

The Impact of Differential Pricing Strategies on Consumer Purchase Intentions in E-Commerce Platforms: An Analysis of the Mediating Effect of Perceived Fairness

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Abstract. During the digital economy era, online stores are eagerly implementing revenue optimization opportunities, and the pricing model moves towards more transparent models, no longer being the controversial concept of big data price discrimination. It is based on this that this paper concentrates on the tiered membership pricing as a proactive strategy. A theoretical model based on the social exchange theory and the equity theory was developed in which perceived tiered membership pricing acted as the independent variable, purchase intention was the dependent variable, and the perceived fairness served as the mediating variable. The study revealed that: (1) Consumer perceptions of tiered membership pricing had significant total effect on purchase intention ($\beta=0.770$, p less than 0.01); (2) The same perception had significant positive effect on perceived fairness ($\beta=0.839$, p less than 0.01); (3) Perceived fairness partially mediated the two characteristics, whereas mediation effect of the same is 0.598 which accounts 79.3 percent of the total effect. This paper establishes that tiered membership pricing is an effective way to meet the psychological need of the consumers due to fairness through open and predictable regulations, therefore, it is one of the most influential factors that ensure a connection between pricing strategies and buyer behavior. This implies that the pricing strategy that is set by e-commerce should be founded on the transparency of the rules and value comparability as a long-term method to make a commercial gain and user experience balanced.

Keywords: e-commerce platform, differential pricing, tiered membership pricing, perceived fairness, purchase intention.

1. Introduction

E-commerce platforms, being one of the fastest growing industries in the digital economy, have become focal to everyday use, radically reshaping traditional model and ecosystems of trade in commodities. One of these strategies is differentiated pricing, when platforms charge varying prices of the same good or service, depending on loyalty to the platform, attributes of customers, including gender, age, and income, previous purchases of specific goods, and the situation of consumption. Although platforms of e-business use this strategy to increase profitability and the optimization of

resource distribution, its ability to affect the perception of fairness and the resulting consumer buying intention remains an object of the broad theoretical and practical attention.

An analysis of the current literature in the context of differential pricing and the purchase intention shows strongly divided and polarizing findings. As a rule, where the concept of differential pricing is considered reasonable and fair, there can be intensified purchase intention. Consumer loyalty and pricing research suggests that the differentiation price based on loyalty strengthens repeat purchase behavior where long term customers believe that the price differentiation is justified. These clients do not just purchase more, but also give a good word of mouth. Conversely, in cases where pricing is not done in a transparent manner or it is arbitrarily imposed, there will be a perceived unfairness resulting in lower expenditure and negative publicity, thus damaging the reputation of the platforms. Therefore, the positive effects of the use of differential pricing are rather situational. These notable implementations include controversial subjects like big data pricing gouging and more transparent and consumer-friendly ones like tiered membership pricing. The latter creates a transparent membership system, with the upper levels being reached by investing more in the products of the company, allowing one to receive lower prices and more benefits as their level is higher. This is provided by a fair logic of compensating engagement as opposed to the status quo [1].

Despite the fact that previous literature has studied the consequences of the differential pricing, the major studies have looked at the immediate effects, or discussed the negative aspects of the impact and has not paid so much attention to the mediating variable which is perceived fairness. Specifically, very few studies on e-commerce have explored the role of perceptions of fairness in a systematic way as an intervening variable between visible pricing procedures like membership schemes or dynamic promotion and intention to purchase. In order to fill this gap, the present study dwells upon a positive variant of the differential pricing and studies its impact on the multifaceted perception of fairness by consumers [2].

Tiered membership pricing is one of the representative positive pricing strategies that are used in this paper to investigate its influence on the purchase intention with perceived fairness as a mediator. Surveys are based on surveying information where statistical expertise is used to investigate to illuminate how the perception of fairness is developed and how consumer behavior is determined using the model of tiered pricing. The findings provides useful information to e-commerce applications when it comes to maximizing the corporate profitability versus customer satisfaction with fair pricing.

2. Theoretical foundations

The social exchange theory explains human social behaviors as a kind of implicit exchange on which the people involved have applied mutual trust, with each side anticipating to get back what they give. Consumer-platform relationship is in the environment of e-commerce, where the customer invests money, data, time, and loyalty and the consumer expects fair experiences and value addition back. This relationship is formalized by tiered membership pricing. Through investment to achieve a superior level, members will clearly obtain superior prices and additional perks, which is aligned to the theory of the reciprocity principle, and which assists in maintaining a valued exchange.

Equity theory puts more stress on the fact that people are concerned about the balance in terms of input and output in relation to other people. When there is tiered pricing, it is commonly understood that the consumers will mainly compare themselves with the other consumers in the same tier thereby ensuring in-group fairness. Tiered pricing disparities are considered as rational with differing amounts of engagement and investment. In this case, sustained consumption and loyalty

would be considered as an input whereas a product and the benefits that are offered at the respective tiers would be neuron as output. This more input more return logic is useful in enabling justification of price variation and reinforcement of distributive fairness perceptions [3].

In its turn, the theory of perceived price fairness dwells upon the manner in which consumers make their fairness evaluation on the basis of reference points and price guidelines [4]. Tiered prices set up a system of clear attainable references, in the form of membership level, so that differences in price start to be seen as rational as opposed to arbitrary. Whenever consumers adopt the idea that the higher the levels, the lower the price, they never think of the difference as an indication of transparency in the process and result. The effect of such a strategy on procedural fairness is also procedural fairness through promulgated and uniform rules and relational fairness through the provision of some of the top-tier members with exceptional services. This manner can be applied to the explanation of how the tiered pricing corrects the perceptions of holistic fairness at different levels, which are advantageous to the theoretical model of this study [5].

3. Research design

3.1. Research model and hypotheses

This paper will build a theoretical model whose independent variable is the e-commerce platform superior price, dependent variable is the consumer purchase intention, and the mediating variable is perceived fairness. According to the social exchange theory and fairness theory rates, this study assumes that in the context of facing the disparate pricing, consumers will evaluate fairness in various domains, such as distributive results, pricing processes, and interaction process with the system. This sense of fairness is one of the most important psychological processes that affect their ultimate buying behaviors. Thus, the following questions will be used as research hypotheses:

H1: Consumers' perceptions of tiered pricing strategies for membership programs significantly and positively influence their purchase intentions.

H2: Consumers' perceptions of tiered membership pricing strategies significantly and positively influence their perceived fairness.

H3: Perceived fairness plays a significant mediating role in the relationship between differential pricing strategies and consumer purchase intention.

3.2. Variable measurement and questionnaire design

This study employs a questionnaire survey method, with all measurements derived from respondents' answers. All scales in the questionnaire design were derived from established scales in authoritative domestic and international literature to ensure content accuracy. To align with the specific context of e-commerce consumption in this study, the wording of scale items was adapted for contextual relevance. For subsequent data processing and calculation, all items were measured using a five-point Likert scale ranging from “1 = Strongly Disagree” to “5 = Strongly Agree.” The specific measurement items for each construct are presented in Table 1.

Table 1. Measurement items of key constructs

Variable Type	Specific Variable	Measurement Items
Independent Variables	Perceived Tiered Pricing (DP)	DP1: I have noticed that e-commerce platforms offer different prices based on users' membership tiers.
		DP2: I believe the platform's pricing mechanism takes my membership status into account to offer me corresponding price discounts.
		DP3: I feel that higher membership tiers grant greater pricing benefits.
Mediating Variables	Perceived Fairness (PF)	Distributive Justice (DJ):
		DJ1: Considering the goods I purchased, I believe the price paid was fair.
		DJ2: The final price I paid for the product matches the cost I incurred.
		DJ3: Compared to other consumers, the price I paid is reasonable.
		Procedural Fairness (PJ):
		PJ1: I believe the platform's process for setting these differentiated prices is transparent.
		PJ2: The platform applies consistent rules to everyone when implementing this pricing.
		PJ3: If I discover I overpaid after purchasing, the platform provides a convenient channel to refund the price difference.
Dependent Variable	Purchase Intention (PI)	PI1: I am willing to purchase tiered-priced membership products on this platform.
		PI2: I would recommend others to purchase membership tiered pricing products on this platform.

4. Data collection and analysis

This study utilized a professional online survey platform to distribute questionnaires specifically targeting consumers who had shopped on e-commerce platforms within the past three months. A total of 170 questionnaires were collected. Invalid data was identified based on criteria such as excessively short response times, identical selections across all options, or obvious logical inconsistencies. Ultimately, 170 valid data points were retained.

Variable scoring formulas

Perceived Membership Tiered Pricing (DP) = DP1 + DP2 + DP3

Perceived Fairness (PF) = (DJ1+DJ2+DJ3 + PJ1+PJ2+PJ3 + IJ1+IJ2+IJ3) / 9

Purchase Intention (PI) = PI1 + PI2 + PI3

4.1. Reliability analysis

The reliability of the scale was measured using the Cronbach 2 coefficient as presented in Table 2. The value of the overall Cronbachs 2 coefficient was 0.950, which is greater than 0.9 meaning that there was high reliability in the research data. Correction items of each item in the total correlation coefficient (CITC) was greater than 0.4 and α coefficient did not exhibit significant growth following item dropout. This shows that there is good correlation between the items and the entire scale, there is excellent reliability, and data is suitable to be analyzed later.

Table 2. Cronbach reliability analysis

name	Corrected Item Total Correlation (CITC)	Alpha Coefficient After Item Deletion	Cronbach's α Coefficient
DP1	0.685	0.947	0.95
DP2	0.789	0.945	
DP3	0.658	0.948	
DJ1	0.773	0.945	
DJ2	0.766	0.945	
DJ3	0.79	0.945	
PJ1	0.683	0.947	
PJ2	0.746	0.946	
PJ3	0.654	0.948	
IJ1	0.763	0.945	
IJ2	0.643	0.948	
IJ3	0.744	0.946	
PI1	0.746	0.946	
PI2	0.772	0.945	
PI3	0.679	0.947	

4.2. Validity analysis

This study examined scale validity through exploratory factor analysis. Results showed a KMO value of 0.950, exceeding the threshold of 0.9, indicating data suitability for information extraction. All item factor loadings exceeded 0.5, and common factor variance exceeded 0.4, confirming effective information extraction and robust construct validity. Results are presented in Table 3.

Table 3. Analysis of factor loadings and communalities

Item Name	Factor Loadings (Factor 1)	Commonality (Common Factor Variance)
DP1	0.728	0.53
DP2	0.823	0.677
DP3	0.702	0.493
DJ1	0.81	0.655
DJ2	0.803	0.644
DJ3	0.825	0.681
PJ1	0.726	0.527
PJ2	0.784	0.614
PJ3	0.698	0.487
IJ1	0.799	0.639
IJ2	0.688	0.473
IJ3	0.78	0.609
PI1	0.785	0.616

Table 3. (continued)

PI2	0.808	0.653
PI3	0.724	0.524
KMO value	0.95	-

4.3. Mediating effect analysis

This study employed the Bootstrap method to examine the mediating effect of perceived fairness, with results presented in Tables 4 and 5.

Table 4. Mediating effect analysis results

Variable Category	Variable Name	B	Standard Error	t	p	β
Total Purchase Intention Score (Model 1)	Constant	2.363***	0.534	4.427	0	-
	Differential Pricing Total Score	0.754***	0.048	15.626	0	0.77
	R ²	0.592	-	-	-	-
	Adjusted R ²	0.59	-	-	-	-
	F value	F(1,168)=244.186, p=0.000	-	-	-	-
Perceived Fairness Total Score (Model 2)	Constant	6.642***	1.33	4.993	0	-
	Differential Pricing Total Score	2.403***	0.12	19.978	0	0.839
	R ²	0.704	-	-	-	-
	Adjusted R ²	0.702	-	-	-	-
	F value	F(1,168)=399.106, p=0.000	-	-	-	-
Total Purchase Intention Score (Model 3)	Constant	0.709	0.45	1.577	0.117	-
	Differential Pricing Total Score	0.156*	0.07	2.235	0.027	0.159
	Perceived Fairness Total Score	0.249***	0.024	10.227	0	0.728
	R ²	0.749	-	-	-	-
	Adjusted R ²	0.746	-	-	-	-
	F value	F(2,167)=249.662, p=0.000	-	-	-	-

Table 5. Summary of mediating effect test results

Index	Value/Content
Item	Differential Pricing Total Score → Perceived Fairness Total Score → Purchase Intention Total Score
c Total Effect	0.754**
a	2.403**
b	0.249**
a*b Mediating Effect Value	0.598
a*b (Boot SE)	0.087
a*b (z-value)	6.867
a*b (p-value)	0
a*b(95%BootCI)	0.441 to 0.785
c' Direct Effect	0.156*
Test Conclusion	Partial Mediator
Remarks	*p<0.05, **p<0.01
Bootstrap Type	Percentile Bootstrap Method

The results above show that there is a notable net effect of differential pricing on purchase intention that the standardized path coefficient of 0.77 with a significance lower than 0.01 supports Hypothesis H1. Differential pricing has a strong positive impact on the perceived fairness but its standardized path coefficient stands at 0.839 with a significance of less than 0.01 which supports Hypothesis H2. Perceived fairness has a value of 0.598 as the mediation effect and its confidence interval involving 0.598 does not include 0. The direct impact is also relevant to a great extent and the standardized path coefficient is 0.159 and the significance level is lower than 0.05. This shows that the relationship between difference in price and purchase intention partly takes place through the perception of fairness thus supporting Hypothesis H3 [6].

5. Discussion

5.1. Research discussion

Based on Social Exchange Theory and Equity Theory, a theoretical model was developed and tested to examine the relationships among perceptions of tiered membership pricing, perceived fairness, and purchase intentions. The research shows that tiered membership pricing which is a kind of positive differential pricing strategy that is perceived as open – strongly boosts purchase intention. This finding suggests that differential pricing does not necessarily have only negative effects; a transparent type of price differentiation can actually be useful for an e-commerce platform in terms of optimizing revenue and user experience [7].

The perceived fairness partially mediates the relationship, accounting for 79.3%. The effect promoted by tiered member prices in increasing consumer purchase intention mainly reflects through strengthening consumer fairness perception. In terms of tiered membership pricing, through the disclosure of rules and standard procedures, the principle of 'more consumption' and 'greater benefits', as well as providing convenience to members to establish good interpersonal interactions,

strengthens consumers' sense of fairness on different levels, including procedural, distributional, and interactional fairness, which ultimately influences consumer purchase behavior [8].

5.2. Management implications

According to these results, e-commerce websites used to adopt tiered price as memberships need to concentrate on these aspects. Anciently, platforms ought to have both a managed and consistent membership framework that explicitly reveals career advancement and the ensuing perks, allowing consumers to instinctively understand the logic of fairness of investment-return. To give an example, an informational system of membership progression can be employed to show price offers and unique services that are related to every level [9]. Second, transparency of pricing rules and their practice should be very high to avoid changes in the perception of fairness of consumers due to inconsistent rules or deviations related to the rules implementation. At the same time, the interactive fairness experience needed by the members of higher tiers should be improved with the help of special customer service and membership-day events, which will reinforce their trust and acknowledgment of the platform. Lastly, when marketing communications are involved, the focus should be initiated towards the fairness of membership pricing. This will emphasise it as a justifiable reward on long-term loyalty of consumers and their commitment to spend, not price discrimination and as such set the consumers on the path to building a positive cognitive frame around the strategy [10].

6. Conclusion

The study explores the impact of the difference pricing strategy of e-commerce to influence the quality of the purchase intentions of consumers, with special concerns being the mediating role of the perception of fairness. Results indicate that tiered membership pricing, which is a clear and regulations-based type of differential pricing, generates a strong intention to purchase in consumers. Interestingly, the role of perceived fairness is a desirable partial mediator in the interaction and contributes 79.3 percent of the entire observed effect on this dynamic. Not only does the results provide solid ground to the applicability of the social exchange theory and equity theory in the digital market, but the results also illuminate the psychological processes in which pricing strategies dictate consumer behavior.

Theoretically, the work contributes to the re-conceptualization of the story on the topic of differential pricing, whose focus is no longer on the mostly negative examples of price discrimination based on big data but rather on more positive paradigms of the concept of tiered membership pricing. The presence of a multidimensional perception of fairness as a distributive, procedural, and interactional phenomenon makes the study identify the implicit psychological route that connects pricing structures and consumer behaviors. Practically, the evidence provides the e-commerce websites with practical information to implement transparent and fair pricing mechanisms. This set of strategies may prevent a conflict between profit motives and positive user experience, which will lead to sustainable self-growth of the platform.

It must be noted though that the research has some limitations. The sample size was limited to those who already had the experience of online shopping, and this limitation may limit the extent to which the findings can be extrapolated. Moreover, this is shipped by the fact that a cross-sectional design type is difficult in determining the impacts that tiered pricing has on behavior in the long run. The future would entail longitudinal data following and more demographically diverse samples. The other area that needs exploration is whether or how tiered pricing leads to different results in

different types of products, including everyday consumables, and high-involvement durable items. Future studies can consider how price conscious and brand attachment shopper characteristics mediate the relationship between tiered pricing and purchase decisions.

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