



Transparent Dynamic Pricing and Perceptions of Marketplace Fairness

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Abstract

Dynamic pricing enables digital marketplaces to adjust prices across time, demand conditions, customer segments, or individual consumers. Although such flexibility may support revenue management and market responsiveness, consumers do not evaluate changing prices solely in economic terms. They also judge whether the pricing process appears reasonable, equitable, understandable, and respectful. This study examines whether transparency can improve perceptions of marketplace fairness when consumers encounter dynamic prices. A simulation-based comparative design distinguishes three pricing conditions: opaque dynamic pricing, basic price disclosure, and transparent justified pricing. A synthetic analytical dataset of 450 observations, divided equally across the three conditions, is used exclusively for methodological illustration and is not presented as evidence collected from real consumers. Perceived marketplace fairness, seller trust, price acceptance, manipulation concern, and purchase intention are modeled on seven-point scales.

The simulated results show that perceived fairness increases from 3.62 under opaque dynamic pricing to 4.84 under basic disclosure and 5.96 under transparent justified pricing. Seller trust, price acceptance, and purchase intention follow similar patterns, while perceived manipulation declines substantially as transparency increases. These results are theoretically consistent with established price-fairness research showing that consumers rely on comparative reference points, inferred seller motives, procedural explanations, and the basis of price differentiation when evaluating pricing practices. The study argues that effective transparency requires more than revealing that prices may change. Fairness is more likely to be supported when marketplaces communicate the nature, rationale, and boundaries of dynamic adjustment in terms consumers can understand. The paper contributes a transparency-centered framework for balancing algorithmic pricing flexibility with consumer trust and perceived procedural legitimacy.

Keywords: dynamic pricing; price transparency; marketplace fairness; perceived price fairness; algorithmic pricing; consumer trust; price acceptance; digital marketplaces

1. Introduction

Dynamic pricing has become an important component of digital commerce because prices can be adjusted in response to changing market circumstances, timing, demand, inventory, or consumer characteristics. From the seller's perspective, flexible pricing may improve responsiveness and allow prices to reflect heterogeneous market conditions. From the consumer's perspective, however, the same



flexibility can create uncertainty about whether the price being offered is appropriate relative to prices received by other consumers or available at other times. Haws and Bearden's experimental work demonstrates that dynamic price differences can generate negative fairness perceptions, particularly when consumers become aware that comparable buyers have received different prices.

Price fairness is inherently comparative. Xia, Monroe, and Cox conceptualize fairness judgments as evaluations of whether observed price differences are reasonable, acceptable, or justifiable, while Bolton, Warlop, and Alba show that consumers rely on several reference points, including previous prices, competitors' prices, and their beliefs about sellers' costs. Consequently, a consumer may regard a price as economically affordable yet still consider the underlying pricing process unfair. This distinction is especially important in digital marketplaces, where prices can change quickly and where consumers may have limited knowledge of the logic governing those changes.

The fairness problem becomes more pronounced when price variation appears personalized. Garbarino and Lee found that dynamic pricing in Internet retail can affect consumer trust, while Priester, Robbert, and Roth demonstrate that more granular individualized pricing can reduce fairness perceptions and that the basis used for personalization also matters. Their 2020 research indicates that consumers react differently depending on the information used to determine individualized prices, with privacy concerns further shaping these evaluations. These findings suggest that technological sophistication does not by itself create consumer legitimacy. A pricing system may be computationally efficient while remaining psychologically unacceptable.

Transparency offers one potential mechanism for reducing this legitimacy gap. Ferguson and Ellen found that consumers evaluate price increases more favorably when the firm itself discloses the change and when the explanation is appropriately aligned with the circumstances underlying the increase. Their research also indicates that the amount of explanation required can depend on the magnitude of the price change. Transparency therefore cannot be understood simply as publishing the current price. It may also require disclosure of why the price differs, what factors influence adjustment, whether personal data are involved, and whether similar consumers are subject to comparable rules.

The present study investigates transparent dynamic pricing as a mechanism for strengthening perceived marketplace fairness. It distinguishes opaque dynamic pricing from basic disclosure and from a more comprehensive condition in which the existence, rationale, and operating boundaries of price adjustment are communicated. Because no original marketplace experiment or consumer dataset was supplied for this manuscript, the analysis uses transparently identified synthetic observations rather than fabricated empirical claims. The study proposes that price transparency strengthens fairness not because consumers necessarily prefer every dynamic price outcome, but because understandable and justifiable procedures reduce ambiguity regarding seller motives and provide consumers with a clearer basis on which to evaluate marketplace conduct.

2. Objectives of the Study

2.1 To Examine the Effect of Pricing Transparency on Perceived Fairness

The first objective is to evaluate whether progressively greater transparency surrounding dynamic pricing produces stronger perceptions of marketplace fairness. Three conditions are compared: opaque

dynamic pricing, basic disclosure that prices can vary, and transparent justified pricing in which the marketplace additionally communicates the reasons and boundaries associated with price adjustment. The central proposition is that transparency improves fairness by reducing uncertainty about how a price has been generated. This does not imply that disclosure automatically converts every price difference into a fair outcome. Rather, consumers are expected to distinguish between an unexplained differential and one supported by a comprehensible and defensible rationale.

2.2 To Assess Trust, Manipulation Concern, and Price Acceptance

The second objective is to examine whether fairness-related transparency influences broader marketplace responses. Seller trust is included because prior research shows that dynamic pricing can affect consumers' confidence in the retailer. Manipulation concern captures the possibility that consumers interpret opaque price adjustment as opportunistic exploitation rather than legitimate market adaptation.

Price acceptance represents consumers' willingness to regard the offered price as reasonable enough to continue evaluating the transaction. The study therefore treats transparency as simultaneously informational and relational: it explains the price while also signaling how the marketplace chooses to exercise pricing power.

2.3 To Examine Behavioral Implications for Purchase Intention

The third objective is to evaluate whether greater perceived fairness is accompanied by stronger purchase intention. Existing fairness research indicates that pricing evaluations can extend beyond immediate emotional judgments and influence satisfaction, trust, behavioral responses, and intentions toward the seller.

The present model therefore considers purchase intention as a downstream outcome rather than assuming that price transparency is valuable merely because consumers prefer additional information. The strategic question is whether procedural clarity can preserve commercial relationships even in environments where prices are not fixed.

3. Review of Literature

3.1 Price Fairness, Reference Points, and Seller Motives

Early behavioral research demonstrated that consumers hold fairness expectations concerning the circumstances under which sellers may legitimately increase prices. Kahneman, Knetsch, and Thaler's principle of dual entitlement suggests that consumers recognize both the firm's entitlement to a reference profit and the customer's entitlement to a reference transaction, making the reason for a price change important to fairness judgments.

Campbell later demonstrated that inferred motives influence perceptions of price unfairness. Consumers react more negatively when a price increase appears driven by exploitative intentions than when circumstances provide a more legitimate explanation. This motive-based interpretation remains highly relevant to digital pricing because consumers rarely observe the complete technical or economic process behind an algorithmically generated price.



Bolton, Warlop, and Alba further show that consumers use imperfect but influential beliefs about seller costs, historical prices, and competing prices when assessing fairness. Xia, Monroe, and Cox synthesize this literature by explaining price fairness as a comparative judgment involving transactions, reference parties, outcomes, and contextual information. Together, these studies establish that perceived price fairness cannot be explained by the absolute price level alone.

3.2 Dynamic Pricing and Consumer Fairness Perceptions

Digital environments intensify fairness concerns because the same product can be offered under different conditions at different prices. Garbarino and Lee's work on Internet retail demonstrates that dynamic pricing can weaken aspects of consumer trust, particularly when pricing practices appear unfair. Haws and Bearden subsequently conducted three studies examining seller-, consumer-, time-, and auction-based price variation, finding meaningful negative fairness effects associated with dynamic price differences.

Consumer awareness of what others pay is especially important. Research by Ashworth and colleagues indicates that another consumer's lower price can generate perceptions of deservingness violation and disrespect, while legitimate reasons for differential pricing can mitigate the negative reaction. This provides an important foundation for transparency: the existence of unequal outcomes is not necessarily the only concern; consumers also evaluate whether a convincing reason exists for the difference.

Personalized pricing creates additional difficulty because the seller may use customer-level information to determine prices. Priester, Robbert, and Roth found that increasing the granularity of individualized pricing negatively affects fairness perceptions and that consumers also respond to the particular segmentation basis used. This implies that marketplace fairness includes questions about both what price is assigned and how the marketplace decided who should receive that price.

3.3 Transparency, Explanation, and Procedural Legitimacy

Transparency can improve pricing evaluation when disclosure clarifies legitimate reasons for change. Ferguson and Ellen show that consumers respond more favorably when the firm itself discloses a price increase and when the explanation is appropriately connected to relevant costs. A broader study of price transparency also identifies transparency as an important factor in consumers' fairness judgments regarding sellers' prices.

However, disclosure must be distinguished from justification. A statement that “prices change dynamically” communicates the existence of a pricing rule but may leave consumers uncertain about what triggers the change, how extensively prices can vary, or whether personal information is involved. Transparency therefore operates at multiple levels: awareness of dynamic adjustment, knowledge of the relevant determinants, and understanding of the marketplace's justification for using those determinants.

The literature consequently leaves an important research opportunity. Dynamic-pricing studies establish that price differentiation can provoke fairness concerns, while transparency research shows that disclosure and explanation can influence fairness perceptions. Yet the combined question of whether different depths of transparency can systematically improve marketplace fairness remains especially



relevant to digital pricing systems. The present framework addresses this issue by comparing opaque, disclosed, and transparently justified pricing conditions.

4. Research Methodology

4.1 Research Design and Pricing Conditions

The study uses a simulation-based comparative design. Numerical observations were synthetically generated because no verified participant dataset was provided. The simulation therefore illustrates an analytical model that could later be tested experimentally; it does not report actual consumer behavior.

A total of 450 synthetic observations were divided equally across three hypothetical marketplace conditions. Under opaque dynamic pricing, consumers observe a changing price without receiving an explanation of why the price has changed. Under basic price disclosure, consumers are informed that the marketplace uses dynamic pricing and that prices can change in response to market circumstances.

Under transparent justified pricing, consumers are informed both that prices vary and about the principal basis of variation—for example, time, current demand conditions, inventory availability, or another clearly specified factor. The condition also provides a concise explanation of why the mechanism is used and clarifies that the same stated rule applies consistently within the relevant pricing category.

Table 1: Simulation-Based Methodological Framework

Methodological Component	Specification	Research Purpose
Research design	Three-condition simulated experiment	Compare transparency levels
Total synthetic observations	450	Analytical demonstration
Observations per condition	150	Equal group comparison
Condition 1	Opaque Dynamic Pricing	No explanation of price change
Condition 2	Basic Price Disclosure	Disclosure that prices vary dynamically
Condition 3	Transparent Justified Pricing	Disclosure plus understandable pricing rationale
Primary dependent variable	Marketplace Fairness	Evaluate perceived justice and reasonableness



Methodological Component	Specification	Research Purpose
Relational outcome	Seller Trust	Assess confidence in marketplace conduct
Cognitive concern	Manipulation Concern	Assess perceived opportunistic exploitation
Transaction outcome	Price Acceptance	Evaluate willingness to accept current offer
Behavioral outcome	Purchase Intention	Model downstream commercial response
Measurement scale	Seven-point scale	Standardize synthetic constructs
Statistical technique	Descriptive statistics and one-way ANOVA	Compare simulated condition means

Note: All numerical results are synthetically generated and must not be represented as observations collected from real consumers.

4.2 Proposed Measurement Architecture

Perceived marketplace fairness was defined as the extent to which the pricing process and resulting price appeared reasonable, equitable, and justifiable. Seller trust measured confidence that the marketplace was applying its pricing practices in a dependable and non-deceptive manner. Manipulation concern captured the perception that price variation was designed to exploit consumer vulnerability or informational disadvantage.

Price acceptance represented willingness to consider the current price sufficiently reasonable to continue the transaction. Purchase intention represented the modeled likelihood that the consumer would purchase after observing the pricing information.

For subsequent empirical validation, the following five proposed questionnaire items may be used:

- Q1. “The way this marketplace determines changing prices appears fair to customers.”
- Q2. “The explanation provided for this price makes the pricing process understandable.”
- Q3. “I would trust this marketplace to apply its pricing rules responsibly.”
- Q4. “I consider the price offered under this pricing system acceptable.”
- Q5. “I would consider purchasing from this marketplace under the pricing conditions shown.”

These statements are proposed measurement items only and were not administered to real respondents.

4.3 Analytical and Ethical Procedure

Descriptive statistics were used to compare the simulated means of the three pricing conditions. One-way analysis of variance was then calculated from the synthetic observations to demonstrate how statistical differences could be evaluated in a future experiment.

Because the dataset is simulated, statistical significance does not provide evidence of a real-world population effect. The reported F statistics and associated significance levels describe only the deliberately generated analytical dataset.

A genuine empirical study should randomly assign consumers to standardized pricing scenarios, preregister hypotheses and exclusions, report sample-size justification, evaluate manipulation checks, assess measurement reliability and validity, and disclose whether respondents were exposed to genuine or experimentally constructed prices. Appropriate research-ethics approval should be obtained wherever institutional or legal requirements apply.

5. Analysis

5.1 Comparative Pricing Transparency Outcomes

The synthetic results show a substantial increase in marketplace fairness as pricing transparency becomes more comprehensive. Opaque dynamic pricing produced the lowest mean fairness score at 3.62. Providing basic disclosure increased the mean to 4.84, while transparent justified pricing produced the strongest fairness evaluation at 5.96.

This progression suggests that disclosure alone may produce meaningful improvement but does not fully resolve uncertainty surrounding the price. Consumers in the basic-disclosure condition know that variation occurs, yet they remain comparatively less informed about why it occurs.

Seller trust follows a comparable pattern, increasing from 3.88 under opaque pricing to 4.91 following basic disclosure and 5.79 when pricing is transparently justified. Manipulation concern moves in the opposite direction, falling from 5.88 to 4.79 and finally 3.62.

Table 2: Simulated Consumer Responses Across Pricing-Transparency Conditions

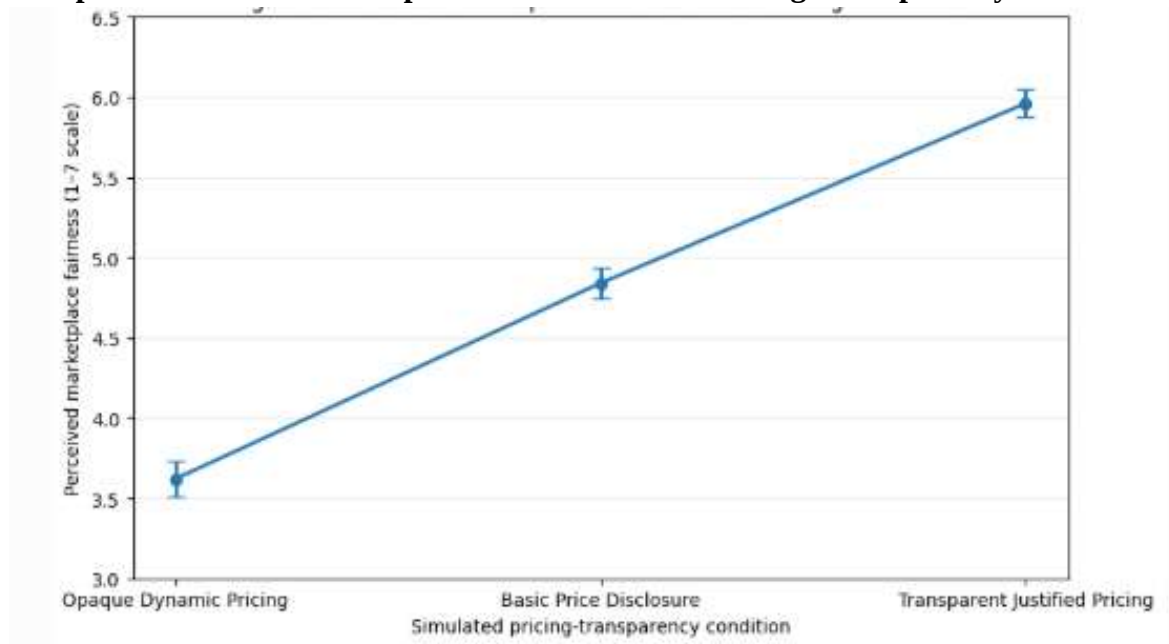
Outcome Variable	Opaque Dynamic Pricing	Basic Price Disclosure	Transparent Justified Pricing	Simulated F	Simulated p
Marketplace Fairness	3.62	4.84	5.96	542.11	< .001
Seller Trust	3.88	4.91	5.79	367.03	< .001
Price Acceptance	3.71	4.73	5.61	329.44	< .001
Purchase Intention	3.82	4.68	5.46	228.49	< .001
Manipulation Concern	5.88	4.79	3.62	457.53	< .001

Source: Author-generated synthetic dataset for methodological demonstration.

The simulated pattern is theoretically consistent with established evidence showing that consumers evaluate the legitimacy of price differences, seller motives, and explanations rather than responding only to final monetary outcomes.

5.2 Graphical Pattern of Marketplace Fairness

Graph 1: Simulated Marketplace Fairness Across Pricing-Transparency Conditions



Source: Author-generated synthetic data. Error bars represent approximate 95% confidence intervals based on the simulated within-condition variation.

The graph shows an almost progressive increase in marketplace fairness as the amount and quality of pricing information increases. Moving from opaque pricing to basic disclosure increases the simulated mean by 1.22 scale points. Moving from basic disclosure to transparent justified pricing produces an additional increase of 1.12 points.

The result suggests that transparency may operate cumulatively. Informing consumers that a dynamic-pricing system exists reduces informational asymmetry, while providing a comprehensible rationale further strengthens procedural legitimacy.

5.3 Trust, Manipulation, and Transactional Responses

The strongest trust score appears under transparent justified pricing, while manipulation concern is lowest in the same condition. This inverse relationship is analytically important because opaque pricing can leave consumers to infer seller motives from limited information. Earlier price-fairness research demonstrates that negative motive attribution is an important antecedent of unfairness perceptions. Greater transparency may therefore alter not only what consumers know about the price but also how they interpret the marketplace's intentions.



Price acceptance rises from 3.71 under opaque pricing to 5.61 under transparent justification. Purchase intention also improves, although its increase is slightly less pronounced. This distinction is plausible because a consumer can perceive a pricing procedure as fair while still choosing not to purchase because of affordability, product preference, urgency, competitive alternatives, or other factors.

The simulation therefore does not imply that transparency eliminates price sensitivity. It suggests instead that transparency can reduce a distinct barrier: resistance arising from uncertainty about whether the pricing process itself is legitimate.

6. Discussion

6.1 Transparency as Procedural Fairness Rather Than Simple Disclosure

The study's principal theoretical implication is that pricing transparency should be conceptualized as a component of procedural fairness rather than as a binary disclosure variable. Merely stating that “prices may change” gives consumers information about the existence of dynamic pricing but does not necessarily allow them to evaluate its legitimacy.

Ferguson and Ellen's findings demonstrate that the source and extent of price explanations affect fairness evaluations and that more substantial price increases may require correspondingly stronger justification. The present simulation extends this logic to digital marketplaces by distinguishing disclosure from reasoned disclosure.

A procedurally transparent system should therefore answer several practical questions: What causes the price to change? Are prices adjusted because of timing, demand, inventory, costs, or consumer-specific information? Does the stated mechanism operate consistently? Are consumers informed when personal characteristics are involved? What limits exist on the system's discretion? Transparency becomes credible when these questions can be answered without requiring consumers to understand the underlying optimization algorithm.

6.2 Comparison With Dynamic-Pricing Fairness Research

The comparatively weak fairness result under opaque pricing is consistent with Haws and Bearden's evidence that price differences arising under dynamic pricing can create unfavorable fairness judgments. It also aligns with Garbarino and Lee's finding that Internet-based dynamic pricing can negatively affect consumer trust.

The findings additionally complement Priester, Robbert, and Roth's work on personalized dynamic pricing. Their results show that increasingly granular price individualization can reduce consumer fairness evaluations and that the type of data used for personalization matters. This is particularly important because transparency cannot be separated from data governance when a pricing system relies on customer-level information.

A marketplace that discloses dynamic pricing but conceals the use of sensitive or unexpected personal information may remain transparent at one level while opaque at another. Comprehensive fairness therefore requires clarity not only about price variability but also about the informational inputs used to generate that variability.

6.3 Managerial Implications for Digital Marketplaces

Marketplace operators should avoid assuming that algorithmic efficiency automatically creates consumer acceptance. A pricing algorithm may improve revenue allocation while simultaneously damaging trust if consumers perceive the process as arbitrary, exploitative, or discriminatory.

Managers should therefore develop a layered transparency architecture. At the first level, customers should be informed when prices are dynamic rather than fixed. At the second level, the marketplace should provide a concise explanation of the principal factors that may influence change. At the third level, personalized pricing should be accompanied by particularly careful disclosure regarding the categories of information used and appropriate privacy protections.

Explanations should also be meaningful rather than performative. Generic statements such as “prices depend on multiple factors” provide little evaluative value. A more useful disclosure might explain that a price varies according to publicly observable demand, remaining capacity, booking time, or another identifiable condition.

Transparency should not, however, be used to legitimize inherently problematic practices. Explaining an arbitrary or discriminatory mechanism does not necessarily make it fair. Marketplace governance should therefore combine transparency with consistent rules, reasonable safeguards, privacy protection, auditability, and mechanisms through which consumers can question or challenge unexpected price outcomes.

7. Conclusion

This study examined the relationship between dynamic-pricing transparency and perceived marketplace fairness through a simulation-based analytical design. Three conditions were compared: opaque dynamic pricing, basic price disclosure, and transparent justified pricing. The synthetic results indicate a consistent progression in which fairness, seller trust, price acceptance, and purchase intention improve as transparency becomes more informative, while manipulation concern declines.

The central conclusion is that marketplace fairness depends not only on how much consumers pay, but also on whether they can understand the procedure through which the price was determined. Consumers compare prices, infer motives, evaluate differential treatment, and assess whether the stated reasons for variation appear legitimate. Established research on price fairness and dynamic pricing supports each of these mechanisms.

Transparent dynamic pricing should therefore be understood as more than a notice that prices fluctuate. Effective transparency communicates the existence of dynamic adjustment, identifies its material determinants, provides a plausible justification, and clarifies the limits governing differential treatment. Such transparency cannot guarantee that consumers will approve every price, but it can provide a more defensible basis for procedural trust.

The study is limited by its synthetic analytical design and does not establish real-world causal effects. Future research should test the proposed framework experimentally across retail platforms, travel marketplaces, mobility services, event ticketing, hospitality, and subscription markets. Researchers should additionally investigate whether transparency effects vary according to price magnitude, consumer income, privacy concern, market power, brand familiarity, urgency, previous purchase experience, and whether the consumer benefits or loses from the dynamic adjustment.



References

1. Bolton, L. E., Warlop, L., & Alba, J. W. (2003). Consumer perceptions of price (un)fairness. *Journal of Consumer Research*, 29(4), 474–491.
2. Xia, L., Monroe, K. B., & Cox, J. L. (2004). The price is unfair! A conceptual framework of price fairness perceptions. *Journal of Marketing*, 68(4), 1–15.
3. Haws, K. L., & Bearden, W. O. (2006). Dynamic pricing and consumer fairness perceptions. *Journal of Consumer Research*, 33(3), 304–311.
4. Grewal, D., Hardesty, D. M., & Iyer, G. R. (2004). The effects of buyer identification and purchase timing on consumers' perceptions of price fairness. *Journal of Consumer Research*, 31(3), 571–578.
5. Campbell, M. C. (1999). Perceptions of price unfairness: Antecedents and consequences. *Journal of Marketing Research*, 36(2), 187–199.
6. Campbell, M. C. (2007). “Says who?!” How the source of price information and affect influence perceived price fairness. *Journal of Marketing Research*, 44(2), 261–271.
7. Maxwell, S. (2002). Rule-based price fairness and its effect on willingness to purchase. *Journal of Economic Psychology*, 23(2), 191–212.
8. Garbarino, E., & Lee, M. (2003). Dynamic pricing in the airline industry. *Journal of Revenue and Pricing Management*, 2(1), 59–69.
9. Garbarino, E., & Maxwell, S. (2010). Consumer response to norm-breaking pricing events. *Journal of Business Research*, 63(6), 671–677.
10. Dutta, S., Bergen, M., Levy, D., Ritson, M., & Zbaracki, M. J. (2003). Pricing process as a capability: A resource-based perspective. *Marketing Science*, 22(1), 56–85.
11. Sahay, A. (2007). How to get the price right: The role of market conditions. *Journal of Revenue and Pricing Management*, 6(3), 226–235.
12. Choi, S., & Mattila, A. S. (2004). Attribute evaluation of hotel services: Role of consumer involvement and price fairness perceptions. *Journal of Travel Research*, 43(1), 42–52.
13. Choi, S., & Mattila, A. S. (2018). Perceived fairness of differential pricing and its impact on customer satisfaction. *Journal of Travel Research*, 57(4), 453–467.
14. Dellaert, B. G. C., & Stremersch, S. (2005). Marketing mass-customized products: Striking a balance between utility and complexity. *Journal of Marketing Research*, 42(2), 219–227.
15. Wirtz, J., Kimes, S. E., Theng, J. H. P., & Patterson, P. (2003). Revenue management: Resolving potential customer conflicts. *Journal of Service Research*, 5(3), 229–242.
16. Priester, A., Robbert, T., & Roth, S. (2020). A special price just for you: Effects of personalized dynamic pricing on consumer fairness perceptions. *Journal of Revenue and Pricing Management*, 19, 99–112.
17. Hufnagel, G., Schwaiger, M., & Weritz, L. (2022). Seeking the perfect price: Consumer responses to personalized price discrimination in e-commerce. *Journal of Business Research*, 143, 346–365.
18. Alderighi, M., Nava, C. R., Calabrese, M., Christille, J.-M., & Salvemini, C. B. (2022). Consumer perception of price fairness and dynamic pricing: Evidence from Booking.com. *Journal of Business Research*, 145, 769–783.
19. Diao, W., Harutyunyan, M., & Jiang, B. (2022). Consumer fairness concerns and dynamic pricing in a channel. *Marketing Science*, 42(3), 569–588.
20. Choi, S., & Mattila, A. S. (2019). The role of information transparency in consumers' fairness perceptions of personalized pricing. *International Journal of Hospitality Management*.