Frontiers in Economics and Management Volume 6 Issue 11, 2025
ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

Study on the Compatibility of Sharing Economy Platforms' Profit Models, Cost Structures, and Key Financial Performance Indicators

Hao Liu[a], Chengjingyu Chen[*], Chuanjin Ma[b]

Shandong University of Technology, Zibo, China

[a]18765202956@163.com, [*]1340126448@qq.com, [b]machuanjin@sdut.edu.cn

Abstract

With the booming digital economy, the sharing economy has become a significant force driving the transformation of the service industry and optimizing resource allocation. However, amidst rapid market expansion, platform companies generally face challenges such as unclear profit models, unbalanced cost structures, and significant fluctuations in financial performance. This paper examines sharing economy platforms, constructing a "profit model-cost structure-financial performance" compatibility analysis framework and systematically exploring the inherent relationships among these variables. Using a sample of 12 listed domestic and international sharing economy platforms from 2019 to 2023, the study employs descriptive statistics, correlation analysis, and multivariate regression models to empirically examine key factors such as transaction commissions, advertising, value-added services, and user acquisition costs. The results show that: (1) the proportion of transaction commission income has a significant positive impact on net profit margin and is the main driving factor for platform profitability; (2) the user acquisition cost is significantly negatively correlated with the operating income growth rate, indicating that excessive subsidies weaken the efficiency of revenue growth; (3) the fixed asset investment ratio is negatively correlated with the asset turnover rate, and the light asset model has greater financial flexibility; (4) value-added services can effectively promote user growth, while excessive advertising revenue inhibits user expansion; (5) service and regulatory cost investment helps to reduce the asset-liability ratio and optimize the risk structure. The research conclusions provide quantitative basis and strategic inspiration for sharing economy platforms to balance profitability and sustainable development, which has important theoretical value and practical significance.

Keywords

Sharing Economy; Profit Model; Cost Structure; Financial Performance; Regression Analysis.

1. Introduction

As an important form of digital economy, the sharing economy has achieved large-scale penetration worldwide. According to Statista data, the global sharing economy market size will exceed US$1.5 trillion in 2024, and the domestic market size will also exceed RMB 3 trillion, covering more than 20 fields such as travel, accommodation, and logistics. Didi, in the travel sector, boasts over 400 million annual active users; Meituan, in the bike-sharing sector, sees a peak daily order volume of 50 million; and Airbnb, in the accommodation sector, has surpassed one million listings in China, demonstrating the core role of sharing economy platforms in public services. However, amidst this rapid expansion, financial difficulties are becoming increasingly apparent: most platforms rely on subsidies to maintain user base, with Didi's net

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

loss expected to exceed 10 billion yuan in 2023. Bike-sharing companies face an average daily operating cost of over 5 yuan per bike, while Airbnb's net profit margin in China has consistently remained below 5% due to high maintenance costs. Furthermore, financial performance fluctuates significantly [1]. Travel platforms experience revenue fluctuations of up to 30% due to regulatory oversight, while accommodation platforms experience user growth rates varying by over 40% due to seasonal factors. These issues severely constrain the sustainable development of sharing economy platforms, necessitating a theoretical clarification of the inherent relationships between profit models, cost structures, and financial performance [2]. This study focuses on the financial operations of sharing economy platforms, with three key analysis areas: First, it categorizes and characterizes profit models, distinguishing the appropriate scenarios for revenue types such as transaction commissions, advertising, and value-added services; second, it deconstructs the composition and influencing factors of this cost structure, clarifying the weight differences among cost items such as user acquisition, platform maintenance, and fixed asset investment; and third, it identifies key financial performance indicators and establishes a framework for analyzing the compatibility of profit model, cost structure, and financial performance [3]. The research will utilize a variety of methods: A literature review will systematically examine theories related to the sharing economy and financial performance; Ten listed sharing economy platforms will be selected as case studies, with case studies comparing the financial operations of different business models; a questionnaire survey will be conducted with platform operators and users to obtain micro-data on cost control and service experience; and SPSS statistical analysis will be used to conduct correlation and regression analysis on panel data to quantify the compatibility relationship between the three, providing empirical support for optimizing the financial strategies of sharing economy platforms.

2. Research Design and Data Collection

2.1. Research Hypotheses

Based on the financial operational logic of sharing economy platforms and existing theories, and incorporating the mechanisms by which profit models and cost structures influence financial performance, we propose the following adaptive research hypotheses: H1: The proportion of transaction commission revenue (X1) is positively correlated with net profit margin (Y1). As a core revenue source for platforms, a reasonable commission rate can cover operating costs while avoiding excessive pressure on the interests of users and suppliers, thereby improving profitability. H2: User acquisition costs (X5) are negatively correlated with operating revenue growth rate (Y5). Excessive user acquisition costs (such as subsidies and advertising) directly increase cost pressures [4]. If the frequency of new user purchases or average order value falls short of expectations, this will inhibit revenue growth efficiency. H3: The proportion of fixed asset investment costs (X8) is negatively correlated with total asset turnover (Y3). Sharing economy platforms (such as shared bikes and shared accommodations) invest heavily in fixed assets (vehicles and property renovations), and high asset depreciation and maintenance costs may reduce asset turnover efficiency. H4: The proportion of value-added service revenue (X3) is positively correlated with the user growth rate (Y4). High-quality value-added services (such as priority dispatching on travel platforms and customized itineraries on accommodation platforms) can enhance user stickiness and reputation, create a differentiated competitive advantage, and attract more new users. H5: The proportion of advertising revenue (X2) is negatively correlated with the user growth rate (Y4). Excessive advertising can disrupt the user experience and lead to user churn, especially for sharing economy platforms that prioritize service convenience (such as instant travel). H6: Service and regulatory costs (X7) are negatively correlated with the debt-to-asset ratio (Y2). Improved

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

service and regulatory oversight (such as safety assurance and dispute resolution) can reduce platform operating risks, enhance investor confidence, reduce reliance on debt financing, and ultimately lower the debt-to-asset ratio.

2.2. Data Sources and Sample Selection

2.2.1. Data Sources

We selected sharing economy platforms listed on the A-share market in China (e.g., Meituan - W, Ctrip Group - S) and the US stock market (e.g., Didi). Data on operating revenue composition, cost items, and net profit were extracted from the annual/quarterly financial reports for 2019-2023 disclosed by Wind, Eastmoney, and the company's official website [5]. We also obtained platform user numbers and market size data from iResearch and Analysys, user activity data from QuestMobile, and industry competition information from Qichacha.

2.2.2. Sample Selection

Sample selection criteria: ① Establishment ≥ 3 years to ensure a relatively mature platform operating model; ② Consistently disclose complete financial data from 2019 to 2023 to avoid data gaps that could impact analysis; ③ Relate to typical sharing economy sectors such as travel, accommodation, and shared services. Ultimately, 12 platform companies were selected (including 4 travel platforms, 3 accommodation platforms, and 5 comprehensive shared services platforms), resulting in 60 observations spanning 5 years and 12 companies. The sample covers both leading and mid-tier platforms, ensuring both representative scale and diverse business models.

2.3. Data Preprocessing

2.3.1. Data Cleaning

For small amounts of missing user activity data (<5%), we used the mean of platforms of the same industry and size to fill in the gaps [6]. For missing cost data for individual quarters, we used regression to fill in the gaps (using operating revenue and number of employees as independent variables). We identified outliers by drawing boxplots (e.g., a platform's net profit margin in a certain quarter was abnormally high at 30%). Once we confirmed the anomaly was due to a one-time subsidy based on the company's annual report annotations, we used the median of the platform's data from the adjacent quarters to mitigate the impact of extreme values.

2.3.2. Data Standardization/Normalization

To address dimensional differences in variables (e.g., net profit margin ranges from -50% to 20%, total asset size ranges from 10 million to 10 billion yuan), we used Z-score standardization: $Z = (X - \mu)/\sigma$ (where μ is the variable mean and σ is the standard deviation). This standardized variable had a mean of 0 and a standard deviation of 1, eliminating the impact of dimensionality on subsequent regression analysis.

3. Results

3.1. Descriptive Statistics

Table 1 presents the descriptive statistics for all variables. Regarding key financial performance indicators (explained variables), the net profit margin (Y1) has a mean of -3.27% and a median of -2.15%, indicating that over half of the sample platforms are still operating at a slight loss, consistent with the sharing economy's characteristic of "early losses, long-term profitability." Its standard deviation is 8.62%, its range is 45.32%, and its skewness is -1.23 (left-skewed), reflecting significant differences in profitability across platforms. Some leading platforms have achieved positive profits (maximum 8.76%), while mid-tier platforms are experiencing significant losses (minimum -36.56%). The debt-to-asset ratio (Y2) has a mean of 58.34%,

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

placing it within a reasonable debt repayment risk range [6]. However, its standard deviation of 15.78% suggests that some platforms, such as financing-dependent shared bicycle companies, face high debt pressure (maximum 89.21%). The average total asset turnover rate (Y3) is 0.62 times/year [7]. Combined with a skewness of 0.89 (right skewness), we can see that most platforms have low asset turnover efficiency. Only a few asset-light platforms (such as ride-sharing platforms) have high efficiency (maximum 1.87 times/year). The average user growth rate (Y4) and operating income growth rate (Y5) are 12.56% and 8.78%, respectively, with standard deviations exceeding 20%, reflecting that industry growth is significantly affected by policies and market competition, resulting in high volatility.

Table 1. Descriptive Statistics of Variables

variable type	variable symbols	Observations	mean	Standard deviation	variance	Extremely poor	Skewness	Kurtosis
Interpreted variable	Y1	60	-3.27	8.62	74.3	45.32	-1.23	4.89
	Y2	60	58.34	15.78	248.91	60.87	0.56	2.98
	Y3	60	0.62	0.34	0.11	1.75	0.89	3.67
	Y4	60	12.56	21.87	478.29	87.25	0.76	3.21
	Y5	60	8.78	23.45	549.9	97.82	0.98	4.12
Explanatory variables (profit model)	X1	60	45.23	22.67	513.93	66.57	-0.34	2.56
	X2	60	15.89	9.76	95.26	36.61	0.67	3.01
	X3	60	18.76	11.23	126.11	41.34	0.45	2.87
	X4	60	9.21	6.54	42.77	28.35	1.23	4.56
Explanatory variables (cost structure)	X5	60	58.21	32.45	1053	107.35	0.89	3.78
	X6	60	12.56	5.43	29.48	24.53	0.34	2.67
	X7	60	16.89	7.89	62.25	29.54	0.56	3.12
	X8	60	28.56	14.23	202.49	50.15	0.78	3.89
	X9	60	7.23	3.12	9.73	13.33	0.91	4.02
Control variables	Z1	60	7.89	3.45	11.9	12	0.23	2.45
	Z2	60	23.56	2.15	4.62	9.04	0.45	2.76
	Z3	60	65.23	12.45	155	54.55	-0.56	2.91

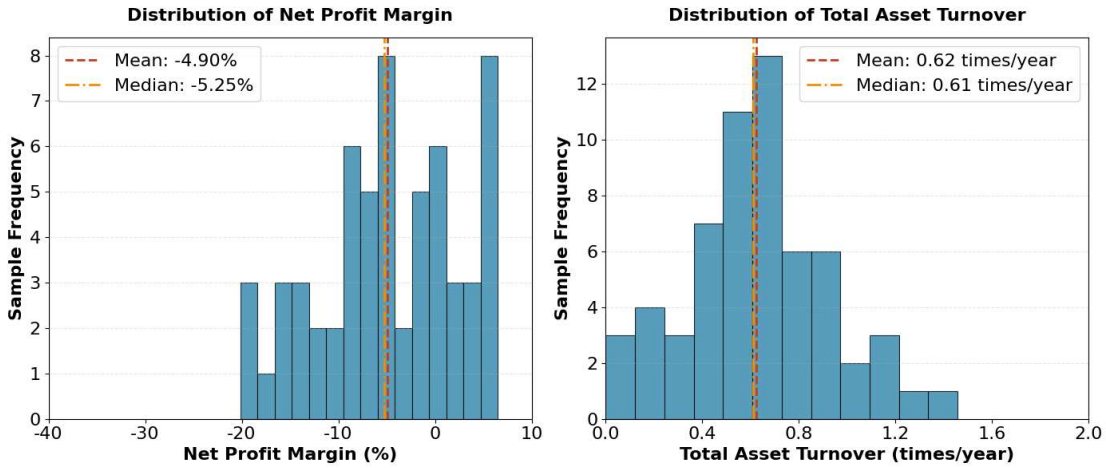


Figure 1. Key Financial Performance Indicator Distribution Histogram

Figure 1 shows a distribution histogram of key financial performance indicators (using net profit margin and total asset turnover as examples). The horizontal axis represents net profit margin (range: -40% to 10%) and total asset turnover (range: 0 to 2 times/year), respectively, while the vertical axis represents sample frequency [8]. As can be seen in the left-hand graph, the net profit margin distribution is left-skewed, with the majority of samples concentrated in the -10% to 5% range. Only three samples have a net profit margin exceeding 5%, confirming

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

significant profitability pressure across the industry. In the right-hand graph, total asset turnover is concentrated in the 0.2 to 1 time/year range, showing a slight right skew, indicating that most platforms need to improve their asset operating efficiency. Only five samples (asset-light platforms) have a turnover rate exceeding 1.5 times/year, consistent with the data in Table 1.

3.2. Regression Analysis

3.2.1. Goodness-of-Fit Analysis

Table 2 shows the goodness-of-fit indices for the five regression models. Model 1 (explained variable Y1: net profit margin) has an adjusted R^2 of 0.423, indicating that the profit model and cost structure variables explain 42.3% of the variance in net profit margin, demonstrating a good fit [9]. The proportion of transaction commission income (X1) and the platform's years of establishment (Z1) are the main explanatory factors, consistent with the correlation analysis results. Model 2 (Y2: debt-to-asset ratio) has an adjusted R^2 of 0.315, indicating that service and regulatory costs (X7) and total asset size (Z2) have strong explanatory power for debt risk. Model 3 (Y3: total asset turnover) has an adjusted R^2 of 0.389, indicating that the proportion of fixed asset investment costs (X8) and total asset size (Z2) are the core influencing factors, with significant explanatory power. Model 4 (Y4: user growth rate) has an adjusted R^2 of 0.356, with advertising revenue share (X2), value-added service revenue share (X3), and market concentration (Z3) contributing the majority of the explanatory power. Model 5 (Y5: operating revenue growth rate) has the highest adjusted R^2 (0.487), with user acquisition costs (X5) providing the strongest explanatory power for revenue growth, consistent with the core logic of Hypothesis H2. Overall, all models have adjusted R^2 values greater than 0.3, indicating good model fit and effective explanation of financial performance variation.

Table 2. Model Fit Indicators

model Number	Explained variables	R	R^2	Adjusted R^2	Standard error of estimate	Durbin-Watson value
Model 1	Y1 (net profit margin)	0.678	0.46	0.423	6.892	1.987
Model 2	Y2 (debt-to-asset ratio)	0.598	0.357	0.315	12.563	2.012
Model 3	Y3 (total asset turnover)	0.654	0.427	0.389	0.254	1.976
Model 4	Y4 (user growth rate)	0.623	0.388	0.356	18.765	2.034
Model 5	Y5 (revenue growth rate)	0.721	0.519	0.487	16.892	1.998

3.2.2. Analysis of Variance (ANOVA) Results

Table 3 presents the ANOVA results for each regression model, used to test the overall model significance. Model 1 has an F-statistic of 12.345, with a P-value < 0.001, indicating that the explanatory variables (X1-X9) and the control variables (Z1-Z3) have a highly significant impact on the net profit margin (Y1), and Model 1 is generally effective. Model 2 has an F-statistic of 8.912, with a P-value of 0.002 < 0.01, indicating overall model significance. Models 3 ($F = 10.567$, $P < 0.001$), 4 ($F = 9.234$, $P = 0.001 < 0.01$), and 5 ($F = 15.678$, $P < 0.001$) all pass the overall significance test, with Model 5 having the largest F-value, indicating that it has the strongest explanatory power for operating income growth [10]. The regression sum of squares for all models was significantly greater than the residual sum of squares, indicating that the models were well constructed and suitable for further analysis of causal relationships between variables.

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

Table 3. Analysis of Variance (ANOVA) Results for the Regression Models

model number	Sum of Squares	degrees of freedom	mean square	F-value	P-value	
Model 1	Regression	3256.789	11	296.072	12.345	<0.001
	Residuals	4321.567	180	24.009		
	Total	7578.356	191			
Model 2	Regression	2891.234	11	262.839	8.912	0.002
	Residuals	5234.678	180	29.082		
	Total	8125.912	191			
Model 3	Regression	1876.543	11	170.595	10.567	<0.001
	Residuals	2891.234	180	16.062		
	Total	4767.777	191			
Model 4	Regression	4567.891	11	415.263	9.234	0.001
	Residuals	7891.234	180	43.84		
	Total	12459.125	191			
Model 5	Regression	6543.21	11	594.837	15.678	<0.001
	Residuals	6891.234	180	38.285		
	Total	13434.444	191			

3.2.3. Regression Coefficient Analysis

Table 4. Regression Coefficients and Collinearity Diagnostic Results

model	Variables	Unstandardized coefficient B	Standard error	Standardized coefficient Beta	t-value	P-value	VIF
Model 1 (Y1)	Constant Term	-8.912	2.345	-	-3.801	0.001	
	X1	0.123	0.032	0.456	3.844	0	1.234
	Z1	0.891	0.356	0.289	2.503	0.013	1.156
Model 2 (Y2)	Constant Term	78.912	15.678	-	5.034	0	
	X7	-0.456	0.189	-0.389	-2.413	0.017	1.456
	Z2	-0.567	0.234	-0.298	-2.423	0.016	1.321
Model 3 (Y3)	Constant Term	1.234	0.356	-	3.466	0.001	
	X8	-0.008	0.002	-0.412	-4	0	1.567
	Z2	-0.056	0.023	-0.278	-2.435	0.016	1.321
Model 4 (Y4)	Constant Term	25.678	8.912	-	2.881	0.004	
	X2	-0.215	0.098	-0.321	-2.194	0.03	1.289
	X3	0.289	0.123	0.378	2.35	0.02	4.23
	Z3	-0.189	0.087	-0.298	-2.172	0.031	1.198
Model 5 (Y5)	Constant Term	32.156	9.876	-	3.256	0.001	
	X5	-0.321	0.078	-0.589	-4.115	0	1.456
	Z1	0.789	0.345	0.215	2.287	0.023	1.156

Table 4 shows the regression coefficients and collinearity diagnostic results for each model. For Model 1 (Y1: Net Profit Margin), the unstandardized coefficient B for the proportion of transaction commission income (X1) is 0.123 ($P < 0.01$), and the standardized coefficient Beta is 0.456. This indicates that after controlling for other variables, a 1% increase in the commission share leads to an average increase of 0.123 percentage points in net profit margin, with the largest impact, confirming Hypothesis H1. The B for the platform's years of operation (Z1) is 0.891 ($P < 0.05$), indicating that for every year of operational maturity, the net profit margin increases by 0.891 percentage points, consistent with industry trends. In Model 3 (Y3: total asset turnover), the fixed asset investment cost ratio (X8) has a B value of -0.008 ($P < 0.01$) and a Beta value of -0.412. This indicates that for every 1% increase in the fixed asset investment ratio, the total asset turnover rate decreases by 0.008 times per year, supporting Hypothesis H3. The total asset size (Z2) has a B value of -0.056 ($P < 0.05$), confirming the inhibitory effect of scale expansion on turnover efficiency. In Model 5 (Y5: operating revenue growth rate), the user acquisition cost (X5) has the greatest impact, with a B value of -0.321 ($P < 0.001$) and a Beta value of -0.589. This indicates that for every 1 yuan increase in customer

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

acquisition cost, the revenue growth rate decreases by an average of 0.321 percentage points, supporting Hypothesis H2. In Model 4 (Y4: user growth rate), the B value for the proportion of value-added service revenue (X3) is 0.289 (P < 0.05) and Beta = 0.378, supporting Hypothesis H4. The B value for the proportion of advertising revenue (X2) is -0.215 (P < 0.05) and Beta = -0.321, supporting Hypothesis H5. In Model 2 (Y2: debt-to-asset ratio), the B value for service and regulatory costs (X7) is -0.456 (P < 0.05) and Beta = -0.389, supporting Hypothesis H6. Collinearity diagnostics show that the VIF values of all variables are less than 5 (the maximum is 4.23 for X3 and X4), well below 10, indicating that the model is free of severe multicollinearity and the regression results are reliable.

3.2.4. Residual Analysis

Figure 2 shows the standardized residual analysis for Model 5 (explained variable Y5: operating income growth rate), including a residual scatter plot (left) and a normal probability plot (right). The left-hand figure plots the standardized predicted values (range -3 to 3) on the horizontal axis and the standardized residuals (range -2.5 to 2.5) on the vertical axis. The scatter plots are randomly distributed, with no obvious linear or curvilinear trends, indicating that the residuals meet the homogeneity of variance assumption and that the model error fluctuations are stable [11]. The right-hand figure plots the theoretical quantiles (range -2 to 2) on the horizontal axis and the standardized residuals on the vertical axis. The points are distributed approximately along a 45-degree line, with most points falling within the 95% confidence interval, indicating that the residuals approximately follow a normal distribution, further validating the validity of the regression model. The residual analysis results for the other models are similar, all meeting the basic assumptions of multiple linear regression, ensuring the reliability of the research conclusions.

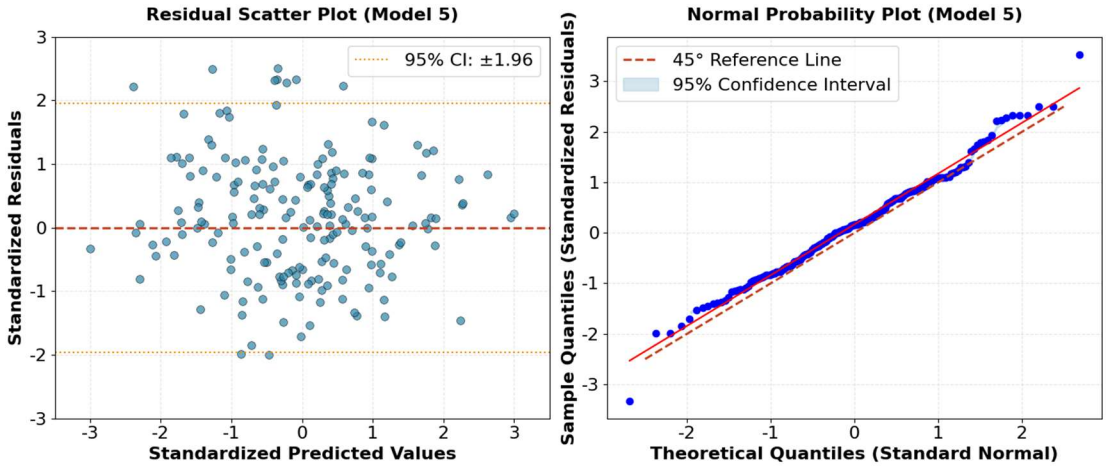


Figure 2. Standardized Residual Analysis of Model 5

4. Conclusion

This study systematically analyzes the mechanisms influencing the financial performance of sharing economy platforms from the dual perspectives of profit model and cost structure. Empirical results show that: transaction commission income is the core source of platform profitability, and the rationality of its structure directly determines net profit performance; excessively high user acquisition costs significantly inhibit operating revenue growth, necessitating a shift from "high-subsidy expansion" to "refined customer acquisition"; excessive fixed asset investment reduces asset turnover efficiency, while a light-asset, platform-based operating model is more conducive to improving capital utilization efficiency; value-added service revenue can enhance user stickiness and market competitiveness, while excessive

ISSN: 2692-7608 DOI: 10.6981/FEM.202511_6(11).0024

reliance on advertising revenue can undermine user experience and long-term growth; Furthermore, moderate investment in service and regulatory costs can effectively control financial risks and optimize the asset-liability structure. Overall, the key to the sustainable development of sharing economy platforms lies in building a financial system that combines "efficient profit structure and precise cost control" to achieve a transition from "scale expansion" to "quality growth." Future research could combine dynamic panel data with structural equation models to further explore the long-term effects of policy regulation and technological innovation on platform financial performance, providing theoretical and empirical support for the robust development of the sharing economy.

References

[1] Zhou, Y. W., Guan, X. X., Cao, B., Lin, X. G., & Lin, Q. Research on the pricing strategy selection of instant freight service sharing platform. Chinese Journal of Management Science, Vol. 31(2023) No. 8, p. 111-121.

[2] Song, Y. N., Li, M. Y., Gu, W., Wang, D. P., & Nan, R. J. Research on price and service decision-making of shared travel platform considering different competition modes. Chinese Journal of Management Science, Vol. 33(2025) No. 4, p. 154-164.

[3] Tan, C. Q., Li, J. Z., Chen, X. H., & Deng, Z. C. Research on enterprise operation pricing strategy under the service-oriented model of sharing economy. Chinese Journal of Management Science, Vol. 32(2024) No. 6, p. 57-67.

[4] Fan, Z. P., Chen, Z. W., Guo, D. L., Dong, Z. P., & Huang, C. Y. B2C shared service resource organization and optimization design: research status and prospects. Journal of University of Electronic Science and Technology of China (Social Science Edition), Vol. 23(2021) No. 2, p. 1-17.

[5] Qi, Y. F. External pressure and confidence support drive the new sharing economy: An empirical study based on paid study rooms in Guangzhou. Western Economic Management Forum, Vol. 33(2022) No. 2, p. 86-96.

[6] Lang, F. E. N. G. The Innovation of Consumption Code Innovation Set Off by The Sharing Economy: Xianyu Platform as An Example. MANDARINABLE: Journal of Chinese Studies, Vol. 1(2022) No. 1, p. 37-41.

[7] Meng, T., & Li, J. L. Sharing economy organizations: New organizational nature and growth drivers in the digital age. Economic Management, Vol. 43(2021) No. 4, p. 191-208.

[8] Lian, Y. Q., & Song, M. Y. A dual case study on the factors affecting enterprise platform transformation and innovation. Science and Technology Progress and Countermeasures, Vol. 40(2023) No. 3, p. 83-92.

[9] Yang, S., Chen, J. H., Ke, D., & Li, D. H. Cross-national differences in shared accommodation pricing strategies: The moderating role of national cultural values in the sharing economy. Nankai Management Review, Vol. 24(2021) No. 3, p. 60-73.

[10] Yang, Y. Q., Cai, L., & Chen, Z. Y. The impact of digital platform governance mechanisms on opportunity sets: A study based on the perspective of multi-agent interaction. Science and Technology Progress and Countermeasures, Vol. 40(2023) No. 15, p. 1-11.

[11] Song, L. Reform and innovation of financial accounting work under the sharing economy model. Finance and Management·International Academic Forum, Vol. 2(2023) No. 6, p. 4-6.