

Review of Research: Application of Activity-Based Costing in the Catering Industry

Shuai Yang

Shandong University of Science and Technology, Qingdao, Shandong, 266590, China

Abstract: This study initially focuses on the application of Activity-Based Costing (ABC) in the catering industry. Prior to conducting literature review, two key questions were posed: "How is ABC implemented in the catering sector? What impacts does its application have on the industry?" Subsequently, a literature analysis methodology was employed to evaluate the collected studies. After three rounds of screening, 11 research papers with significant academic value were identified. Through systematic analysis of the selected literature, this study comprehensively examines research methodologies, implementation approaches, and achieved outcomes, providing thorough responses to the aforementioned questions.

Keywords: Activity-Based Costing (ABC); Food Service Industry; Cost Drivers; Literature Review.

1. Overview of Activity-Based Costing

Activity-Based Costing (ABC) is a cost accounting method that breaks down business operations into a series of activities.

Centered on these activities, it identifies and measures all resource-consuming activities, accurately allocates resource costs to them, selects cost drivers, and distributes activity-based costs to cost objects (products or services). Figure 1 illustrates the general steps of ABC.



Fig 1. General steps of Activity-Based Costing (ABC)

2. Research Methods and Target Literature Analysis

This section primarily introduces the research methods selected and the attribute analysis of the target literature, including key attributes such as publication year and impact factor.

2.1. Research Methods

To address the two major issues related to activity-based costing mentioned earlier, this study employs Mayring's literature review methodology and systematically delineates the steps involved in literature collection.

Step 1: Collect materials and preliminarily identify literature based on keywords and abstracts, while also determining the types of literature. Through the search conducted in Step 1, a total of 125 articles were collected.

Step 2: Elimination of duplicates. Remove duplicate articles based on methods such as item, unit, fund, and author relationship networks from the literature. After eliminating duplicates, 75 articles remain.

Step 3: Correlation analysis, eliminating literature with weak correlation.

Step 4: Final screening, review 30 articles and retain only keywords related to "ABC" and "catering". Specific research procedures are shown in Figure 2.

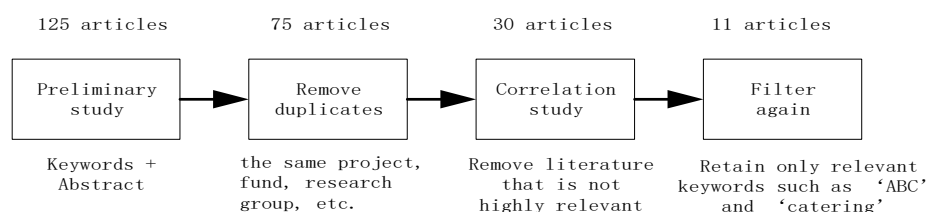


Fig 2. Specific research methods selected for literature review

2.2. Target Literature Analysis

After literature screening, a total of 11 articles were retained. Through analysis and data processing of the

literature, keywords such as activity-based costing (ABC) and catering were identified. The proportion of keyword frequency in 11 selected literatures are shown in Figures 3.

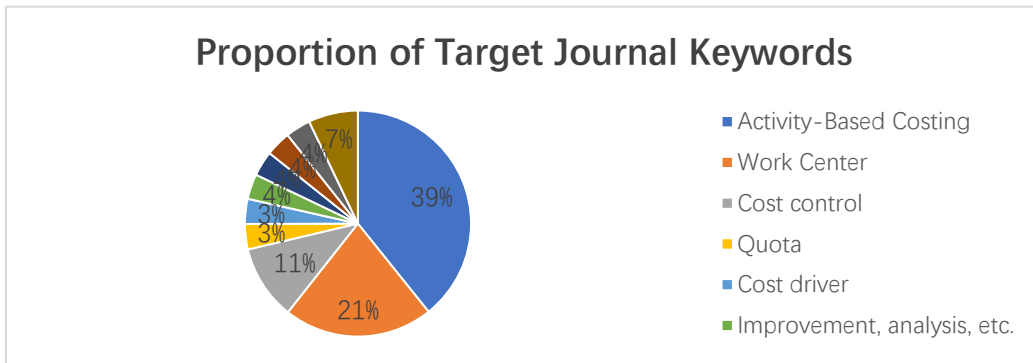


Fig 3. Keyword Distribution in Target Journals

The chart above demonstrates strong thematic alignment among the literature, with 'Activity-Based Costing' and 'food service industry' keywords showing the highest frequency.

The 11 journal articles were sourced from core journals and EI-indexed publications, with their specific distribution shown in Figure 4:

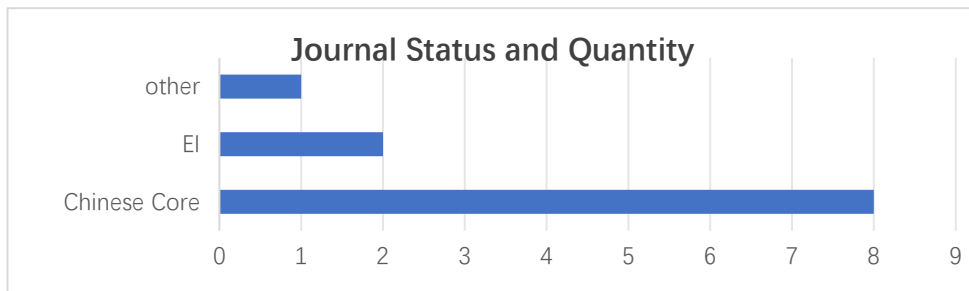


Fig 4. Journal Status and Quantity

The journal status distribution shown in the figure indicates that the majority of publications originate from Chinese Core Journals, demonstrating their research value.

composite statistical source documents. It is defined as the ratio of the total citations received by a journal's citable publications in the statistical year to the total number of such publications published by the journal in the preceding two years.

Furthermore, the composite impact factor is calculated using journals, dissertations, and conference papers as

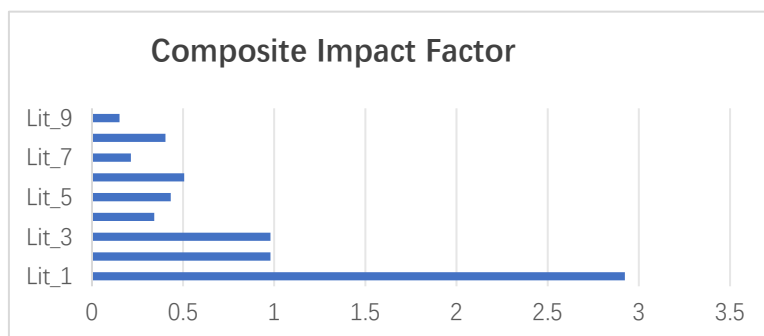


Fig 5. Journal Composite Impact Factor

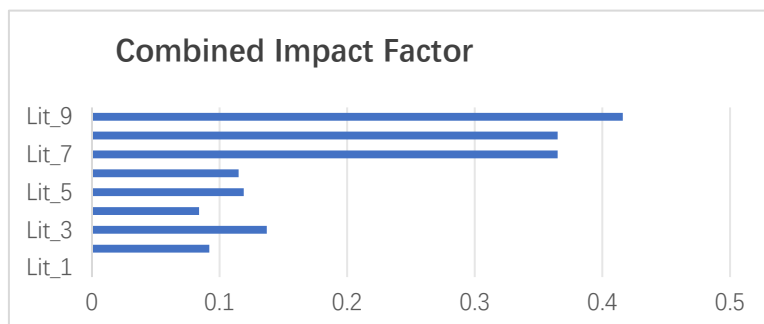


Fig 6. Comprehensive Impact Factor of Journals

The comprehensive impact factor primarily refers to the integrated evaluation of arts and sciences, calculated through comprehensive statistical analysis of source documents from scientific journals and humanities/social sciences journals. It is defined as the ratio of the total citation count of citable papers published by the evaluated journal in the statistical year to the total number of citable papers published by the journal in the preceding two years.

The impact factors of the journals studied in this paper are shown in Figures 5 and 6.

As shown in the figure above, the cited literature possesses a certain impact factor, indicating that studies on the application of activity-based costing (ABC) in the catering industry hold significant research value.

3. Content Summary

This section analyzes and synthesizes the specific content of the 11 studied literature articles. The research identifies two major application areas of activity-based costing (ABC) in the catering industry. Representative literature articles are selected to provide an overview of their content.

3.1. Two Major Application Areas of Activity-Based Costing

Current domestic research on quality cost management primarily focuses on two aspects: first, theoretical analysis of quality cost models; second, practical applications of quality cost management in enterprises.

Wang Hao and Wanyan Ruiyun conducted a study on the catering industry, analyzing data from 35 restaurants to demonstrate that loss costs are negatively correlated with customer satisfaction.

Regarding the application of Activity-Based Costing (ABC) in quality cost management, Song Yanmin and Wang Zhiqiang conducted research on its implementation in coal enterprises, demonstrating that ABC enhances the traceability of quality costs and improves the accuracy of quality cost information. Luo Yujie and Hao Jingfei developed a regression model for quality preventive activities and conducted empirical analysis to study improvements in quality prevention practices. Zhou Zhijiang and Zhu Zongqian, using food processing enterprises as case studies, investigated the application of ABC in quality cost accounting and proposed specific implementation procedures.

3.2. Target Literature Review

Xiao Chang [1] argues that headquarters costs in some directly-operated chain stores are allocated across branches based on their revenue shares. Specifically, branches with higher sales volumes bear greater portions of headquarters expenses. This approach, however, poses challenges in performance evaluation. Therefore, refining current cost accounting methods to ensure equitable distribution of management expenses among chain outlets has become an urgent priority for the catering industry.

To address this, Xiao Chang applied knowledge of activity-based costing (ABC) to develop an implementation model for chain catering enterprises. The model identifies core headquarters functions including: formulating business strategies and management systems; developing branch operation plans with execution guidance and performance evaluation; coordinating centralized procurement of supplies

(e.g., dry goods and uniforms) and logistics distribution processes; innovating menu offerings and establishing new branch systems; collecting and processing operational data from outlets and distribution centers; conducting staff development and training programs; and maintaining unified financial accounting for the chain. Specific operational activities are detailed in Table 1.

Table 1. Specific Content of Cost Accounting

Headquarters Operations	job content	Driving factors
Product Development	Catering menu, new branch	Number of dishes in the catering menu
system design	Establishment of management documents	Branch Business Process
operating decisions	Strategic planning, business operations	Branch Business Process
financial management	Financial Information System Construction	Financial complexity of branch offices

(Continue)Table 1. Specific Content of Cost Accounting

Headquarters Operations	job content	Driving factors
HRM	Compensation System, Personnel Management	Number of employees at branch offices
logistics	Centralized procurement, storage, and custody	Delivery quantity

Chen Yan [2] argues that Activity-Based Costing (ABC) differs from traditional accounting cost calculation methods, representing a more refined and accurate approach to cost accounting. The study applied ABC to adjust operational costs at Hotel Y, achieving improvements in financial analysis and operational decision-making support. The research first conducted a detailed segmentation of Hotel Y's core business segments, identifying guest services and food & beverage as its primary operations. Subsequently, cost allocation was performed for these two key sectors, with meticulous breakdowns of labor costs, asset depreciation expenses, and overhead allocations. Based on this framework, cost calculations were recalculated, and a customized cost accounting method was developed tailored to Hotel Y's characteristics of small scale and substantial total revenue. Through this simplified ABC improvement analysis, reassignment of "period expenses" helps identify management challenges, facilitates root cause analysis, and provides actionable insights for operational adjustments. The ABC enhancement strategy implemented by Hotel Y represents a static improvement approach aligned with its unique operational profile. Additionally, leveraging computer information systems enables dynamic management optimization, delivering more intuitive quantitative data for performance enhancement.

Xie Yefang [3] posits that the primary costs in the catering industry fall into two categories: direct costs and indirect costs. However, current cost accounting practices predominantly focus on direct costs while intentionally or unintentionally overlooking indirect costs, inevitably leading to inaccuracies in cost calculations. To address this issue, this study first decomposes the organizational structure of a catering business into operational departments, financial departments, and administrative departments. Subsequently,

it identifies activity-based cost centers, activities, and related activity drivers. The study then determines resource consumption during operational processes, allocates activity-related costs to specific activities, assigns activity costs to cost objects, and finally conducts cost information analysis. The article emphasizes that the purpose of implementing activity-based costing lies not in mere calculation but in practical application, with the critical importance of analyzing and evaluating cost data to support corporate management decisions. The study concludes by discussing the significance of applying activity-based costing in the catering industry.

Li Zhen [4] argues that the catering and hotel industries have now entered an era of slim profits. To maintain competitiveness, businesses must increase revenue and cut costs while adopting advanced cost accounting methods. The Activity-Based Costing (ABC) method, as a cost accounting approach, enables more precise cost allocation, scientific profit analysis, and is particularly advantageous for cost calculation and analysis in the hospitality sector.

Li Zhen [4] first examined the feasibility of implementing activity-based costing in the catering industry. After reaching a positive conclusion, he applied the method to Hotel M through practical case studies, with particular emphasis on detailed cost accounting analysis. Through designing specific application models, activity-based costing enables rational allocation of administrative expenses across branches, avoiding unreasonable cost distribution caused by varying operational conditions. This provides a solid foundation for internal performance evaluations. Activity-based costing transcends being merely a cost accounting method-it represents a management philosophy that shifts focus from management outcomes to operational processes, expands cost

management responsibilities from management departments to all employees, and drives corporate culture transformation. Enterprises should adapt this approach to their specific circumstances, eliminating unnecessary activities based on cost-benefit principles, selecting optimal cost activities, and maximizing cost reduction to enhance overall competitiveness. Ultimately, these measures improve the comprehensive performance of catering chain enterprises.

Cao Xuan [5] observes that with continuous socio-economic development, the catering industry has experienced rapid growth, leading to intensified competition among enterprises. Quality cost management has gained increasing recognition within the sector. However, as China's catering industry is still in the exploratory phase of quality cost management and lacks a standardized quality cost accounting system, the effectiveness of such management practices remains limited. To address this, the study proposes introducing Activity-Based Costing (ABC) into quality cost management for catering enterprises. After analyzing its feasibility, the paper conducts a detailed implementation study, providing innovative approaches for quality cost accounting in the catering industry.

Cao Xuan first analyzed the feasibility of implementing Activity-Based Costing (ABC) in the catering industry, examining its advantages, decision-making characteristics, and implementation challenges. She emphasized that integrating ABC into quality cost management to establish an activity-centric quality cost management system is an essential strategy for catering businesses to enhance market competitiveness. Subsequently, Cao Xuan defined the operational processes in the catering industry, with detailed workflows illustrated in Figure 7.

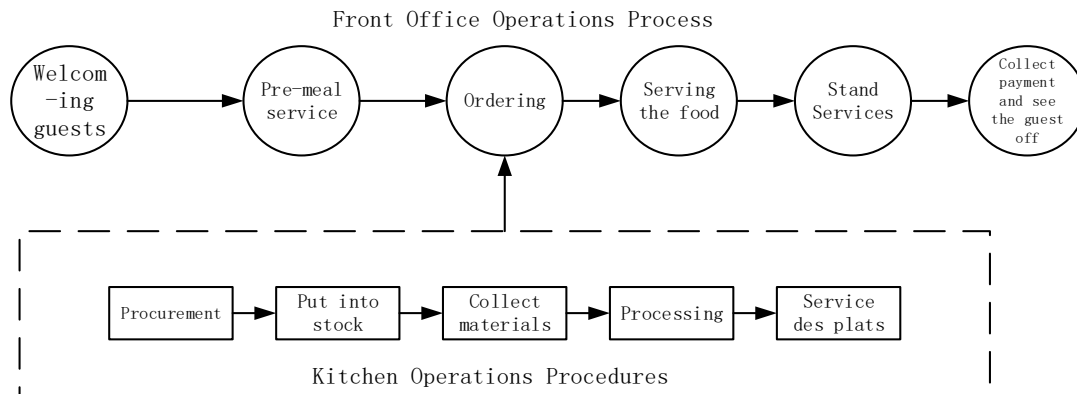


Fig 7. Flowchart of the Catering Industry

Table 2. Activity-Based Costing and Cost Driver Allocation Table

Activity-Based Costing Pool	cost driver
Evaluate and review the activity-based costing pool	Assessment review frequency
Quality Training Activity-Based Costing Pool	Training hours
Inspection and Testing Activity Cost Pool	Number of inspection tests
Equipment Maintenance Activity Cost Pool	Maintenance hours
Internal Loss Processing Activity-Based Costing Pool	Rework labor hours
External Loss Processing Activity-Based Costing Pool	After-sales labor hours

Subsequently, the quality activity-based costing pool was established, with detailed analysis of cost drivers. Allocation rates for these drivers were calculated and applied to allocate

quality costs, as detailed in Table 2.

Furthermore, Shang Shanshan and You Jian[6-7] conducted an analysis of the theoretical relationship between quality costs and quality levels, as well as gray correlation analysis, proposing to establish a combined model integrating gray linear regression to enhance model accuracy. Bai Baoguang and Sun Zhen developed a quality cost decision-making model under asymmetric information conditions, identifying information asymmetry between supply and demand as the root cause of rampant counterfeit and substandard products in the market. Jiang Peng and Su Qin constructed a quality management-enterprise performance relationship model from an enterprise performance perspective, demonstrating that quality management practices exert impacts on quality performance, operational performance, business performance, and innovation

performance. Pan Yanhua and Xiao Jing [8-9] established a quality cost control model based on customer satisfaction, focusing on product after-sales services.

4. Results and Discussion

The previous section systematically reviewed studies on the application of activity-based costing (ABC) in the catering industry across multiple literature sources, addressing two key questions: 'How is ABC applied to the catering industry?'

4.1. How is ABC Applied in the Catering Industry?

Current domestic research on quality cost management primarily focuses on two aspects: first, theoretical analysis of quality cost models; second, practical applications of quality cost management in enterprises.

In the catering industry, where cost structures are inherently complex, applying Activity-Based Costing (ABC) facilitates clearer differentiation between costs and their drivers. Given the current profit compression challenges in this sector, cost control has become imperative. China's catering services currently exhibit a significant proportion of fixed and indirect costs relative to variable and direct costs, primarily due to the substantial labor expenses inherent in the industry. This complexity arises from two key factors: first, the industry's unique operational characteristics that prohibit excessive raw material storage, necessitating staff to serve dishes directly to customers; second, management practices that inherently influence cost structures. Considering the multifaceted nature of catering operations-including food quality control and marketing strategies-traditional cost accounting methods prove inefficient and prone to errors when applied to this context. ABC methodology, however, effectively addresses the industry's high indirect cost ratio by optimizing cost allocation processes.

4.2. What Impact does the ABC Application have on the Catering Industry?

Activity-based costing (ABC) addresses the limitations of traditional cost accounting systems. By moving beyond simplistic cost allocation methods, ABC enhances the quality of cost information. It identifies cost reduction strategies based on the root causes of cost generation, thereby facilitating effective cost control.

Traditional cost systems only track resource consumption without understanding the allocation patterns, focusing on the "what" rather than the "why." Activity-based costing (ABC), through activity analysis, provides insights into resource utilization, revealing both the "what" and the "why."

Unlike traditional finance departments, companies adopting activity-based costing (ABC) must now focus on every production stage-from product planning and launch to operational execution-while extending financial oversight into manufacturing units and support departments. This transformation requires enterprises to break away from conventional models and restructure management

frameworks. Such an approach not only enhances strategic cost management but also provides accurate data for performance evaluation of functional departments.

Currently, there is limited research on the application of Activity-Based Costing (ABC) in the catering industry. Establishing a comprehensive system that integrates cost accounting, decision-making, customer profitability analysis, and financial reporting design is essential-a process requiring gradual implementation. This approach enables the calculation of more accurate cost figures, thereby facilitating effective cost control and enhancing corporate competitiveness.

5. Summary

This study first establishes activity-based costing (ABC) as its research framework, then narrows the scope to focus on its application in the hospitality industry. Through systematic literature review, we conducted rigorous screening of relevant studies. Subsequently, we analyzed high-quality publications to address the two core research questions proposed, demonstrating significant practical value for cost control strategies in catering services and hotel management sectors.

References

- [1] Xiao Chang. Application of Activity-Based Costing in the Allocation of Management Expenses at the Headquarters of Catering Chain Enterprises[J]. *Communication of Finance and Accounting*, 2012, (11): 106-107.
- [2] Chen Yan. Analysis of Financial Accounting Improvement Based on Activity-Based Costing-A Case Study of Y Small Hotel[J]. *Modern Economic Information*, 2016, (14): 189-190.
- [3] Xie Yefangfa, Lu Jing. Application of Activity-Based Costing in China's Catering Industry[J]. *Commercial Accounting*, 2011, (33): 49-51.
- [4] Prunus salicina Phoxinus phoxinus subsp. phoxinus. Research on the Application of Activity-Based Costing in Hotel Industry Cost Accounting[J]. *Commercial Accounting*, 2019, (16): 51-55.
- [5] Cao Xuan. Research on the Application of Activity-Based Costing in Quality Cost Management of Catering Enterprises[J]. *Journal of Hubei University of Arts and Science*, 2018, 39(5): 38-41.
- [6] He Jiacheng. A Brief Discussion on the Application of Activity-Based Costing in the Catering Departments of Government Logistics Institutions[J]. *China Management Informatization*, 2020, 23(24): 51-53.
- [7] Prunus salicina Kai, Xu Lei. Research on Cost Accounting of University Canteen Catering Products Based on Activity-Based Costing[J]. *Economic Vision (Part 1)*, 2013, (8): 14-16.
- [8] Wu Qiang. Application of Activity-Based Costing in the Informatization Management of Catering Enterprises[J]. *Journal of Yangzhou University (Culinary Science Edition)*, 2006, (1): 49-52.
- [9] Jin Yaru. Application of Activity-Based Costing in Catering Enterprises[J]. *Cooperative Economy & Science*, 2021, (22): 92-95.