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Personal antecedents of perceived deceptive pricing in online retailing: the moderating role of price inequality

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Abstract
This research examines the personality, cognitive and emotional antecedents of deceptive price perceptions that occur in price inequalities. We draw on appraisal theories to examine the extent to which these relationships are different depending on two situations: consumers who are exposed to an advantaged situation (lower price) and those exposed to a disadvantaged situation (higher price). Data from 994 individuals in the online hotel booking context show that the direction of the price inequality significantly influences the way in which both personality and the attributional–emotional process affect perceptions of deceptive pricing. Our findings provide a better understanding of this subjective, complex, but also increasingly prevalent phenomena of price inequality and perceived deceptive pricing in online retailing. Implications for theory and management are discussed.

Keywords Perceived deceptive pricing · Price inequality · Personal variables · Appraisal theory · Moderated mediated effects

1 Introduction

Price-based differential treatment, or price inequality, is a form of price discrimination which is intended to take advantage of different consumers' individual price acceptance, with the objective of exploiting the consumer surplus [83]. This pricing tactic, which is also considered a form of dynamic pricing, has been widely practiced in the airline and hotel industries and is being increasingly

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adopted in most online retailing sectors [22, 57]. Current technological developments allow online retailers to tailor a unique price for each individual, which helps them to better manage demand and increase profits while offering some benefits for customers too, such as the possibility of adapting to different preferences, needs and budgets [1, 23].

Nevertheless, in recent years consumers have grown skeptical about the legitimacy of such pricing tactics, as social networks and online customer reviews have significantly increased their knowledge of what other people have paid for the same product. Research has found that consumers get frustrated and angry, and may even feel that the online retailer has been deceptive, when they realize that somebody else (an advantaged consumer) got a better price online for the same product [2, 83]. Notably, although consumers may have become familiar with such pricing practices, this does not prevent them to feel angry when they realize that other similar consumers have been treated differently [2]. Interestingly, these negative emotions arise not only when the individual is disadvantaged, but also when he/she is advantaged because of potential feelings of empathy with other disadvantaged consumers or the expectation that the next time things could be in the opposite direction (i.e., "I was lucky this time, next time maybe I won't") [32].

Considering a pricing tactic as deceptive is becoming, in fact, an issue not only for those consumers who may believe that they have been "fooled", but also for online retailers [86]. For instance, in 2017, Canada levied a $1 Million fine against Amazon Canada for misleading pricing practices [6]. Furthermore, deceptive pricing tactics may also influence the image and reputation of the entire e-commerce platform [86]. Determining what constitute deception in the context of pricing is, however, a complex issue that has motivated several conceptual and empirical studies. While this literature has provided useful insights about what can be *objectively* considered as deceptive and its consequences, it has also evidenced a huge challenge for both policy makers and practitioners that remains understudied, namely, there are many pricing techniques in which deception becomes highly subjective and dependent on consumers' judgments [17, 52]. This implies that, although practices like offering a different price to different customers for the same product do not necessarily involve *actual* deception, consumers may *consider* or *perceive* them as highly deceptive [9, 67]. This subjective nature is an important handicap for online retailers, as it complicates their understanding about what can be perceived as deceptive in a context in which transactions online allow companies to reach consumers all over the world with different cultures and values [73]. Since no organization can afford to ignore these negative consequences, it is of paramount importance to understand consumers' characteristics that contribute to perceptions of online deceptive pricing.

In the process of understanding this subjectivity, judgments about deception entail an important moral component, which is intimately related to individual differences such as personality characteristics [72]. For instance, the same message may be considered more or less deceptive in nature depending on consumers' Machiavellianism [56]. Still, and although there are some studies in the pricing literature that have addressed the role of personality variables, they did not include perceptions of price deception. Understanding this subjectivity, however, allow us

to provide useful insights for online retailers to better design and communicate their pricing tactics and potential coping strategies in case of consumers' perceptions of price deception.

Accordingly, this study aims to answer the following research questions: (1) To what extent perceived deception in price inequalities differ depending on consumers' personality (Machiavellianism, consumer cynicism and exaggerated deservingness)?; (2) What are the mechanisms by which the relationships between personality and perceived deception are conducted? More specifically, will attributions and emotions act as partial or total mediating variables? and, (3) To what extent all of these relationships are moderated by the direction of price inequality (whether a consumer is exposed to an advantaged price or a disadvantaged price)? We thus examine both moderating and moderated mediating effects in the online hotel booking context. Such analysis may provide a comprehensive understanding of how perceived deceptive pricing is formed in online settings in the context of price inequalities.

The remainder of this article is organized as follows. We first present the theoretical background of our research, prior to the formulation of our hypotheses. We then describe our methodology and present our findings. Finally, we conclude by discussing the theoretical and managerial implications, as well as directions for future research.

2 Theoretical framework

2.1 Perceived deceptive pricing

In the marketing field, practices involving deception are common and have motivated numerous studies in different areas [67, 76]. This is especially true in the specific context of pricing, where researchers have signaled the prevalence of this topic for decades (see Table 1). This existing research has highlighted the complex nature of delineating deception: it becomes highly subjective because price claims are interpreted by consumers in different ways depending on the meaning and the attributions they are able to make [17, 42, 52]. For instance, many pricing tactics, which are not deceptive from a legal perspective and include all relevant information (e.g., rebate ads), may be perceived as deceptive because a specific format (i.e., emphasizing the after-rebate price by making it more visually salient while showing the before-rebate price and the rebate amount in smaller print) is being used [44]. In addition, consumers' individual differences in terms of price knowledge or product implication lead them to have different perceptions of price deception [24, 31, 86].

Overall, this existing research shows that, while price deception represents an important problem in terms of their potential negative consequences, its prevention is also a challenge, as consumers may consider deceptive what, at least legally, is not, and vice versa [17, 24]. Accordingly, our interest in this study is on *consumers' perceptions of online deceptive pricing* (CPODP), rather than on *actual* deceptive pricing. Building on existing research on both pricing and perceived deception in online settings [33, 63, 64], we posit that CPODP occurs when individuals feel that online retailers are using pricing tactics to induce false beliefs about the real value of

Table 1 Summary of previous studies related to price deception in consumer contexts

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Liefeld and Heslop [50], JCR	ARP alone, ASP alone, ARP with MSLP, ASP with ARP, ASP with MLSP	Subject's estimation of the ordinary market price	Nine common product categories/empirical (Canada, real shoppers)	Using a "sale" stimulus lead consumer to perceive the ordinary price lower, suggesting that they are very suspicious of price claims Consumers are not misled by MSLP or regular price claims into believing that the ordinary price was higher, suggesting that they are not as credulous as advertisers might think they are
Urbany et al. [81], JCR	ARP, ASP	Subjects' estimates of the (a) advertiser's regular price; (b) average market price Perceived offer value Perceived benefits of search Purchase likelihood	Simulated TV purchase/empirical (students)	Compared to an ad with no reference price, an ad with a plausible reference price raised subjects' estimates of the ARP and the perceived offer value. An exaggerated reference price had generally the same positive effects on perception as a plausible reference price, even for the more skeptical subjects When subjects were presented with an ASP above the lowest expected price, the exaggerated reference price increased the percentage of subjects who purchased the product from the advertiser without checking other stores' prices

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Lichtenstein et al. [49], JCR	Plausible and non-plausible ARP	Perceived consistency of the ad Perceived distinctiveness of the ad Perceived believability of the ad Internal reference price Source-credibility perceptions Favorability of purchase evaluations Search intentions	Simulated calculator purchase/empirical (students)	For manipulations of ARP with offering price held constant, semantic cues that connote high distinctiveness are more effective in influencing consumers' price-related evaluations when the ARP is otherwise implausibly high than are semantic cues that connote low consistency. For manipulations of offering prices with ARP not constant, however, semantic cues connoting high distinctiveness exert more relative influence on price-related cognitions when offering prices are high Semantic cues that imply high distinctiveness of the advertised price offer enhance the perceived believability of the ad

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Grewal and Compeau [33], JPP&M	FPC, RPC, MSLP, BPO, OPC	Potential to informate Potential to deceive	General retail environment/ conceptual	The most obvious deceptive comparative price advertisement uses a false, or inflated, reference price to suggest a deal or bargain to the consumer. A less obvious one uses vague or misleading semantic phrases (i.e., "special offer" without explain why it is special) Public policy makers should discourage the use of a MSLP
Kaufmann et al. [42], JR	High-low pricing (a deceptive kind of FPC)	Consumer inferences from ARP	General retail environment/ conceptual	Consumers respond to this pricing practice by drawing one of several inferences about the value of the product and the prevailing competitive price. Whether the consumer is deceived depends on the inference drawn Results integrate legal, public policy, consumer behavior, and retailing perspectives to explain this issue and to propose retailer and regulatory solutions

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Compeau and Grewal [19], JPP&M	Presence of ARP, ARP levels, and ASP	Internal reference price Perceived value Price offer believability Purchase likelihood Search intentions	General retail environment/ meta-analysis	Advertised reference price (ARP) enhances buyers' internal reference price estimates, value perceptions, and purchase intentions, and lowers their search intentions. There is an important potential for deception because external reference prices have a strong influence on consumers, even when they are exaggerated. Effects on believability are not supported by the meta-analysis
Estelami [26], JPBM	Multidimensional prices[b]	Consumer difficulty in evaluating these prices	General retail environment/ conceptual	Revised research evidence strongly supports that multidimensional prices are difficult for consumers to comprehend, so these practices may have a great potential for deception. This is more accentuated in such markets where the product itself is also complex, such as services like automobile leases or telecommunication services

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Kopalle and Lindsey-Mullikin [46], JR	Different levels of external reference prices (ARP)	Price expectations Price expectations for typical, top-of-the-line, and store brand shoes Need for cognition Expertise Price consciousness	Simulated dress shoes purchase/ empirical (students)	When subjects had no prior information about the product, their initial price expectations at a regular price store, on average, were close to that of a typical brand When the difference between ARP and initial price expectations equaled zero, it produced a small but significant downward shift in expectations. This may indicate that consumers are skeptical, though very slightly, of price advertisements that confirm their expectations. When the ARP was positive and increasing, the change in price expectations increased, but at a decreasing rate, suggesting that consumers began to discount ARPs that were higher than their prior expectations. When the ARP was less than their initial price expectations, the change in expectations was also negative. Thus, ARPs that were below initial expectations were perhaps considered more believable than ARPs that were higher than initial expectations

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Compeau et al. [17], JCA	RP, MSLP, RPC	Subject's interpretations of the semantic phrases used in such pricing tactics	Review of two real legal cases/ conceptual	The use of semantic phrases in pricing may be informative or deceptive depending on: (1) the vagueness of the semantic phrase; and (2) the meaning the particular consumer attaches to the claim The use of "MSLP" appears to have considerable potential for deception, and little hope to be informative. "Compare At" (RPC) requires that additional information be provided to the consumer in order to be more informative. The bottom line is that claims like MSLP and RPC appear to be subject to multiple interpretations, and thus may be deceptive

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Kim [44], JR	Rebate ads (two formats): ARF, BRF	Perceived deception Perceived savings Negative affect Purchase likelihood Rebate amount (moderator) Price knowledge (moderator) Processing time (moderator)	Simulation of different common products purchases/empirical (students)	Consumers feel cheated by the ARF because they must pay the regular price instead of the price highlighted by the AF, make extra efforts to mail in the rebate form, and wait for several weeks to get their money back. Negative emotional responses loom larger, especially when the savings from rebates are not appreciated Price knowledge influences the perception and effect of the discount credibility for deal evaluations

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Romani [68], JPBM	Common misleading pricing tactics (in Italy)	Trustworthiness toward the source of information Willingness to buy	General retail environment/ empirical (Italy, real shoppers)	A first qualitative study identified a typology of eight different misleading price communication practices which includes those based on the provision of purely false information alongside those employing an unclear or incomplete application of complex price communication strategies A second experimental study reveals that, when price information is communicated using misleading practices, consumers develop lower levels of trustworthiness toward the source of information as well as willingness to buy, and these effects are heightened in the presence of suspicion

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Lindsey-Mullikin and Petty [52], JBR	Twelve bargain assurances (BA)	Potential for influencing purchasing behavior Potential to deceive	General retail environment/ conceptual	Results show that current regulation (FTC or BBB guides) is either vague or incredibly detailed but only for a few specific practices, and is also based on the unrealistic assumption that consumers have perfect or at least reasonable knowledge of all market prices since price search is essentially costless Authors show that BA tactics may misled consumers along five dimensions: availability, coverage, urgency, substantiality, and understandability of the advertised BA; and conclude that (1) BAs influence consumers and require regulation; (2) the regulation of BAs demands a comprehensive rather than a piecemeal approach; and (3) consumer policy should facilitate and encourage accurate price comparisons

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Dutta [24], JR	Low-price guarantees	Overpayment risk Purchase intention Price knowledge Decision involvement	Simulated purchase of different tech products/students	Three experiments demonstrate that consumers' characteristics can bias their processing of low-price signals thereby leading to consumer and retailer vulnerability to these signals. Specifically, they found that all consumers may be vulnerable to deceptive low-price signals: first, less confident consumers in their price knowledge, but also more confident ones when decision involvement is relatively low. In addition, more confident consumers not more prone to post-purchase search intention than less confident consumers, but also the deceptive signal does not raise this intention for either group and actually lowers it for the more confident group

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Lee et al. [48], IJDSN	Price comparison site (PCS) type: openmarket intermediary PCS and consumer community PCS	Perceived information quality, perceived diagnosticity, information deception detection Perceived uselfulness, perceived risk Satisfaction, feeling of violation Purchase intention, continuous usage intentions, postrust	Simulated PC purchase/empirical (Korea, real shoppers)	Consumer community-based PCS could significantly provide more diagnostic product recommendation results without the information deception than the online intermediary related PCS Perceived diagnosticity decreases information deception detection (perceived deception), also decreasing perceived risk of the PCS usage and the feeling of violation, fostering postrust and satisfaction Information deception detection is the only variable that significantly influence perceived risk of the PCS usage

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Bozkurt and Gligor [9], JCM	Unfavorable pricing errors (UPE)	Perceived deception Dissatisfaction Price consciousnes (moderator) Attitude toward the store Negative WOM Re-patronage intentions	Simulating a purchase at a grocery store/empirical (students)	High-frequency and high-magnitude UPEs lead to increased perceived deception and dissatisfaction, resulting in a higher negative attitude toward the grocery store, decreased re-patronage intentions and increased negative word-of-mouth (NWOM). Also, results show that regardless of customers' price consciousness level, customers display negative reactions when encountering UPEs

Table 1 (continued)

Authors	Pricing tactic analyzed[a]	Studied variable/s	Context/approach	Main findings
Fu et al. [31], NL	Deceptive FPC	Perceived deceptiveness Emotional response Trustworthiness Price fairness Perceived benefit Future purchase intentions	Online retail setting (usual products)/empirical (China, students)	Perceived deceptiveness, degree of anger and perceived risk was significantly higher in the deceptive condition than in the truthful condition, whereas trustworthiness, price fairness, perceived benefit and future purchase intention were higher in the latter condition Behaviourally, a higher purchase rate and reduced reaction time were observed in the truthful condition relative to the deceptive condition, suggesting that the truthful condition was more favourable to the participants. The truthful condition, as compared with the deceptive one, decreases cognitive and decisional conflict

[a]Abbreviations in alphabetical order: *ARF* after rebate format (emphasizes the after-rebate price by making it visually salient. It shows the before-rebate price and the rebate amount in smaller print), *ARP* advertised reference price, *ASP* advertised sale price, *BPO* bargain price offers, *BRF* before rebate format (presents the before-rebate price, the rebate amount, and the after-rebate sequentially and in a relatively equally visible manner), *FPC* former price comparisons, *MSLP* manufacturer's suggested list price, *OPC* other price comparisons, *RPC* retail price comparisons

[b]Multidimensional pricing = tactic that involves dividing price into various parts, requiring consumers to do arithmetic to calculate final purchase prices (e.g., "$699 regular price, 25% off")

their offerings. In particular, we focus on perceptions of deception that emerge from the evaluation of the specific differential pricing tactic of charging different prices to different consumers for the same offering. We will evaluate the process by which perceived deception is formed (through attributions and emotions) in two opposite situations: when consumers learn that they paid more (less) than others for the same product—in other words, when they experience a *(dis)advantaged price inequality* [83, 85].

2.2 Antecedents of perceived deceptive pricing

Our research framework is built on social comparison theory [3, 77] and appraisal theory [47, 71]. Social comparison theory contends that individuals are thought to possess a fundamental drive to compare themselves with others, which serves a variety of social and individual functions such as evaluating the self or fulfilling affiliation needs [77]. In social comparisons, people prefer to compare with similar others, something that ultimately relates to the concept of inequality and the sense of fairness and unfairness. That is to say, as people tend to compare themselves with similar others, they also tend to expect that they have similar rights and deserve similar things. Appraisal theories [47, 71] help to explain how these inequality situations are processed by individuals: first the relevancy of situations is appraised, then attributional, emotional and further reactions emerge as a result of this appraisal [71]. Thus, conceptualize appraisals as cognitive components of emotional states, stating that experiences of emotions are inseparable from their associated cognitive evaluations associated. For instance, events can be appraised in terms of who caused them (responsibility), how unpleasant/pleasant they are (anger), and how deceptive/honest they seem to be (perceived deception) [79].

Accordingly, we reason that perceived deception reflects a response to an externally attributed un/pleasant event (caused by an online retailer's pricing policies), and that it is ultimately developed as a coping mechanism to avoid, or to be alert to, further relationships with the retailer [21, 86]. Therefore, causal attribution reflects here the external ascription of responsibility for a price inequality to the online retailer policies, while emotional reaction is approached as such negative emotions experienced by an individual after learning that another consumer has paid more/less than him/her. In addition, we will examine the extent to which personality influences perceived deception by leading to different attributional and emotional responses to price inequality.

Our conceptual framework is depicted in Fig. 1. Specifically, we focus on three personality traits as antecedents of the cognitive-emotional process that leads to CPODP: Machiavellianism (H_5(a), H_5(b), H_5(c)), consumer cynicism (H_7(a), H_7(b), H_7(c)), and exaggerated deservingness (H_9(a), H_9(b), H_9(c)). Hypotheses H_1-H_3 support the logic of the cognitive-emotional structure. In addition, we reason that all these relationships are moderated by the price situation confronted by the consumer. Finally, H_4, H_6, H_8 and H_{10} contain the expected conditional or moderated indirect

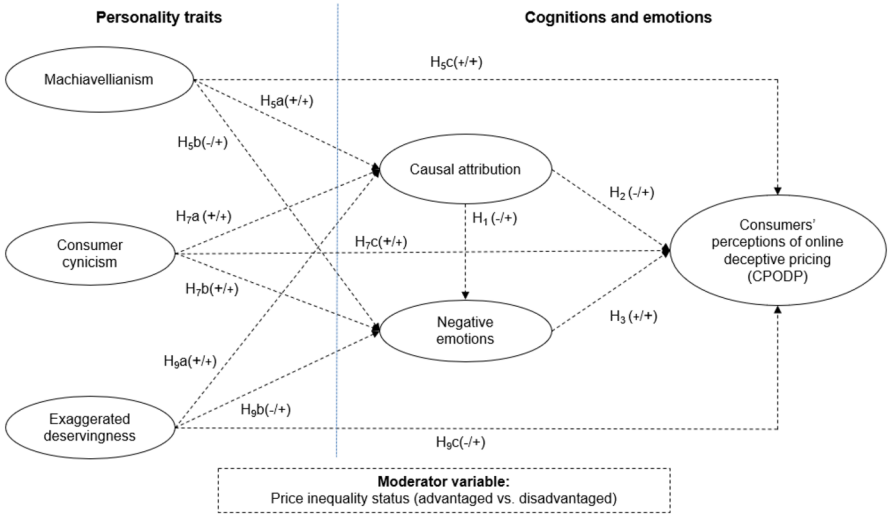

Fig. 1 Conceptual framework*. *Indirect hypotheses (H_4, H_6, H_8 and H_{10}) are not included in Fig. 1 for the sake of clarity

effects of attributions and the three personality traits on consumers' responses to price inequalities.

3 Hypotheses development

3.1 Appraisal-related antecedents of perceived deceptive pricing

Following appraisal theories, our model establishes that causal attribution will influence negative emotions and perceived deceptive pricing when a consumer experiences a price inequality situation. In addition, we posit that this sequence (attribution-emotion-perceived deception) will be moderated by the price inequality situation. In particular, evidence from [32] shows that the role of causal attributions on emotions depends on the direction of inequality. Attributing a price change to an online retailer's policies may have a positive effect on an individual's emotions and perceptions when s/he gets some advantages (as compared to others), because this leads to feelings of gratitude and appreciation. However, when the individual faces a disadvantaged situation, the attribution of causality is likely to lead to negative consequences, because in such a situation the awareness that the retailer has used discriminating policies against oneself will trigger negative feelings, like anger and resentment [80, 83]. These negative feelings are linked to an experience that is appraised as negative (unpleasant) and caused by others [79]. Following this line of reasoning, and given the close relationship between cognitive and emotional reactions within each proposed situation (i.e., advantaged and disadvantaged price inequality), we also expect that causal attribution leads to similar effects (i.e., in the

same direction) on perceived deceptive pricing according to the direction of the inequality experienced. Specifically:

H_1 When exposed to a price inequality situation, the effect of causal attribution on negative emotions will be moderated by the direction of inequality, with the effect being negative (decreasing) for advantaged consumers and positive (increasing) for disadvantaged ones.

H_2 When exposed to a price inequality situation, the effect of causal attribution on CPODP will be moderated by the direction of inequality, with the effect being negative (decreasing) for advantaged consumers and positive (increasing) for disadvantaged ones.

Some studies on adverse pricing tactics, such as ancillary fees [2, 80], have shown that these tactics trigger strong negative emotions that further motivate other similar deceptive-based perceptions, such as perceived betrayal. Similarly, negative emotions elicited by the experience of price inequality are expected to increase perceived deceptive pricing, but with a different magnitude depending on the direction of inequality. Existing research indicates that these negative feelings emerge in the case of price inequalities, especially when consumers learn that they have paid more than similar consumers have [51, 83]. The rationale here derives from the goal-congruency dimension of appraisal models: in general, a price disadvantage is goal-incongruent, because paying more decreases the individual's transaction value [85]. The opposite occurs, therefore, when a person is advantaged in price, leading him/her to perceive this situation as congruent with his/her goals. Negative emotions elicited in this latter situation should be, thus, lower than in the disadvantaged scenario.

This line of reasoning is also consistent with social comparison theory, as it suggests that consumers are likely to be satisfied when his/her outcome exceeds another person's outcome as a result of competitive motives [3, 77]. Accordingly, goal congruency and social competition should lower negative emotions for advantaged consumers, and thus may lead them to perceive the advantaged price as less deceptive than the disadvantaged one:

H_3 When exposed to a price inequality situation, the effect of negative emotions on CPODP will be moderated by the direction of inequality, with the effect being stronger for disadvantaged consumers than for advantaged ones.

In addition, we anticipate a mediating role of emotions in the relationship between attributions and perceived deceptive pricing. From a conceptual perspective, as argued earlier, appraisal theories recognize emotions as driving forces that emerge from appraised events in order to further motivate coping mechanisms [71]. Emotions are thus a natural mediator between how an event is appraised in terms of responsibility and the subsequent response that this appraisal triggers. Importantly, prior evidence shows that emotions, whether positive or negative,

play a significant mediating role in other similar relationships, such as those between attributions and perceived price unfairness [32] or between attributions and the behavioral consequences of a price discount [7]. Furthermore, given that our framework proposes that the direct relationships between causal attribution, emotion and perceived deceptive pricing are moderated by price inequality (H_1–H_3), this indirect influence of external attribution on perceived deceptive pricing represents a pattern of conditional indirect effects or moderated mediation process [38, 60]. Thus, we formulate the following hypothesis of moderated mediation effects:

H_4 When exposed to a price inequality situation, the *indirect effect* of causal attribution on CPODP will be moderated by the direction of inequality, with the effect being negative (decreasing) for advantaged consumers and positive (increasing) for disadvantaged ones.

3.2 Personality antecedents of perceived deceptive pricing

As personality traits we introduce in our model Machiavellianism, consumer cynicism, and exaggerated deservingness due to several reasons. First, these constructs encompass a set of different personal philosophies and beliefs that guide one's judgments and behaviors, especially such domains in which there is an ethical or moral component [15, 25, 27]—like is the case here with deceptive perceptions. They have been, in fact, identified in numerous previous studies as important antecedents of consumer's perceptions and reactions to different marketing stimuli containing some ethical or trusting component—like perceived fairness, trust, intentions to complain or consumer ethics, among others [2, 15, 36]. Second, among other potential personal traits, these three represent a set of different yet related traits that provides individuals with different basis for thinking in deception—we will detail this in each specific hypothesis, such as the trait-congruency in the case of Machiavellianism [62], the biased predisposition toward distrust in the case of Consumer Cynicism [36], or the exacerbated sensitivity to inequalities, in the case of exaggerated deservingness [27]. These personality basis or predispositions toward perceived deception may provide a better understanding of some roots of such perceptions.

3.2.1 Machiavellianism

Machiavellianism is a personality trait characterized by being strategic, tactical, cold, pragmatic and manipulative [16, 28]. Machiavellian individuals present a general view of other people as untrustworthy, self-serving and malevolent; thus, they tend to believe that it is best to relate with others in an exploitative and deceitful manner [28, 62]. Research has shown that Machiavellian people generally tend to distrust others [28] and to make external attributions of events and social situations [59, 62].

We expect that Machiavellians perceive the price as deceptive—when these individuals face a disadvantaged price situation due to several reasons. First, being price

disadvantaged should represent a goal-incongruent situation for them, as they are motivated by self-interest and self-beneficial goals against others [62]. Given that Machiavellians are especially competitive people [40], this situation may foster a negative perception of such price, and also of the company or website that had used it. Second, the trait-congruency theory [69] holds that individual differences in cognitive and emotional processing are likely to be motivated by relatively stable personality traits that make individuals to process information congruent with those traits. In this case, the direct effects of Machiavellianism on perceived price deception are presumed to occur through heuristic processing, whereby a retailer's pricing tactics would be evaluated as more consistent with Machiavellian underlying traits—that is, as being manipulative and deceptive [62, 69]. Third, we also expect the influence of Machiavellianism on perceived deceptive pricing to occur through the causal attribution of blame and the consequent emotions experienced, thereby leading to an indirect influence of this personality trait on deception. More specifically, Machiavellians tend to externally attribute the responsibility of non-interpersonal situations, such as interactions with online retailers [58]. This is especially true for negative events, where the external attribution of blame helps them to justify what they are likely to consider an *undeserved* situation [59, 62]. Thus, we expect that Machiavellians exposed to a disadvantaged price situation will strongly search for external attributions as compared to the opposite situation. In line with our first hypothesis, this external attribution in the disadvantaged price situation is expected to trigger negative emotions, which in turn leads to an increased perception of deceptive pricing. In addition, we follow a similar reasoning as hypothesized in H_4 to propose a pattern of conditional indirect effects of Machiavellianism on CPODP. However, in the alternative situation of facing a price advantage, we expect Machiavellian individuals to evaluate the same pricing tactic in the opposite way—that is, in a "cynical mode". In this case, being price advantaged should be appraised by these individuals as a goal-congruent situation. Machiavellians tend to display an "entitled" pattern of equity sensitivity—that is, they seek larger outcomes and/or lesser inputs than do those around them [59] and they display a lack of empathy [25].

In short, it is unlikely that price inequality triggers any negative feeling among Machiavellians when they are advantaged, not only because of their lack of empathy with the other disadvantaged party, but also because they are likely to think that they deserve that special treatment. Therefore, we expect Machiavellian people to perceive price inequality as less deceptive in an advantaged situation. In addition, external attribution of this situation will lead to the opposite effects: being advantaged is congruent with Machiavellians' personal goals [62], so the responsibility attribution of this situation should lead to positive rather than negative emotions, and thus to a decrease in further negative judgments (i.e., deception). Again, this would imply a pattern of moderated mediated effects of Machiavellianism on CPODP. Stated formally:

H_5 When exposed to a price inequality situation, the effect of Machiavellianism on (a) causal attribution, (b) negative emotions, and (c) CPODP will be moderated by the direction of inequality, with the effect being (a) higher for disadvantaged consumers than for advantaged ones, (b) negative (decreasing) for advantaged

consumers and positive (increasing) for disadvantaged ones, and (c) stronger for disadvantaged consumers than for advantaged ones.

H_6 When exposed to a price inequality situation, the *indirect effect* of Machiavellianism on CPODP will be moderated by the direction of inequality, with the effect being negative (decreasing) for advantaged consumers and positive (increasing) for disadvantaged ones.

3.2.2 Consumer cynicism

The concept of cynicism, in general, has usually been related to a tendency to distrust others, adopted as a response to a belief that humans are motivated only by self-interest [36]. Our focus is on consumer cynicism, which is defined as "an individual consumer's stable, learned attitude towards the marketplace characterized by the perception that pervasive opportunism among firms exists and that this opportunism creates a harmful consumer marketplace" [36], p. 516]. Consumer cynicism has been positively related to unethical behaviors, such as "lying about a child's age to get a lower price" or "getting too much change and not saying anything", among others [15], pp. 687 and 692]. Cynical consumers rationalize these actions on the grounds that businesses are very likely to treat them in the same way [36]. Accordingly, we expect that cynical consumers will be more likely to perceive higher levels of deception as a result of price inequalities, because these individuals generally tend to distrust companies [4, 36, 86].

We anticipate that the direction of the price inequality will moderate the influence of consumer cynicism on perceived deceptive pricing. Building on the expectancy disconfirmation theory [61], we expect that, while cynical consumers will perceive both advantaged and disadvantaged situations as deceptive, their perceptions of deception will be *lower* when individuals are exposed to a *disadvantaged* situation. Cynical-based distrust is developed through a process by which these individuals adjust their expectations to their negative view of others [41], which means that they already expect exploitative, manipulative behavior by others. Being disadvantaged in a pricing situation is likely to meet their prior negative expectations of being deceived and cheated. Therefore, although this situation will be appraised as negative, it will also be expected by these individuals. Accordingly, we believe that negative emotions will be elicited and further judgments about deception will be attenuated [47, 71]. The advantaged scenario, however, should arouse more controversial feelings in cynical consumers, as being advantaged is likely to be unexpected for them—that is, it does not fit with their cynical beliefs—despite the price inequality matching their expectations about others' deceptive behaviors. This disconfirmation of expectations should lead them to experience a cognitive dissonance [29] that will increase negative feelings as a response to this situation; thus, it is also expected to increase perceptions of deception, despite being advantaged. This rationale is consistent with previous research [e.g., 4,8,86] suggesting that unexpected low prices activate skeptical aversion and doubt within cynical consumers, which in turn reduces a retailer's credibility and creates a more negative price

image. More specifically, as cynical consumers show a high propensity to distrust companies, they are more likely to see even advantaged prices as a potential way in which companies might be trying to fool them [4]. Accordingly, we expect that perceived deceptive pricing and negative emotions will both be stronger when cynical consumers face an advantaged price inequality than when they face a disadvantaged one.

In addition, there is some evidence suggesting that consumer cynicism influences causal attribution through *self-serving bias*—that is, the "tendency to attribute positive outcomes to the self (internal factors), while imputing negative outcomes to external factors" [87, p. 696]. According to this evidence, the element of blame in attributing negative events is common among cynics, who are predisposed to the self-serving bias in a vicious cycle in which the experience of negative events reinforces their unfavorable beliefs about others. This suggests that external attributions among cynics are more likely to occur in disadvantaged situations than in advantaged ones. Accordingly, we build on attributional theories to propose that cynical consumers will search for causal attribution when they are exposed to a price inequality situation; and, in line with existing evidence, we also expect that this relationship will be stronger in the disadvantaged price situation. Summarizing, we propose the following:

H_7 When exposed to a price inequality situation, the effect of consumer cynicism on (a) causal attribution, (b) negative emotions, and (c) CPODP will be moderated by the direction of inequality, with the effect being (a) stronger for disadvantaged consumers than for advantaged ones, and (b-c) stronger for advantaged consumers than for disadvantaged ones.

Similar to our proposal for Machiavellianism, we also expect that the influence of consumer cynicism on perceived deceptive pricing can be partially generated through causal attribution and negative emotions, thereby showing a pattern of moderated mediation effects. Stated formally:

H_8 When exposed to a price inequality situation, the *indirect effect* of consumer cynicism on CPODP will be moderated by the direction of inequality, with the effect being stronger for advantaged consumers than for disadvantaged ones.

3.2.3 Exaggerated deservingness

Deservingness is conceptualized as an important personality trait representing an individual's attitude towards personal entitlement [14]. Beliefs about deservingness have been identified as especially relevant in the context of social inequalities [27]. From a psychological perspective, the concept of deservingness has traditionally been linked to justice or fairness. In particular, people tend to believe that an individual should receive what s/he is entitled to [27]. Indeed, deservingness is a continuum concept [43]. Normal deservingness reflects the idea of not expecting to receive any more, or different treatment, than an average person in

the same context [74]. Although individuals with a normal sense of deservingness may vary in the perception of whether a given outcome is fair (i.e., deserved) or not, these people would be more capable than individuals with a more excessive sense of deservingness of accepting variations in positive and negative outcomes [43]. By contrast, individuals with an exaggerated or excessive deservingness believe that they deserve more than the average [43, 74]. It represents a self-serving attitude that one is always entitled to the most advantageous outcomes. This translates into a chronic, pervasive and stable belief that one should *never* have to suffer disagreeable fates [14, 43].

We expect that exaggerated deservingness will be positively related to the search for causal explanations in both advantaged and disadvantaged scenarios. More specifically, there is a significant relationship between what a person thinks s/he deserves in a specific situation, and the way in which such a person thinks that the situation has, or has not, been under his/her control [27]. In addition, and similar to what we argued above for Machiavellians and cynics, we expect that this search will be stronger in the context of a disadvantaged inequality. In this situation, individuals with exaggerated deservingness should feel worse, and hence to be more motivated to blame someone else for their bad experience. This is consistent with [54], who found that the sense of personal deservingness relates to the search for external attributions of blame in the context of social prejudices. These external attributions help people with exaggerated deservingness to manage self-esteem-related emotions, such as depression, when they are the target of prejudice, but without acting as a buffer from feeling other negative emotions like hostility [54]. For such people, the external attribution of blame is a strategy to protect their psychological well-being, but this does not restrain them from getting angry with the alleged offender.

Using similar reasoning, exaggerated deservingness is expected to lead to opposite effects on negative emotions and CPODP depending on the direction of the inequality. Specifically, as being price advantaged means that the person receives an outcome (value) better than that of another person, we expect that exaggerated deservingness may act as a buffer from experiencing negative emotions when the individual is exposed to this advantaged situation [54]. Additionally, this price situation will be perceived as less deceptive by these individuals, based on their belief that they deserve more than the average. By contrast, we expect that exaggerated deservingness will be strongly linked to the experience of negative emotions in a disadvantaged price situation, as this represents a negative outcome exacerbated by the nature of the social comparison—judgments of deservingness are especially relevant when individuals compare themselves with similar others in terms of the outcomes received [2]. Research shows that individuals with exaggerated deservingness get angry if they do not get the very best outcomes [14, 43], and in the context of pricing [39] found that for high-power individuals (those with a higher sense of entitlement) being price disadvantaged relative to other consumers poses a greater threat to their sense of self-importance, which triggers more negative feelings (e.g., anger), and also induces greater perceptions of price unfairness. Accordingly, being disadvantaged is expected to increase the perception of deceptive pricing for these individuals:

H_9 When exposed to a price inequality situation, the effect of exaggerated deservingness on (a) causal attribution, (b) negative emotions, and (c) CPODP will be moderated by the direction of inequality, with the effect being (a) stronger for disadvantaged consumers than for advantaged ones, and (b-c) negative (decreasing) for advantaged consumers and positive (increasing) for disadvantaged ones.

Finally, our conceptual framework predicts that the influence of exaggerated deservingness on perceived deceptive pricing also follows a moderated mediation pattern in line with the arguments provided for H_6 (Machiavellianism) and H_8 (consumer cynicism). Stated formally:

H_{10} When exposed to a price inequality situation, the *indirect effect* of exaggerated deservingness on CPODP will be moderated by the direction of inequality, with the effect being negative (decreasing) for advantaged consumers and positive (increasing) for disadvantaged ones.

4 Method

We tested our model in the hotel-booking context. The travel and tourism sector has been indeed one of the first and most important adopters of price-based differential treatment. Consistent with extant research on price inequality [e.g., 2,32,83], we used an online survey (see "Appendix 1") describing two potential scenarios, one for the advantaged price situation (Scenario A), the other for the disadvantaged situation (Scenario B). The use of an online survey-based experimental approach (versus retrospective self-reports) reduces biases from memory lapses, rationalization tendencies, and consistency factors [34]. In each scenario, respondents were asked to imagine that they were going to another city for a holiday weekend with their friends. Accordingly, individuals had to book a hotel room online. The scenario further explained that the same day they talked to a friend who tells them that he/she has booked a room with the same features and in the same hotel through the same website, but at a 30% higher (Scenario A) and lower price (Scenario B). This price difference is consistent to previous research [2, 32]. After being exposed to the scenario, participants were asked to answer questions about their resulting causal attributions, emotions and deceptive price perceptions.

All measures (shown in Table 2) in our research model involved latent variables,[1] as they measured complex phenomenon that cannot be directly observed (i.e.,

[1] Given their complexity, definitions of the variables under study are provided in "Appendix 2".

Table 2 Construct measurement summary: results of convergent validity tests

Constructs, items[a] and sources	Scenario A (advantaged price inequality) (n = 496) Std. loading (*t*-value)	Scenario B (disadvantaged price inequality) (n = 498) Std. loading (*t*-value)
Machiavellianism [16, 20]		
In dealing with people, it is best to tell them what they want to hear	0.74 (14.44)	0.69 (14.44)
Never tell anyone the real reason you did something unless it is useful to do so	0.69 (13.50)	0.72 (14.69)
Lying is necessary to maintain a competitive advantage over others	0.63 (12.71)	0.69 (14.06)
Consumer cynicism [36]		
Most businesses are more interested in making profits than in serving consumers	0.83 (23.17)	0.80 (19.13)
Companies see consumers as puppets to manipulate	0.85 (23.45)	0.76 (17.87)
To make a profit, companies are willing to do whatever they can get away with	0.89 (26.82)	0.90 (23.63)
Exaggerated deservingness [14, 43]		
I honestly feel I'm just more deserving than others	0.84 (22.14)	0.78 (18.91)
I demand the best because I'm worth it	0.74 (17.34)	0.75 (16.33)
People like me deserve an extra break now and then	0.87 (22.80)	0.89 (23.76)
Causal attribution—advantaged/disadvantaged scenario—[7, 32]		
How would you explain that you paid less/more than your friend? This is due to…		
…the discriminating pricing policies of the site that would identify me	0.64 (12.98)	0.57 (11.36)
…the site would apply some targeted promotional price	0.81 (16.56)	0.69 (11.09)
…the site would apply some pricing tactic to benefit only a part of its customers	0.79 (17.62)	0.81 (14.78)
Negative emotions [2, 83]		
Angry	0.89 (27.20)	0.86 (16.65)
Upset	0.60 (12.92)	0.69 (11.71)
Annoyed	0.87 (28.22)	0.89 (15.32)
Perceived deceptive pricing [65, 66]		
This site is not entirely truthful about its prices	0.82 (22.71)	0.78 (20.38)
This site uses misleading prices to convince consumers to purchase their products	0.93 (31.55)	0.90 (27.56)

Table 2 (continued)

Constructs, items[a] and sources	Scenario A (advantaged price inequality) (n = 496) Std. loading (*t*-value)	Scenario B (disadvantaged price inequality) (n = 498) Std. loading (*t*-value)
This site takes advantage of less experienced consumers to convince them that they have the best prices	0.92 (30.39)	0.89 (27.61)
This site exaggerates the attractiveness of its prices and promotions	0.83 (22.14)	0.84 (20.84)

[a]Items were measured on five-point Likert-type scales (1 = "strongly disagree" to 5 = "strongly agree")

personality, cognitions and emotions) [12]. These measures were based on existing and very well validated scales developed in prior literature (sources are shown on Table 2). Five-point agree-disagree Likert-type scales were used in all cases.

4.1 Data collection and sample

We hired a well-known market research firm to assist with the data collection.[2] Quota sampling was applied to obtain evenly distributed numbers of respondents in the two pricing scenarios, representative in both cases of the real travelers' population. The market research firm used panelists for data collection, providing response rates above 90%. Panelists were randomly exposed to either Scenario A or B and were compensated for their participation after completing the survey.

Based on this we recruit data from 994 participants[3] (representative of the population in terms of age and gender): 496 for the advantaged price situation (Scenario A) and 498 for the disadvantaged situation (Scenario B). The total sample consisted of 50% females; 59.8% of the respondents were between 25 and 50 years old; and 65.8% had a college degree (with no significant differences between the sub-samples). On average, participants had booked a room five times over the previous year, with no differences between the samples ($F = 0.80$; $p > .05$).

5 Results

5.1 Manipulation checks

Manipulations in each scenario followed the same procedures used in previous research [e.g., 34,83]. To check for price inequality status, participants answered the question "As compared to your friend, how was the price you paid when you booked the room?" by selecting one of three potential responses: "higher", "equal" or "lower". All participants in Scenario A indicated that the price they paid was lower than the price paid by their friend, which confirms the manipulated advantaged price

[2] Data was obtained from a Netquest panel. Netquest is a tech-driven company built on a robust and engaged panel and a strict quality standard (ISO 26362 and ISO 20252). Netquest is a member of ESOMAR, and thus is required to comply with the General Data Protection (GDPR) when processing personal data in the context of its services and operations. Netquest provides strong quality data sets from panelists who remain anonymous to Netquest's clients. Also, Netquest conducts several controls on quality of the data such as time used to complete the survey (to detect "speeders") or incorrect answers on trick questions (checkout questions) during the survey to detect if panelists are paying attention to the questions.

[3] Sample size (overall and relative to our both subsamples) meets Westland's (2010) recommendation [84] for a given number of latent factors and observed variables in a SEM model: for 19 observed variables and 6 latent factors that comprise our research model, and assuming the most restrictive or conservative parameter values (anticipated effect size of 0.2 and statistical power level of 0.8) [18], the recommended minimum sample size to detect the effect is 403, and for the model structure is 177 (https://www.danielsoper.com/statcalc/calculator.aspx?id=89), so our samples sizes largely exceed these minimum values.

Table 3 Mean, SD, correlations, average variance extracted (AVE) and discriminant validity

	Mean	*sd*	AVE	1	2	3	4	5	6
Scenario A (n = 496) *Advantaged price inequality*									
1. Machiavellianism	2.16	0.85	0.50	*0.73*	0.00	0.11	0.01	0.03	0.00
2. Consumer cynicism	3.55	0.90	0.74	0.06	*0.89*	0.00	0.00	0.04	0.19
3. Exaggerated deservingness	2.55	0.85	0.67	0.34	0.07	*0.86*	0.06	0.03	0.06
4. Causal attribution	2.99	0.84	0.56	0.11	−0.06	0.24	*0.79*	0.03	0.02
5. Negative emotions	2.61	1.09	0.63	−0.17	0.19	−0.18	−0.18	*0.83*	0.14
6. Perceived deceptive pricing	3.45	0.93	0.74	−0.05	0.43	−0.24	−0.16	0.37	*0.94*
Scenario B (n = 498) *Disadvantaged price inequality*									
1. Machiavellianism	2.15	0.85	0.50	*0.74*	0.01	0.15	0.04	0.00	0.00
2. Consumer cynicism	3.53	0.83	0.68	0.08	*0.86*	0.01	0.01	0.03	0.04
3. Exaggerated deservingness	2.61	0.84	0.65	0.38	0.09	*0.85*	0.02	0.01	0.00
4. Causal attribution	3.35	0.78	0.50	0.19	0.11	0.15	*0.74*	0.07	0.07
5. Negative emotions	4.20	0.89	0.67	0.02	0.16	0.11	0.26	*0.86*	0.16
6. Perceived deceptive pricing	3.66	0.88	0.71	0.01	0.19	0.03	0.27	0.39	*0.93*

The italics do not have any statistical meaning, are only used to differenciate the values of the scale composite reliability, which are reported along the diagonal of both matrices, from the correlation values (reported in the lower half) and the shared variances (reported in the upper half)

Scale composite reliability is reported along the diagonal of both matrices, shared variances of multi-item measures are reported in the upper half, and correlations are reported in the lower half

inequality. The same result was observed in Scenario B, confirming the manipulated disadvantaged price inequality.

5.2 Instrument validation

Confirmatory factor analysis was used to assess the psychometric properties of our measures. Measurement models had excellent fits both for Scenario A or the advantaged price inequality ($\chi^2(137) = 176.72$, $p < .01$; GFI = 0.96; AGFI = 0.94; NNFI = 0.99; CFI = 0.99; RMSEA = 0.02; RMSR = 0.04) and for Scenario B or the disadvantaged price inequality ($\chi^2(137) = 218.68$, $p < .01$; GFI = 0.95; AGFI = 0.93; NNFI = 0.98; CFI = 0.99; RMSEA = 0.05; RMSR = 0.04). The observed normed χ^2 for Scenario A and Scenario B was 1.29 and 1.60 respectively, indicating a good fit [30].

As shown in Table 2, convergent validity was successfully assessed by verifying the significance of the *t*-values associated with the parameter estimates [30]. Reliability of the measures was also confirmed with the composite reliability index (> .60) [5] and the average variance extracted (> .50) [5]; p.80] for all latent constructs in both samples (Table 3). We compared the average variance extracted by each construct to the shared variance between the construct and all other variables to assess discriminant validity [30]. For each comparison (Table 3), the explained variance exceeded shared variances in both samples, which confirms discriminant validity.

5.3 Measurement invariance

All of our hypotheses involve moderated effects, whereby the relationships between perceived deceptive pricing and its proposed antecedents are expected to differ according to the type of price inequality (advantaged or disadvantaged). Following previous studies [53, 64, 84], we use multi-group analyses based on structural equation modelling (SEM, performed using LISREL 8.8) to determine whether the hypothesized differences were statistically different in a series of nested models [11, 82]. SEM analysis was chosen due to several reasons. First, the three personality traits may be correlated among them [36, 43], and a SEM model allows to account for these correlations by simultaneously analyzing all variables in the same model instead of separately [53]. Second, SEM uses latent variables to account for measurement errors, instead of aggregating measurement errors in a residual error term. Third, SEM has been commonly identified as one of the most powerful techniques for testing hypotheses related to mediation, moderation, and mediated moderation [37, 38, 53].

To select the appropriate estimation method, we first checked the multivariate normality of the entire sample. The Mardia test rejected this assumption, so we thus proceeded with Maximum Likelihood estimated via Satorra-Bentler`s (2010) [78] correction (based on the asymptotic covariance matrix), which provides robust estimates of parameters even for non-normal distributions. The structural model fit for the separate samples was tested before conducting the multigroup analyses. Results for both Scenario A ($\chi^2(137) = 176.72$, $p = .01$; GFI = 0.96; AGFI = 0.94; NNFI = 0.99; CFI = 0.99; RMSEA = 0.02; RMSR = 0.04) and Scenario B ($\chi^2(137) = 218.68$, $p < .01$; GFI = 0.95; AGFI = 0.93; NNFI = 0.98; CFI = 0.99; RMSEA = 0.04; RMSR = 0.04) evidenced a good fit. Then, partial metric invariance was established with only 3 out of 19 estimated factor loadings varying across contexts. Accordingly, these factor loadings were set free for partial measurement invariance [10, 75].

5.4 Hypotheses testing

In order to test moderating effects, we estimated one structural model with all parameters freed across the two samples (M_1) and compared it with a nested model (M_2) in which all of these parameters were constrained to being equal across the two scenarios [38]. The resulting χ^2 difference test was significant ($\Delta\chi^2_{14} = 91.18$; $p < .01$), indicating that the structural path coefficients varied, as predicted, across scenarios. Next, each hypothesis was tested (see Table 4). Estimated structural paths in both scenarios are shown in Fig. 2.

As Table 4 shows, the proposed effects regarding the cognitive-emotional antecedents of CPODP were fully (H_1 and H_2) or partially (H_3) confirmed. Specifically, results showed that causal attribution is significantly related to negative emotions in both scenarios, but, as evidenced by the χ^2 test ($\Delta\chi^2 = 26.93$: $p < .01$), in a very different way. In the advantaged situation this relationship is negative ($\beta = -0.18$; $p < .01$), whereas in the disadvantaged one the opposite occurs ($\beta = 0.24$; $p < .01$),

Table 4 Model comparison and parameter estimates

Model	χ^2	*df*	*p* value	NNFI	CFI	RMSEA
M_1: unrestricted (all structural relationships free)	608.60	345	.00	0.98	0.98	0.04
M_2: restricted (all structural relationships invariant)	699.78	359	.00	0.97	0.97	0.04
Difference in χ^2	91.18	14	.00	Conclusion: structural paths vary between scenarios		

Paths 1–12 compared with restricted model Free path:	Chi-square difference ($\Delta df = 1$)	Std. path coefficients (*t*-value)		Hypothesis supported
		Scenario A (advantaged price inequality)	Scenario B (disadvantaged price inequality)	
H_1: causal attribution → negative emotions	$\Delta\chi^2 = 26.93$***	$\beta = -0.18$ ($t = -3.30$)	$\beta = 0.24$ ($t = 4.43$)	Yes
H_2: causal attribution → perceived deceptive pricing	$\Delta\chi^2 = 14.34$***	$\beta = -0.06$ ($t = -1.34$)	$\beta = 0.19$ ($t = 3.87$)	Partially
H_3: negative emotions → perceived deceptive pricing	$\Delta\chi^2 = 2.66$*	$\beta = 0.29$ ($t = 6.30$)	$\beta = 0.38$ ($t = 8.11$)	Partially
H_5(a): Machiavellianism → causal attribution	$\Delta\chi^2 = 0.14$ (ns)	$\gamma = 0.07$ ($t = 1.11$)	$\gamma = 0.11$ ($t = 1.75$)	No
H_5(b): Machiavellianism → negative emotions	$\Delta\chi^2 = 11.90$***	$\gamma = -0.24$ ($t = -4.14$)	$\gamma = 0.01$ ($t = 0.17$)	Partially
H_5(c): Machiavellianism → perceived deceptive pricing	$\Delta\chi^2 = 0.00$ (ns)	$\gamma = 0.03$ ($t = 0.53$)	$\gamma = 0.04$ ($t = 0.71$)	No
H_7(a): cynicism → causal attribution	$\Delta\chi^2 = 5.11$**	$\gamma = -0.08$ ($t = -1.50$)	$\gamma = 0.09$ ($t = 1.72$)	Partially
H_7(b): cynicism → negative emotions	$\Delta\chi^2 = 0.39$ (ns)	$\gamma = 0.21$ ($t = 4.11$)	$\gamma = 0.15$ ($t = 2.91$)	Partially
H_7(c): cynicism → perceived deceptive pricing	$\Delta\chi^2 = 15.91$***	$\gamma = 0.38$ ($t = 8.18$)	$\gamma = 0.15$ ($t = 3.30$)	Yes
H_9(a): exaggerated deservingness → causal attribution	$\Delta\chi^2 = 1.78$ (ns)	$\gamma = 0.21$ ($t = 3.70$)	$\gamma = 0.10$ ($t = 1.70$)	Partially
H_9(b): exaggerated deservingness → negative emotions	$\Delta\chi^2 = 16.72$***	$\gamma = -0.19$ ($t = -3.51$)	$\gamma = 0.12$ ($t = 2.33$)	Yes
H_9(c): exaggerated deservingness → perceived deceptive pricing	$\Delta\chi^2 = 7.76$**	$\gamma = -0.22$ ($t = -4.65$)	$\gamma = -0.05$ ($t = -0.97$)	Partially

ns not significant

*$p < .10$; **$p < .05$; ***$p < .01$

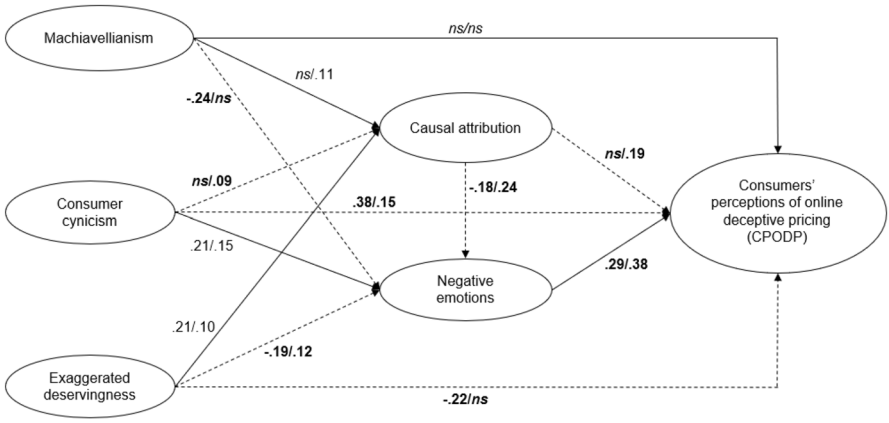

Fig. 2 Structural model estimated (standardized coefficients within the advantaged/disadvantaged price situation)*. *Significant differences in the structural coefficients in bold, with […] representing a significant moderating effect. *ns* not significant

thereby confirming H_1. Furthermore, causal attribution increases CPODP in the disadvantaged situation ($\beta = 0.19$; $p < .01$), but it does not have a significant effect in the advantaged one ($\beta = -0.06$; $p > .05$). This difference is also significant ($\Delta\chi^2 = 14.34$: $p < .01$), thus partially confirming H_2. Results also evidence a significant relationship between negative emotions and CPODP in both scenarios ($\beta = 0.29$; $p < .01$; $\beta = 0.38$; $p < .01$), with this latter relationship partially stronger than the first one ($\Delta\chi^2 = 2.66$: $p < .10$). Thus, H_3 is partially confirmed.

Machiavellianism was found to influence only negative emotions when participants were exposed to the advantaged situation ($\gamma = -0.24$; $p < .01$), but no significant influence was found in the disadvantaged situation ($\gamma = 0.01$; $p > .05$). The difference in such effects was highly significant ($\Delta\chi^2 = 11.90$: $p < .01$), thus partially confirming H_5(b). As shown in Table 4, H5(a) and H5(c) were rejected.

We found a marginally significant relationship between consumer cynicism and causal attribution in the disadvantaged scenario ($\gamma = 0.09$; $p < .10$), but not in the advantaged one ($\gamma = -0.08$; $p > .05$). The difference between these two scenarios was significant ($\Delta\chi^2 = 5.11$: $p < .05$), which provides partial support for H_7(a). The results seem to suggest that the main effects of consumer cynicism were conducted through emotions, as this relationship was significant in both the advantaged scenario ($\gamma = 0.21$; $p < .01$) and the disadvantaged one ($\gamma = 0.15$; $p < .05$). However, these effects, despite following the expected direction, did not significantly differ between scenarios ($\Delta\chi^2 = 0.39$: $p > .05$), which partially confirms H_7(b). In both scenarios, consumer cynicism strongly increases CPODP, with this effect, as predicted in H_7(c), significantly stronger ($\Delta\chi^2 = 15.91$: $p < .01$) in the advantaged situation ($\gamma = 0.38$; $p < .01$) than in the disadvantaged one ($\gamma = 0.15$; $p < .05$). Thus, H_7(c) was supported.

All the hypotheses containing effects of exaggerated deservingness (i.e., H_9(a), H_9(b), and H_9(c)) were at least partially supported. First, this trait was significant and positively related to causal attribution in the advantaged ($\gamma = 0.21$; $p < .05$) and, marginally, the disadvantaged scenario ($\gamma = 0.10$; $p < .10$), but the difference between these

Table 5 Moderated mediated results within advantaged and disadvantaged price inequality

Indirect effects on CPODP	Std. indirect path coefficients (*t*-value)		Hypothesis supported
	Scenario A (advantaged situation)	Scenario B (disadvantaged situation)	
H_4: external attribution	−0.03 ($t = -2.17$)	0.08 ($t = 3.45$)	Yes
H_6: Machiavellianism	−0.04 ($t = -2.58$)	0.01 (*ns*)	Partially
H_8: consumer cynicism	0.05 ($t = 3.50$)	0.07 ($t = 2.67$)	Partially
H_{10}: exaggerated deservingness	−0.04 ($t = -2.43$)	0.05 ($t = 1.78$)	Yes

ns not significant

two situations was insignificant ($\Delta\chi^2 = 1.78$: $p > .05$). Thus, H_9(a) was only partially supported. As predicted, exaggerated deservingness significantly decreased negative emotions ($\gamma = -0.19$; $p < .01$) and CPODP ($\gamma = -0.22$; $p < .01$) in the advantaged scenario, with these effects significantly different from those observed in the opposite situation ($\Delta\chi^2 = 16.72$: $p < .01$ and $\Delta\chi^2 = 7.76$: $p < .01$, respectively). In the disadvantaged situation, this construct was found to be significant and positively related only with negative emotions ($\gamma = 0.12$; $p < .05$), but not with CPODP ($\gamma = -0.05$; $p > .05$). Accordingly, H_9(b) was supported while H_9(c) was partially supported.

In addition, the aforementioned relationships were controlled for gender, age, education, and experience of booking a room. Only age significantly influenced negative emotions in both the advantaged ($\beta = -0.15$; $p < .05$) and the disadvantaged condition ($\beta = -0.11$; $p < .05$), with no significant differences between these two scenarios ($\Delta\chi^2 = 0.11$: $p > .05$).

Conditional indirect effects hypotheses (H_4, H_6, H_8 and H_{10}) were tested following the procedures suggested by [38, 60]. Specifically, if the direct effect of any exogenous variable (i.e., Machiavellianism, consumer cynicism, or exaggerated deservingness) on the mediator (i.e., causal attribution or negative emotions) depends on the moderator (i.e., price inequality situation), and/or the effect of the mediator on the outcome variable (i.e., CPODP) depends on the moderator, then we have a pattern of moderated mediation effects [60].

Table 5 presents results about these conditional indirect effects. As predicted in H_4, causal attributions show a significant and indirect effect on CPODP that significantly differs according to the scenario, with a relatively small and negative effect for advantaged consumers (*indirect effect* $= -0.03$; $p < .05$), and a significantly stronger and positive effect for disadvantaged ones (*indirect effect* $= 0.08$; $p < .05$). We also confirm that Machiavellianism has an indirect influence through negative emotions on CPODP, which also differs between advantaged and disadvantaged consumers. Specifically, although the direct effects of Machiavellianism on CPODP were not significant in either sample, this relationship does exist, albeit only indirectly and for advantaged consumers. Following H_6, Machiavellianism significantly decreases CPODP (*indirect effect* $= -0.04$; $p < .05$) in the advantaged scenario, but this indirect influence was not significant in the disadvantaged situation (*indirect effect* $= 0.01$; $p > .05$), thus partially confirming H_6. For consumer cynicism,

we found significant indirect effects in both the advantaged (*indirect effect* = 0.05; $p < .05$) and the disadvantaged situations (*indirect effect* = 0.07; $p < .05$). However, these indirect effects were not moderated by price inequality, as the direct path from consumer cynicism to the main mediator (negative emotions) was not moderated ($\Delta\chi^2 = 0.45$: $p > .05$), thus partially supporting H_8. Finally, confirming H_{10}, exaggerated deservingness had a conditional indirect influence on CPODP, showing a significant and negative effect for advantaged consumers (*indirect effect* = − 0.04; $p < .05$), and also a marginally significant but positive effect for disadvantaged ones (*indirect effect* = 0.05; $p < .10$). Moreover, these findings also reveal that the influence of exaggerated deservingness on CPODP was totally mediated by negative emotions when the consumer is exposed to the disadvantaged situation.

6 Discussion

Perceptions of prices are one of the main factors that motivate consumers to shop online, especially for those that shop frequently through this channel [45]. Understanding such perceptions should be, thus, an imperative for online retailers. This study builds on appraisal theories to examine how a price inequality situation (i.e., being aware of having been either advantaged or disadvantaged in price, as compared to other similar consumers) shapes how personality manifests differently through attributions and emotions to form CPODP. Our results provide important insights for both theory and practice.

6.1 Theoretical implications

Our results contribute to the literature in several ways. First, regarding the role of the appraisal-emotional process, this study demonstrates that negative emotions play a similar role in perceived deceptive pricing in both price situations, but that the role of attributions seems to work differently. In particular, when the individual is disadvantaged in price, the external attribution of this situation to the website policies increases perceived deceptive pricing in both direct and indirect ways through negative emotions. However, when the individual is advantaged in price, attributing this positive result to the website policies does not help to reduce perceived deceptive pricing directly, but only in an indirect way through its negative influence on the experience of negative emotions. This latter result is consistent with the literature. For instance, [7, 32] found that when a consumer is advantaged in price, the external attribution of this to the firm polices was positively related to feelings of gratitude (i.e., positive emotions), with these feelings thus playing a key mediating role. We add to this evidence in two ways: (1) the mediating role of emotions also occurs in a negative scenario (when the consumer is disadvantaged in price), and (2) when additional antecedents (personality factors) are included in the framework, attributions, in addition to emotions, act as partial mediators in the relationship between personality and perceived deception, with this mediation being also moderated by the direction of the inequality. Reference [13] demonstrated a similar pattern in both

price situations but with different constructs, showing that both attributions and emotions act as moderated mediators between the exposure to the price change (i.e., the increase or the decrease in price) and perceptions of price unfairness. We thus extend [13] findings by confirming that this pattern of conditional indirect effects of attributions and emotions also holds when explaining deceptive price perceptions.

Along with attributions, emotions emerge as one of the most important antecedents of CPODP. Interestingly, differences between price scenarios in this relationship were marginal. Our conceptualization of CPODP expected the attribution of blame, or *intentionality*, to have a major role in the formation of deceptive perceptions. Our results seem to confirm this idea, as attributions, along with the emotional component, are only relevant in the disadvantaged scenario, that is, when social comparison theory also predicts a stronger prevalence of deceptive perceptions due to competitive motives [3]. In the advantaged scenario, however, only emotions play a significant role in deceptive perceptions, suggesting that in this scenario the intentional component of attributions—what, in the opposite scenario, would be considered as blame—is not so important for reducing negative perceptions among consumers.

Going beyond the appraisal–emotional process, personality factors also emerged as significant and powerful predictors of both cognitive and emotional responses to price inequalities, although not always as expected. For instance, Machiavellianism did not have a direct influence on CPODP in either scenario. When advantaged, Machiavellians significantly felt fewer negative emotions, which in turn reduced perceived deception in an indirect way. This result is consistent with the presumed lack of empathy or altruistic orientation of Machiavellians [25], as well as their high sense of entitlement [59]. But being disadvantaged in price does not appear to have any effect on Machiavellians, as all the relationships between this personality trait and the attribution-emotional-deceptive consequences were not significant. A plausible reason for this unexpected result is that perceiving deception (either directly or indirectly) may imply for Machiavellians an acknowledgment that they do not have adequate resources (e.g., intelligence, knowledge, skills) to avoid being fooled. In this regard, it is known that Machiavellians tend to maintain a high self-concept [28, 59], so this could lead them to reject those perceptions or events that potentially "threaten" their high self-concept or self-esteem.

Our results show that the influence of consumer cynicism on CDODP is *stronger* when cynics are *advantaged* in prices. This is somewhat in line with [4], who found that cynical consumers mistrusted low-price tactics. The main difference in cynical reactions to price inequality seems to be with the size of price inequality's effects on such reactions, rather than with the presence of it. More specifically, being disadvantaged may lead cynical consumers to perceive the price tactic as deceptive, both directly and indirectly, through the experience of negative emotions. But being advantaged is perceived as even more deceptive by these consumers. Thus, being advantaged in price may be an unexpected situation that activates a skeptical aversion in cynics, which in turn leads them to a more negative perception of a retailer's prices and credibility [4, 8].

Finally, exaggerated deservingness led to lower levels of perceived deception when the consumer is advantaged, both directly and indirectly. In the disadvantaged situation, however, exaggerated deservingness increased perceived deceptive pricing only indirectly, through the experience of negative emotions. This is in line with previously

commented findings from [39], adding to this prior evidence by showing that the role of emotions also holds for: (1) perceptions of deception, rather than unfairness, and (2) cases of being advantaged, where exaggerated deservingness is likely to act as a "buffer" that helps to reduce potential negative reactions to this pricing tactic. Interestingly, the different ways in which exaggerated deservingness leads to deceptive perceptions—directly and indirectly when advantaged, but only indirectly when disadvantaged—is consistent with the characteristics of this personality trait identified in the psychology literature. In particular, with the idea that people with exaggerated deservingness tend to show mood disorders and to experience highly negative emotions when they do not receive what they expected [14, 43]. Our results indicate that this tendency to be highly angered when they are not satisfied becomes in fact in the mediator that leads these individuals to develop their further negative perceptions and judgments about the situation.

6.2 Managerial implications

Several managerial implications can be derived from our study. First, given the negative consumers' emotions and responses when disadvantaged in price, we advise online retailers to minimize the extent to which consumers may establish negative associations between the prices they pay and the online retailer's strategies. One way for doing this is promoting consumers' *internal* rather than *external* attributions for the price they paid, by, for example, using a "smart" tool that encourages consumers to keep searching, or waiting, for a better price. This would increase consumers' involvement in the formation of the final price to be paid, which has been positively related to fairness perceptions [35]. In addition, we encourage online retailers to provide as much information as possible to help them understand why they are paying what they are paying while offering alternative lower prices depending on expected demand variations in the future (e.g., "Your current price corresponds to a particularly busy weekend for us, we are willing to give you a lower price if you would like to book for next weekend"). Generally, consumers not only believe that they are entitled to a reasonable price, but that companies deserve a reasonable profit [70].

Importantly, the actions described above may be particularly useful for coping with strong negative reactions of cynics and individuals with an exaggerated sense of deservingness. Knowing the personality profile of regular customers is increasingly common in the online world, given the advances in the collection, mining and exploitation of data. Our findings show that cynical consumers are more likely to perceive an advantaged price as deceptive, which would negate a retailer's efforts as such deceptive perceptions have been found to decrease customer satisfaction and loyalty intentions in prior research [31, 86]. Thus, providing detailed justifications of why a consumer can sometimes be advantaged or disadvantaged in price may help retailers mitigate cynics' skeptical aversion by minimizing cynics' negative reactions even in advantaged situations. Such detailed information may not be, however, particularly effective for consumers with an excessive sense of deservingness who faced a disadvantaged price, as their personality profile may predispose them to react negatively regardless of any

additional pricing explanation. In these cases, retailers could encourage these consumers to make additional searches, or to wait for a better deal.

6.3 Limitations and directions for future research

Our study provides significant conceptual and managerial implications, but we recognize some limitations which may lead to interesting avenues for future research. First, contrary to our expectations, Machiavellianism was unrelated to any reaction (attributional, emotional or perceptive) to price inequality when consumers were disadvantaged. A plausible reason is that an admission of having been deceived could threaten Machiavellians' higher self-concept or self-esteem. We encourage scholars to investigate this issue in future studies.

In addition, a common concern with cross-sectional data is the issue of endogeneity and directions of causality. Therefore, several alternative models were tested in which the roles of the mediator and dependent variables were reversed in order to at least partially address these issues. The alternatives had less theoretical support and did not significantly improve any fit indices. Nevertheless, additional longitudinal studies are needed to further test the efficacy of our research model.

Finally, to the best of our knowledge, this is one of the first empirical studies to analyze the role of personality in perceptions of deceptive pricing, so future studies should explore other consumer characteristics. For instance, recent research on deceptive practices in online retailing [67] suggested that variables related to elaboration motivation (i.e., purchase involvement) and elaboration ability (i.e., product knowledge) could play an important role in explaining perceived deception. Also, including other personality traits may be interesting. For example, *guilt-proneness*—a stable individual-level propensity to feel guilt when you've learnt that you have been advantaged over others—has been found to influence consumer reactions to inequalities [e.g., 55].

In conclusion, our study has aimed to provide insights into the psychological, cognitive and emotional roots of perceived deception when consumers are confronted with price inequalities in online retailing. Retailers can use our findings to reduce or minimize consumers' perceptions of deception as a consequence of their dynamic pricing tactics. Becoming a "standard bearer" in the fight against perceived deceptive pricing may not only be a good strategy to cope with a potentially growing social demand for transparency and ethical behavior, but could also yield important benefits for the public image and reputation of retailers.

Appendix 1

Online survey questionnaire

UNIVERSIDAD DE MURCIA
DEPARTAMENTO DE COMERCIALIZACIÓN E INVESTIGACIÓN DE MERCADOS

Have you ever booked a flight or a hotel room online?:

☐ **YES** (*continue with the survey*)

☐ **NO** (*abandon the survey*)

Introduction

This survey is part of a research conducted by the University of Murcia. The answers will be treated statistically and never individually, so the information you provide will be used only for academic purposes, being totally anonymous and confidential. THANKS A LOT FOR YOUR COOPERATION.

1. **Please indicate the number of online travel reservations (hotels, flights, etc.) that you have made on any website in the last 12 months:___**

The following scenario describes a possible situation where you book a hotel room online. IT IS VERY IMPORTANT THAT YOU READ IT CAREFULLY.

Imagine that…

You and some friends decide to spend a weekend in Salamanca at the end of November this year. In order to avoid reservation problems, you all agree that each one will look for the hotel room on their own. With this idea in mind, you search the Internet and find a well-located 4-star hotel with good prices on a travel website. After reading various opinions and confirming through the photos that the hotel is fine, you book a standard double room for two nights without the possibility of cancellation for a total price of 150 euros (breakfast not included).

Now imagine that…:

After making your reservation, you talk to your friends because you want to find out which place they have booked. It turns out that one of them has also booked a room, same as yours (standard double, without breakfast or the possibility of cancellation) in the very same hotel as you. However, surprisingly, you friend tells you that he got the room for 110 euros (40 euros less than you) for the same two nights in the same travel website that you used.

2. **Please, indicate how you would feel after knowing that the price of your friend's reservation was 110€, while yours was 150€:**

	1 Not at all	2 Very little	3 Somewhat	4 Very	5 To a great extent
Angry	☐	☐	☐	☐	☐
Upset	☐	☐	☐	☐	☐
Annoyed	☐	☐	☐	☐	☐

3. **If the situation described earlier in the scenario had actually happened to you, please indicate your level of agreement or disagreement with the following statements, where 1 = "strongly disagree" and 5 = "strongly agree":**

	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
This site is not entirely truthful about its prices	☐	☐	☐	☐	☐
This site uses misleading prices to convince consumers to purchase their products	☐	☐	☐	☐	☐
This site takes advantage of less experienced consumers to convince them that they have the best prices	☐	☐	☐	☐	☐
This site exaggerates the attractiveness of its prices and promotions	☐	☐	☐	☐	☐

P4. **How would you explain that you paid more than your friend? This is due to…**

	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
…The discriminating pricing policies of the site that would identify me	☐	☐	☐	☐	☐
…The site would apply some targeted promotional price	☐	☐	☐	☐	☐
…The site would apply some pricing tactic to benefit only a part of its customers	☐	☐	☐	☐	☐

At this point, in relation to the situation described earlier in the scenario, please answer the following questions:

The scenario describes the booking of a (mark only one option)

Hotel room	☐
Flight ticket	☐
Train ticket	☐

In the scenario, you end up paying (mark only one option):

Same as your friend	☐
Less than your friend	☐
More than your friend	☐

The following questions refer to your way of being. Please, answer them honestly as there are no correct or incorrect answers.

P5. **Please indicate your level of agreement or disagreement with the following statements, where 1 = "strongly disagree" and 5 = "strongly agree":**

	1 Strongly disagree	2 Disagree	3 Neither agree nor disagree	4 Agree	5 Strongly agree
Most businesses are more interested in making profits than in serving consumers	☐	☐	☐	☐	☐
Companies see consumers as puppets to manipulate	☐	☐	☐	☐	☐
To make a profit, companies are willing to do whatever they can get away with	☐	☐	☐	☐	☐
I honestly feel I'm just more deserving than others	☐	☐	☐	☐	☐
I demand the best because I'm worth it	☐	☐	☐	☐	☐
People like me deserve an extra break now and then	☐	☐	☐	☐	☐
In dealing with people, it is best to tell them what they want to hear	☐	☐	☐	☐	☐
Never tell anyone the real reason you did something unless it is useful to do so	☐	☐	☐	☐	☐
Lying is necessary to maintain a competitive advantage over others	☐	☐	☐	☐	☐

Appendix 2

See Table 6.

Table 6 Definitions of the variables in our framework

Variable	Definition	Source
Machiavellianism	A personality trait characterized by being strategic, cold, pragmatic and manipulative, and for seeing others as untrustworthy, self-serving and malevolent	[16, 20]
Consumer cynicism	An individual consumer's attitude towards the marketplace characterized by seeing companies as opportunistic actors that harm consumers	[36]
Exaggerated deservingness	It represents a self-serving attitude that one is always entitled to the most advantageous outcomes along with the belief that one should *never* have to suffer disagreeable fates	[14, 43]
Causal attribution—advantaged/disadvantaged scenario	It reflects the external ascription of responsibility for an advantaged/disadvantaged price to the online retailer policies	[7, 32]
Negative emotions	Negative emotions such as anger, disgust and annoyance experienced by an individual	[2, 83]
Perceived deceptive pricing	A perception that occurs when individuals feel that online retailers are using pricing tactics to induce false beliefs about the real value of their offerings	[65, 66]

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Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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