eta_p^2 = .027$ ] or loyalty [ $F(4, 404) = 2.98$ ,  $p = .019$ ,  $\eta_p^2 = .029$ ].

Figure 2: Effect of Behavioral Pricing Disclosure on Intention to Purchase / Probability to Purchase



To further explore the nature of the framing effect we conducted a planned comparison in which we compared the control condition (in which no behavioral pricing was disclosed) with the four experimental conditions. Because Levene's Test of Homogeneity was significant ( $p < .05$ ), Hartley's Fmax test was performed which satisfied the homogeneity of variance assumption ( $1.81 < 2.04$ ). Planned contrasts revealed that having a behavioral pricing disclosure frame significantly affected both intention to purchase  $t(404) = 1.97$ ,  $p = .049$ ,  $r_c = 0.09$ , and probability to purchase  $t(404) = 2.18$ ,  $p = .029$ ,  $r_c = 0.10$  (option 1) respectively  $t(404) = 2.38$ ,  $p = .018$ ,  $r_c = 0.11$  (option 3). This indicates

<sup>4</sup> Note: only 17 participants (over 5 groups) chose hotel concept 2, and, therefore, they were left out of the analysis.



that, overall, the intention to purchase tended to be higher in the conditions where behavioral pricing information was provided relative to the conditions where it was not. Post-hoc comparisons (Least-Significance Difference tests) were performed which revealed that the mean levels of intention to purchase in the control and higher conditions were significantly different from the appropriate and lower conditions.

Polynomial trend analyses yielded a more exact understanding of the nature of this effect. Note that in order to make these trend analyses meaningful, we ordered the conditions along an assumed continuum of self-interest. The condition where participants paid a higher price was considered the least in line with self-interest, then the higher/lower condition, followed by the appropriate condition, while the lower price was considered to be of greatest self-interest (see Figure 2). Particularly noteworthy was a significant linear trend at  $F(1, 404) = 10.48, p < .001, \eta_p^2 = .159$ , indicating that it is not so much information frame per se, but rather the content of the information disclosure that affects intention to purchase. In particular, as the behavioral pricing information was more in line with self-interest, the intention to purchase increased. This interpretation was further corroborated by the findings that quadratic [ $F(1, 404) = .003, p = .955, \eta_p^2 = .003$ ] nor cubic [ $F(1, 404) = 1.17, p = .279, \eta_p^2 = .053$ ] trends yielded significant results, showing that trends deviating from the linear self-interest explanation had less predictive power.

## VI. DISCUSSION AND IMPLICATIONS

### A. *Implications for Theory*

Our results contribute to several areas of research. First, a significant effect was found on intention to purchase as well as probability to purchase, but the magnitude of the effect differed. Intention to purchase varied on a Likert scale from  $M=5.14$  in the control condition to  $M=5.63$  in the condition labelled ‘appropriate’, while the conjoint-measured probability to purchase measure respectively varied from 34.99% to 50.20%. This divergence suggests that attitude by itself is not enough to drive intention to purchase, and that subjective norms and perceived behavioral control may play a role (Ajzen, 1991). We thereby contribute to the information regulation literature by exploring the link between attitude, mandatory disclosure and intention. Second, while behavioral pricing research has found that through price framing businesses can mitigate the negative perceptions of behavioral price discrimination (Weisstein, Monroe, & Kukar-Kinney, 2013), this study is first to identify that a behavioral pricing disclosure frame can influence intention to purchase. In this way, our findings indicate that unanticipated framing effects of disclosure statements can occur. We show that a frame which is relatively more in line with self-interest, may in fact increase intention to purchase. In this way, our findings confirm work on salience: when consumers read that an ‘appropriate price’ is offered, they do not seem to consider that ‘appropriate’ may also mean that they are overcharged. Indeed, they seem to think that *they* are charged less. This may indicate that a self-serving bias is at work. Indeed, our findings seem to indicate that the mere fact that the disclosure draws attention to the behavioral pricing mechanism in itself has an upward effect on intention to purchase. If, however, consumers are confronted with a clearer yet neutral indication of the potential effect of the behavioural pricing mechanism (‘higher or lower than the price offered to others’), the message seems to dampen their enthusiasm and intention to purchase. If corroborated by further research, these effects should heed policymakers to carefully consider the framing and phrasing of mandated disclosure.

## B. Implications for Policy

We believe that the finding that the information disclosure frame increases intention to purchase – particularly the extent to which the information hints towards self-interest in purchasing – is of special interest. It suggests the possibility that framing as a result of regulatory intervention may inadvertently appeal to consumer's wishes, desires, and in the process of doing so, increase the likelihood of (over)spending. Regulatory intervention should at least partially be concerned with raising consumers' resilience against the use of personal information by marketers to stimulate the consumer's buying intentions, and by disclosing particular information regulatory interventions may be at risk of playing into the hands of marketers rather than the consumer. The call for regulatory intervention may thus not only imply a regulation of marketing, but may also give rise to an interest in the road-testing of disclosure regulations. As online retailers are increasingly capable of behavioral pricing (Gelbrich, 2011; Kannan & Kopalle, 2001), the need for a legal psychological approach may come sooner than later.

## VII. LIMITATIONS AND FURTHER RESEARCH

We also draw attention to some limitations of our study and directions for research. First, while a student sample – in comparison to a nonstudent one – may have brought relatively more homogeneity within the measurement scales, it may have also reduced the magnitude of differences among the variables (Peterson, 2001). Generalizability to a the wider population should thus be made with caution (Chen, Schwartz, & Jady Yu, 2015). Thus, we emphasize explicitly the importance of replicating this study with a mixed sample before making further generalizations. Second, the effects of information regularization were measured on the purchase intention of a widely available hospitality service product. The magnitude of behavioral effects may be different for the purchase of for example a technically complex product or for a product with a large financial commitment. Third, as purchase intentions (i.e. stated preferences) do not necessarily lead to actual purchases (i.e. revealed preferences), further experimental research could explore the effect of disclosure frames on actual buying behavior.

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