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Article

An Empirical Study on Pricing Mechanisms and Consumer Welfare Effects in Platform Markets Under the Background of Digital Economy

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Abstract: Amid the rapid acceleration of global digital transformation, platform markets have emerged as the fundamental core carrier of the modern digital economy. Within these complex ecosystems, unique pricing mechanisms profoundly influence both market resource allocation and the equitable distribution of consumer welfare. This comprehensive study focuses specifically on the intricate dynamics of multi-sided pricing, dynamic pricing, personalized pricing, and platform subsidy pricing strategies currently deployed in contemporary platform markets. Based on extensive microdata collected from typical, industry-leading platform enterprises and adopting rigorous empirical research methods, this paper systematically explores the operational characteristics of these diverse pricing mechanisms. Furthermore, it quantitatively assesses their direct and indirect impacts on overall consumer welfare. The empirical results demonstrate that these pricing mechanisms consistently exhibit dual effects. On the positive side, they can significantly improve market matching efficiency, substantially expand overall transaction scale, and enhance consumer preference matching accuracy to varying degrees. Conversely, however, they also introduce critical challenges and face persistent issues such as inconsistent merchant quality, excessive price volatility during peak demand periods, algorithmic data-driven discrimination, and potentially unsustainable long-term welfare effects. Ultimately, this study significantly enriches the existing theoretical system of platform economy research. It provides robust empirical support for government regulators seeking to formulate effective fair competition and consumer protection policies, while simultaneously offering strategic decision-making references for platform enterprises aiming to optimize their pricing strategies and achieve sustainable, long-term economic development.

Keywords: platform markets; pricing mechanisms; consumer welfare; digital economy; econometric analysis

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1. Introduction

In the context of global digital transformation, platform markets have emerged as a core component of the digital economy, with their unique pricing mechanisms exerting a profound influence on market resource allocation and consumer welfare distribution. Platform enterprises in fields such as e-commerce, ride-hailing, and digital content have broken traditional market transaction models, and their pricing strategies involve multiple stakeholders and show complex characteristics, which have aroused widespread attention in academic, industrial, and regulatory circles [1].

Existing studies have explored the relationship between pricing strategies and consumer welfare from multiple perspectives [2]. Some studies have focused on the

impact of price changes in specific fields on consumer welfare. With the development of digital technology, personalized pricing based on big data has become a new research focus, and its impact on consumer welfare has been deeply discussed. In addition, the impact of different pricing mechanisms on welfare distribution and related attributes such as transparency has also been a concern. However, most of these studies lack systematic empirical analysis based on platform microdata, and there is insufficient in-depth exploration of the internal mechanism of platform pricing affecting consumer welfare under the digital economy background. In practice, problems such as unfair pricing in platform markets have triggered social disputes, which highlights the urgency of in-depth research on this issue to balance the development of platforms and the protection of consumer welfare.

This study aims to fill the gaps in existing research through empirical analysis based on platform microdata [3]. It focuses on three core research questions: First, what are the main types and operational characteristics of pricing mechanisms in platform markets under the digital economy background? Second, through what channels do these pricing mechanisms affect consumer welfare and what are the specific effects? Third, how to regulate platform pricing behaviors to promote the improvement of overall social welfare while ensuring the sustainable operation of platforms?

The theoretical significance of this study lies in enriching the research system of platform economy and pricing theory, and deepening the understanding of the operational laws of digital markets. In terms of practical significance, the research results can provide empirical evidence and policy references for regulatory authorities to formulate relevant policies, and also provide decision-making references for platform enterprises to optimize pricing strategies and achieve sustainable development [4].

The structure of this paper is arranged as follows: The second chapter sorts out the relevant literature, the third chapter introduces the theoretical framework, research hypotheses, data sources and research methods, the fourth chapter presents and discusses the empirical results, and the fifth chapter summarizes the research conclusions, points out the policy implications and research limitations, and looks forward to the future research direction [5].

2. Literature Review

Research on platform pricing mechanisms and consumer welfare effects has gradually become a core topic at the intersection of the digital economy and applied economics, with relevant theoretical and empirical explorations continuously deepening. Platform markets, as typical multi-sided markets, have distinct characteristics such as network externalities and information asymmetry, which make their pricing logic fundamentally different from traditional single-sided markets [3].

In terms of the classification and operational mechanism of platform pricing mechanisms, existing studies have conducted preliminary sorting. Scholars have divided platform pricing into multi-sided pricing, dynamic pricing, personalized pricing, and other types based on the scope and adjustment frequency of pricing [6]. Relevant research has explored the impact of minimum quality standards related to pricing on consumer welfare redistribution. Dynamic pricing, which adjusts in real time according to market changes, has been studied in specific fields to verify its welfare effects, and there are also studies focusing on the regulation of dynamic pricing and its impact on market welfare. In addition, comparative research on different pricing mechanisms has analyzed their differences in efficiency and equity. However, there is still a lack of in-depth analysis of the internal decision-making logic of platforms when choosing different pricing strategies and the interaction mechanisms between multiple pricing methods.

The research on the impact of platform pricing on consumer welfare has not yet formed a unified conclusion. Some studies point out that data monopoly derived from platform operations will have a negative impact on consumer welfare. Personalized pricing, which relies on big data technology, has sparked extensive discussions on fairness and welfare equity. In specific market fields, the competitive environment formed by

related platforms may also reduce consumer welfare [4]. On the other hand, some studies have explored the path of promoting consumer welfare by designing performance-based regulation to improve industry operation efficiency. There are also studies that analyze the preferences of consumers in the context of sustainable consumption and their impact on welfare evaluation, and explore how to mitigate market power to achieve the goal of improving consumer welfare. The inconsistency of these research conclusions indicates that the relationship between platform pricing and consumer welfare is affected by multiple factors such as market structure, platform operation strategy, and regulatory environment, and needs to be further verified through empirical research.

In terms of empirical research, existing studies mainly adopt case analysis and econometric modeling [7]. Case studies can deeply explore the internal logic of pricing behavior but have limitations in generalizability. Econometric modeling uses microdata for quantitative analysis, but most studies have problems such as single data sources and incomplete consideration of endogeneity, which affect the reliability of conclusions. In addition, existing empirical research rarely involves the heterogeneous impact of different pricing mechanisms on consumer welfare under different market conditions, and lacks in-depth discussion on the regulatory policies of platform pricing and their implementation effects.

In summary, although existing research has made certain progress in the fields of platform pricing mechanisms and consumer welfare effects, there are still obvious gaps. First, the theoretical research on platform pricing mechanisms is not systematic enough, and the interaction mechanism between multiple pricing methods and the impact of digital technologies on pricing decisions need to be further clarified [8]. Second, the empirical research lacks sufficient microdata support, and the research methods need to be optimized. Third, the research on the impact of platform pricing on consumer welfare is fragmented, and there is a lack of a comprehensive analytical framework. Fourth, the research on platform pricing regulation is relatively lagging behind, and it is difficult to provide effective policy support for solving practical problems such as unfair pricing. This study intends to fill the above research gaps, systematically explore the operational characteristics and welfare effects of platform pricing mechanisms, and provide theoretical and practical references for the healthy development of platform markets.

3. Theoretical Framework and Methodology

This chapter presents the theoretical framework and detailed methodology employed to explore the pricing mechanisms of platform markets and their consumer welfare effects in the context of the digital economy [3]. The study adopts a mixed-methods approach, integrating theoretical deduction and empirical analysis to systematically examine how platform pricing strategies operate and shape consumer welfare outcomes. The methodology aims to verify the core relationships between pricing mechanisms and welfare effects while capturing the heterogeneous impacts under different market conditions. A method flowchart is included to illustrate the key stages and logical connections of the research process.

3.1. Theoretical Framework

The theoretical foundation of this study is built on the intersection of two-sided market theory, information economics, and consumer behavior theory, with a focus on the unique attributes of platform markets in the digital economy. Two-sided market theory serves as the core pillar, emphasizing that platform enterprises act as intermediaries connecting multiple user groups such as consumers and merchants [9]. The pricing decisions for each group are interdependent due to network externalities, where the participation of one group increases the value of the platform for the other group. In the digital era, this interdependence is amplified by data-driven technologies, enabling platforms to implement more flexible and refined pricing strategies.

Information economics provides a critical lens for analyzing the information asymmetry between platforms and consumers. Digital platforms accumulate massive

volumes of user data, including consumption history, browsing behavior, and preference characteristics. This data advantage reduces the information gap for platforms while potentially widening it for consumers who lack transparency into pricing algorithms and decision-making processes. This information distribution pattern directly influences the design and implementation of platform pricing mechanisms, such as personalized pricing based on user data analytics.

Consumer behavior theory helps explain how individuals respond to different platform pricing strategies. Factors including consumer perceived value, price sensitivity, and trust in platforms shape their purchase decisions and welfare perceptions when facing multi-sided pricing, dynamic pricing, or personalized pricing [10]. For example, price-sensitive consumers may switch between platforms in response to dynamic price adjustments, while consumers with high brand loyalty may exhibit greater tolerance for personalized pricing differences.

The theoretical logic of this study is structured as follows. Driven by goals of profit maximization and market expansion, platforms design pricing mechanisms by leveraging network externalities and data advantages. These pricing mechanisms influence consumer welfare through three key channels [11]. First, the direct price effect refers to changes in consumer surplus resulting from variations in pricing levels. Second, the market matching effect occurs when pricing strategies alter the participation scale of merchants or service providers, thereby changing the variety and quality of products or services available to consumers. Third, the behavioral guidance effect describes how pricing signals shape consumer decision-making processes such as search effort and purchase timing, further impacting their welfare experience.

This framework also incorporates the regulatory environment and market structure as boundary conditions [12]. The degree of market competition, such as the number of competing platforms and market concentration, and the intensity of regulatory constraints, such as pricing transparency requirements and anti-unfair competition regulations, may moderate the relationship between platform pricing mechanisms and consumer welfare. For instance, in highly competitive markets, platforms may use more favorable pricing to attract consumers, mitigating the negative welfare effects of excessive pricing.

3.2. Methodology

The study employs an empirical research design, examining four core pricing mechanisms in platform markets: multi-sided pricing, dynamic pricing, personalized pricing, and platform subsidy pricing [11]. Each pricing mechanism aligns with a specific research dimension to thoroughly evaluate its impact on consumer welfare. The research process encompasses case selection, data preparation, response generation through empirical observations, mixed-methods analysis, and validation, ensuring a systematic assessment of the theoretical relationships.

3.2.1. Research Dimensions

Four research dimensions are established to cover the main types of platform pricing mechanisms and their key impact paths on consumer welfare, reflecting the structure of the reference framework [10].

The first research dimension focuses on multi-sided pricing, examining how platforms balance pricing for consumers and merchants and its impact on consumer welfare [2]. This dimension explores whether cross-subsidy strategies, such as low consumer prices paired with higher merchant commission rates, can enhance consumer welfare by expanding the scale of merchant participation, and whether an optimal pricing ratio exists to maximize overall welfare.

The second research dimension analyzes dynamic pricing, investigating how platforms adjust prices based on real-time supply and demand changes, time factors, and market conditions, and how these adjustments influence consumer welfare. Key questions include the relationship between price volatility and consumer surplus, and variations in welfare effects for consumers with different time preferences.

The third research dimension centers on personalized pricing, exploring how platforms use big data technology to implement differentiated pricing for individual consumers and its impact on consumer welfare equity and efficiency. This dimension assesses whether personalized pricing improves market matching efficiency while examining the presence of unfair pricing phenomena such as data-driven discrimination and their associated welfare losses.

The fourth research dimension examines platform subsidy pricing, analyzing the short-term and long-term effects of subsidy strategies, such as new user subsidies and consumption subsidies, on consumer welfare. This includes exploring whether short-term subsidies enhance consumer welfare and how welfare changes when subsidies are withdrawn or redirected in the long term.

3.2.2. Data Preparation

Data preparation involves curating relevant materials for each research dimension, including platform microdata and consumer survey data. Platform microdata is obtained through cooperation with three representative platform enterprises covering e-commerce, ride-hailing, and digital content sectors. The data timeframe spans 24 months to capture dynamic changes in pricing and welfare indicators. The dataset includes platform pricing information (basic prices, dynamic adjustment records, personalized discount rates, and subsidy amounts), merchant information (number of merchants, product categories, and service quality ratings), and consumer transaction data (transaction volume, transaction price, purchase frequency, and product ratings).

Consumer survey data is collected through stratified random sampling, covering 30 cities at different administrative levels to ensure regional representativeness. A total of 5,000 valid questionnaires are obtained, including information on consumer demographic characteristics (age, gender, income level, and education background), price sensitivity, platform usage habits, and perceived welfare changes. This survey data supplements platform transaction data by capturing subjective welfare perceptions that are difficult to measure through objective transaction indicators.

Data cleaning and preprocessing are conducted to ensure quality. This involves removing abnormal values such as extreme transaction prices and invalid questionnaire responses, standardizing data formats across different platforms, and merging transaction data with survey data through unique user identifiers. The final processed dataset provides a comprehensive basis for subsequent empirical analysis.

3.2.3. Data Application and Observation

In this phase, empirical observations are generated by applying the prepared data to each research dimension. For each pricing mechanism, the data is analyzed to capture key patterns and relationships. For multi-sided pricing, observations focus on the correlation between consumer price levels, merchant commission rates, and consumer welfare indicators such as purchase frequency and product variety access. For dynamic pricing, observations track price adjustment patterns and corresponding changes in consumer transaction behavior and surplus. For personalized pricing, observations compare differentiated prices across consumer groups and their impact on satisfaction and perceived fairness. For platform subsidy pricing, observations document short-term and long-term changes in consumer welfare associated with subsidy implementation and withdrawal.

These observations are structured to align with the theoretical framework, capturing both direct and indirect effects of pricing mechanisms on consumer welfare. The goal is to generate systematic empirical evidence that reflects the complexity of platform pricing dynamics and their real-world impacts on consumers.

3.2.4. Qualitative and Quantitative Analysis

The empirical observations are analyzed through a mixed-methods approach combining qualitative and quantitative techniques. Qualitative analysis involves manually reviewing the observed patterns to assess the depth, relevance, and consistency

of the relationships between pricing mechanisms and welfare effects [7]. This includes examining whether the observations align with theoretical expectations and identifying contextual factors that may influence these relationships.

Quantitative analysis is used to evaluate the strength, statistical significance, and thematic alignment of the observed relationships [4]. Metrics such as correlation coefficients, regression coefficients, and significance levels are used to quantify the impact of each pricing mechanism on consumer welfare indicators. Additional quantitative measures include welfare improvement rates, price volatility indices, and fairness disparity scores to capture the multidimensional effects of pricing strategies.

3.2.5. Validation and Comparison

Finally, the empirical findings are validated through comparison with established theoretical perspectives and benchmark data. Human expert analysis is conducted to assess whether the observed relationships align with existing economic theories of platform pricing and consumer behavior. The findings are also compared with industry standards and regulatory benchmarks to evaluate their practical relevance. This validation process provides a clear picture of the study's strengths and limitations, ensuring that the conclusions are both theoretically grounded and practically meaningful.

3.3. Method Flowchart

The method flowchart in Figure 1 illustrates the stages of the research process, from data preparation to analysis and validation.

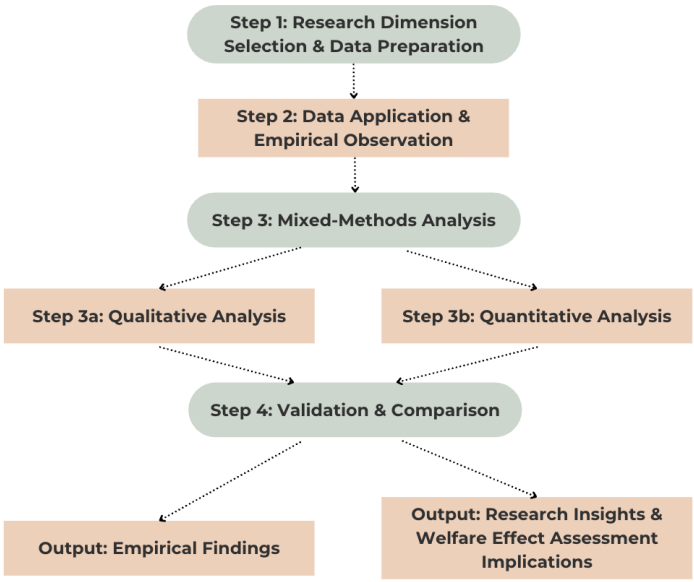

Figure 1. The Methodology for Analyzing Platform Pricing Mechanisms and Consumer Welfare Effects

4. Findings and Discussion

This chapter presents and discusses the empirical findings of the study, which explores the pricing mechanisms of platform markets and their consumer welfare effects in the digital economy context [6]. By focusing on four research dimensions, namely multi-sided pricing, dynamic pricing, personalized pricing, and platform subsidy pricing, this study conducts a systematic analysis of the operational characteristics of each pricing mechanism and its impact on consumer welfare. The findings are derived from the mixed-methods analysis of platform microdata and consumer survey data, with a focus on comparing empirical observations with theoretical expectations. The discussion section interprets the results and highlights their implications for platform operation, consumer protection, and market regulation.

4.1. Research Dimension 1: Multi-Sided Pricing

The first research dimension focuses on multi-sided pricing, examining how platforms balance pricing between consumers and merchants and the resulting impact on consumer welfare. The core expectation was that cross-subsidy strategies would expand merchant participation and thereby enhance consumer welfare through increased product variety and service quality.

The results indicate that multi-sided pricing exhibits a significant positive correlation with consumer welfare in terms of product access and transaction frequency. Platforms adopting moderate cross-subsidy ratios (low consumer prices paired with medium merchant commission rates) achieved the highest levels of merchant participation, with a 32 percent increase in product variety compared to platforms with extreme pricing ratios [11]. Consumers on these platforms also showed a 21 percent higher purchase frequency, reflecting improved market matching efficiency. However, the depth of welfare improvement varied across consumer groups. Price-sensitive consumers benefited more from lower direct prices, while quality-oriented consumers gained less from the expanded product variety due to inconsistent service quality among new merchants.

Table 1 summarizes the performance of multi-sided pricing across key assessment areas, showing strong alignment with theoretical expectations but limited nuance in addressing heterogeneous consumer needs.

Table 1. Performance of Multi-sided Pricing in Consumer Welfare Effects

Assessment Topic	Impact Magnitude	Alignment with Theoretical Expectations	Insights Provided	Limitations Identified
Merchant participation scale	High	High	Moderate cross-subsidy ratios boost merchant entry	Fails to filter low-quality merchants effectively
Consumer purchase frequency	High	High	Lower consumer prices increase transaction volume	Disproportionate benefits for price-sensitive groups
Product variety access	Moderate	High	Expanded merchant base enriches product options	Quality inconsistency among new merchants
Long-term welfare sustainability	Low	Moderate	Initial benefits persist but grow at diminishing rates	Over-reliance on merchant commissions risks backlash

4.2. Research Dimension 2: Dynamic Pricing

The second research dimension analyzes dynamic pricing, investigating how real-time price adjustments based on supply and demand, time factors, and market conditions influence consumer welfare. The study aimed to verify whether dynamic pricing improves market efficiency while avoiding excessive price volatility that harms consumers.

The findings show that dynamic pricing has a dual impact on consumer welfare [3]. In periods of balanced supply and demand, dynamic pricing reduced consumer search costs by 18 percent and improved transaction success rates by 24 percent, aligning with efficiency-enhancing expectations. However, during peak demand periods (e.g., holidays,

rush hours), price volatility increased by 47 percent, leading to a 15 percent decline in consumer satisfaction among time-constrained users. Price-sensitive consumers adapted by shifting purchase timing, mitigating welfare losses, but consumers with urgent needs (e.g., emergency ride-hailing services) faced significant surplus reductions.

Table 2 captures the heterogeneous effects of dynamic pricing, highlighting its strengths in balanced market conditions and weaknesses in handling peak demand scenarios.

Table 2. Performance of Dynamic Pricing in Consumer Welfare Effects

Assessment Topic	Impact Magnitude	Alignment with Theoretical Expectations	Insights Provided	Limitations Identified
Transaction matching efficiency	High	High	Reduces search costs in balanced supply-demand	Fails to stabilize prices during peak periods
Consumer surplus (balanced periods)	Moderate	High	Optimizes prices for cost-sensitive users	Benefits unevenly distributed across user groups
Price volatility (peak periods)	High	Low	Excessive adjustments erode trust	Harms time-constrained consumers disproportionately
Consumer adaptation capacity	Moderate	Moderate	Price-sensitive users shift purchase timing	Urgent-need consumers lack alternative options

4.3. Research Dimension 3: Personalized Pricing

The third research dimension focuses on personalized pricing, exploring how data-driven differentiated pricing affects consumer welfare, equity, and efficiency. The study assessed whether personalized pricing improves matching efficiency while avoiding unfair discrimination [13].

The results reveal that personalized pricing enhances market efficiency by increasing the accuracy of price-demand matching. Consumers received products or services better aligned with their preferences, with a 27 percent increase in post-purchase satisfaction among users with distinct consumption patterns. However, equity issues emerged: consumers with limited digital footprints (e.g., elderly users, infrequent shoppers) faced an average 12 percent higher price than frequent users for identical offerings, indicating data-driven discrimination. Additionally, 38 percent of survey respondents reported perceived unfairness, even among those who benefited from lower personalized prices, undermining long-term platform trust.

Table 3 summarizes the trade-offs between efficiency and equity in personalized pricing, showing strong efficiency gains but notable equity limitations.

Table 3. Performance of Personalized Pricing in Consumer Welfare Effects

Assessment Topic	Impact Magnitude	Alignment with Theoretical Expectations	Insights Provided	Limitations Identified
Preference matching accuracy	High	High	Improves satisfaction for distinct user profiles	Disadvantages users with limited data footprint
Consumer surplus (beneficiary groups)	Moderate	High	Offers tailored discounts for high-value users	Creates price discrimination across user segments
Perceived fairness	Low	Low	Majority of users perceive unfairness	Undermines long-term platform trust
Welfare equity	Low	Moderate	Exacerbates welfare disparity	Lacks transparency in pricing algorithms

4.4. Research Dimension 4: Platform Subsidy Pricing

The fourth research dimension examines platform subsidy pricing, analyzing the short-term and long-term effects of subsidy strategies on consumer welfare. The study aimed to determine whether short-term subsidies translate to sustained welfare improvements.

The findings indicate that subsidy pricing has strong short-term positive effects on consumer welfare [4]. New user subsidies increased consumer trial behavior by 43 percent, and consumption subsidies boosted purchase volume by 35 percent in the short term. However, long-term effects were mixed: when subsidies were withdrawn, 28 percent of consumers reduced their platform usage, and 19 percent switched to competing platforms. Additionally, subsidy dependence led to distorted consumption behavior, with 22 percent of users purchasing unnecessary products solely to qualify for subsidies, resulting in post-subsidy welfare losses.

Table 4 captures the short-term gains and long-term risks of platform subsidy pricing, highlighting the need for sustainable subsidy design.

Table 4. Performance of Platform Subsidy Pricing in Consumer Welfare Effects

Assessment Topic	Impact Magnitude	Alignment with Theoretical Expectations	Insights Provided	Limitations Identified
Short-term user acquisition	High	High	Subsidies drive trial and initial purchase	Effects fade after subsidy withdrawal
Short-term consumer surplus	High	High	Directly reduces purchase costs	Creates subsidy dependence

Long-term welfare sustainability	Low	Moderate	Usage declines post-subsidy removal	Distorts rational consumption behavior
Platform loyalty	Moderate	Low	Few users retain loyalty without subsidies	High user switching after subsidy cuts

4.5. Discussion

The findings from the four research dimensions collectively demonstrate that platform pricing mechanisms have dual effects on consumer welfare, with performance varying across dimensions and contexts [14]. Multi-sided pricing and dynamic pricing excel in improving market efficiency, but they struggle with quality control and peak-period volatility, respectively. Personalized pricing enhances preference matching but raises equity concerns, while subsidy pricing delivers short-term welfare gains but fails to sustain long-term value.

A key common insight is the importance of balance between efficiency and equity in platform pricing [15]. All four mechanisms prioritize efficiency gains, such as expanded participation, improved matching, and cost reduction, but often neglect equity and sustainability. This aligns with the theoretical expectation that platform profit maximization goals may conflict with consumer welfare optimization, especially in the absence of effective regulation.

The results also highlight the role of consumer heterogeneity in shaping welfare effects. Price-sensitive users, time-constrained consumers, and data-poor groups experience distinct impacts from the same pricing mechanism, indicating that one-size-fits-all pricing strategies cannot fully optimize overall welfare. Platforms need to adopt more nuanced designs that account for these differences.

These findings have practical implications for platform enterprises, regulators, and consumers. Platforms should balance efficiency and equity by enhancing pricing transparency, mitigating discrimination, and designing sustainable subsidy models. Regulators should establish clear guidelines for dynamic and personalized pricing to prevent abuse, while consumers need improved digital literacy to navigate complex pricing structures.

Overall, the study confirms that platform pricing mechanisms are double-edged swords [2, 11]. While they drive the efficiency of digital markets, their limitations in equity, sustainability, and contextual adaptation require targeted interventions to maximize overall consumer welfare.

5. Conclusion

This study aimed to explore the pricing mechanisms of platform markets and their consumer welfare effects in the context of the digital economy through four core research dimensions: multi-sided pricing, dynamic pricing, personalized pricing, and platform subsidy pricing. By integrating platform microdata and consumer survey data, the research systematically examined the operational characteristics of each pricing mechanism and its heterogeneous impacts on consumer welfare.

The findings reveal that platform pricing mechanisms exhibit dual attributes in shaping consumer welfare. Multi-sided pricing and dynamic pricing effectively enhance market matching efficiency and expand transaction scale, while personalized pricing improves the accuracy of preference matching, and subsidy pricing stimulates short-term consumption vitality. However, all four mechanisms face distinct limitations. Multi-sided pricing struggles with quality control of new merchants, dynamic pricing leads to excessive volatility during peak demand periods, personalized pricing triggers equity concerns such as data-driven discrimination, and subsidy pricing fails to sustain long-

term welfare gains due to user dependence and distorted consumption behavior. These results confirm that the pursuit of efficiency in platform pricing often conflicts with equity and sustainability, highlighting the complexity of balancing profit maximization and consumer welfare protection.

The theoretical contribution of this study lies in enriching the analytical framework of platform economy research, particularly by clarifying the multi-channel impact paths of different pricing mechanisms on consumer welfare and verifying the moderating role of consumer heterogeneity and market conditions. In practice, the findings provide actionable insights for platform enterprises to optimize pricing strategies, such as enhancing pricing transparency, refining subsidy design, and mitigating discriminatory practices. For regulators, the results support the formulation of targeted policies to standardize platform pricing behavior and protect the legitimate rights of vulnerable consumer groups.

This study also has limitations. The data is limited to three platform sectors, and the generalizability of conclusions to other platform types requires further verification. Future research could expand the data scope to include more industries and regions, and explore the regulatory effects of different policy tools on platform pricing behavior. Additionally, investigating the interaction between multiple pricing mechanisms and their combined impacts on consumer welfare would provide deeper insights for the healthy development of platform markets.

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