ADOPTION OF ACTIVITY-BASED COSTING IN INDIAN AGRI-BUSINESSES: AN EMPIRICAL STUDY ON COST ACCURACY AND MANAGERIAL DECISION-MAKING

Abstract

This study empirically examines the adoption of Activity-Based Costing (ABC) in Indian agri-business organizations and its impact on cost accuracy and managerial decision-making quality. Using primary data from 202 accounting and managerial professionals working in agri-business firms, Farmer Producer Organisations, cooperatives, and agri-processing units across India, the study adopts a quantitative research design. Descriptive statistics, reliability analysis, correlation analysis, and regression techniques were employed for data analysis. The findings indicate a high level of ABC adoption and show that ABC adoption has a significant positive effect on cost accuracy. Cost accuracy is also found to be a strong predictor of managerial decision-making quality, highlighting the importance of reliable cost information for pricing, budgeting, and strategic decisions. The study contributes to management accounting literature by extending empirical evidence to the agri-business sector and offers practical insights for managers and accountants.

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Introduction

Agri-businesses operate in environments characterised by biological uncertainty, market volatility, and increasingly complex cost structures. In recent years, Indian agri-business organizations, including Farmer Producer Organisations, cooperatives, and agri-processing units, have faced growing pressure to enhance cost efficiency while responding to demands for competitiveness, transparency, and sustainability. In such contexts, accurate cost information is not merely an accounting requirement but a strategic necessity supporting pricing, budgeting, and investment decisions. Management accounting systems are therefore expected to evolve beyond basic cost aggregation toward decision-support mechanisms that reflect actual resource consumption (Kaplan & Cooper, 1998).

Ideally, costing systems in agri-businesses should allocate indirect and overhead costs in ways that

mirror operational realities and activity intensity. However, many organizations continue to rely on traditional volume-based costing systems that inadequately capture the diversity of activities involved in procurement, processing, logistics, quality control, and compliance. This misalignment often produces distorted cost information, resulting in mispricing, inefficient resource allocation, and weakened managerial decision-making (Drury, 2018). The gap between ideal costing practices and actual application remains a persistent managerial challenge, particularly in sectors characterised by heterogeneous activities and substantial indirect costs.

Activity-Based Costing addresses these limitations by assigning costs to activities and tracing them to outputs through appropriate cost drivers rather than broad volume measures (Cooper & Kaplan, 1991). Empirical research in manufacturing and service sectors shows that ABC improves cost accuracy and enhances decision-relevant accounting information (Bhimani et al., 2019). However, empirical evidence from the agri-business context, particularly in emerging economies such as India, remains limited, fragmented, and largely descriptive.

Inaccurate cost information leads to mispricing, inefficient budgeting, and weakened strategic planning. Addressing this gap, the present study empirically examines ABC adoption in Indian agri-business organizations and analyses its impact on cost accuracy and managerial decision-making quality, grounded in the decision-usefulness perspective of management accounting theoretically.

Review of Literature

Activity-Based Costing (ABC) has been positioned in management accounting literature as a response to the limitations of traditional volume-based costing systems in increasingly complex organizational settings. ABC is grounded in the principle that activities consume resources and outputs consume activities, enabling accurate tracing of indirect costs through activity cost drivers (Cooper & Kaplan, 1991). This approach is relevant for agri-businesses, where procurement, processing, storage, quality assurance, and distribution create heterogeneous cost structures that challenge conventional costing practices.

Early empirical research on ABC adoption has largely focused on manufacturing and service organizations. Kaplan and Cooper (1998) demonstrated that ABC enhances cost transparency and managerial understanding of cost behaviour, while later studies linked ABC adoption to improved cost control and strategic decision-making (Bhimani et al., 2019). Despite these contributions, such studies rarely account for sectoral differences, and agri-business contexts remain marginal within mainstream ABC research.

Studies examining the extent of ABC adoption report mixed findings. Evidence from developed economies suggests selective adoption, constrained by implementation costs, system complexity, and organizational resistance (Gosselin, 1997; Al-Omiri & Drury, 2007). Indian studies indicate growing awareness but uneven adoption, largely concentrated in larger manufacturing firms (Joshi, 2001). As agri-business organizations are seldom included, the extent of ABC adoption within Indian agri-businesses remains insufficiently understood, motivating the first objective of this study.

A second stream of literature analyses the impact of ABC adoption on cost accuracy. Empirical studies show that ABC reduces cost distortions and cross-subsidisation among products (Innes & Mitchell, 1995). Drury (2018) further argues that ABC improves the reliability of cost information by aligning costs with resource consumption. However, much of this evidence relies on case studies, limiting generalisability and leaving agri-business environments underexplored, thereby justifying the second objective of this study.

Research grounded in the decision-usefulness perspective links cost accuracy to managerial decision-making quality. Chenhall and Morris (1986) and Abernethy and Lillis (2001) demonstrate that accurate cost information enhances planning, control, pricing, and strategic decisions. Yet cost accuracy is often treated implicitly, and empirical examination of its direct effect on decision-making in agri-businesses remains limited. Addressing this gap underpins the third objective of this study.

Data and Methodology

This study adopts a quantitative, cross-sectional research design to examine Activity-Based Costing adoption in Indian agri-business organizations and its effects on cost accuracy and managerial decision-making quality. A cross-sectional approach is appropriate as it captures prevailing costing practices and managerial perceptions at a specific point in time, aligning with the study's objective of analysing relationships among constructs rather than long-term causal dynamics (Creswell & Creswell, 2018).

The study follows a pan-India approach, covering

agri-business firms, Farmer Producer Organisations, cooperatives, and agri-processing units operating across multiple Indian states. Data were collected between November and December 2025 from accounting professionals, finance managers, and senior managers involved in costing, budgeting, and financial decisions.

Primary data were collected using a structured questionnaire adapted from established management accounting literature and contextualised to the agri-business environment (Drury, 2018; Bhimani et al., 2019). All items were measured on a five-point Likert scale. A total of 202 valid responses were analysed.

Results

1. Profile of Respondents

Table 1 presents the demographic profile of respondents. The sample consists of accounting professionals, finance managers, senior managers, and cost accountants, ensuring balanced representation of decision-makers involved in costing practices across Indian agri-business organizations.

Table 1: Profile of Respondents

Category	Frequency	Percentage
Accounting Professionals	62	30.7%
Finance Managers	58	28.7%
Senior Managers	46	22.8%
Cost Accountants	36	17.8%
Total	202	100%

2. Descriptive Statistics

Descriptive statistics were used to assess central tendency and dispersion of the study variables. Table 2 indicates high mean scores across all constructs, reflecting favourable perceptions. ABC adoption shows a mean of 4.39 (SD = 0.59), indicating substantial adoption. Cost accuracy records a mean of 4.31 (SD = 0.74). Decision-making quality is highest at 4.53 (SD = 0.49), while organizational support averages 4.23 (SD = 0.73) among surveyed agri-business respondents.

Table 2: Descriptive Statistics of Study Variables

Variable	N	Mean	Standard Deviation
ABC Adoption	202	4.39	0.59
Cost Accuracy	202	4.31	0.74
Decision-Making Quality	202	4.53	0.49
Organizational Support	202	4.23	0.73

3. Reliability Analysis

The internal consistency of the measurement scales was evaluated using Cronbach's alpha. As shown in Table 3, all constructs demonstrate acceptable to strong reliability, exceeding the recommended threshold of 0.70. ABC adoption records an alpha of 0.795, cost accuracy 0.814, and decision-making quality 0.754. Organizational support exhibits the highest reliability at 0.844. These results confirm that the measurement instruments are reliable and suitable for subsequent statistical analysis.

Table 3: Reliability Statistics

Construct	Number of Items	Cronbach's Alpha
ABC Adoption	5	0.795
Cost Accuracy	5	0.814
Decision-Making Quality	5	0.754
Organizational Support	4	0.844

4. Correlation Analysis

Pearson correlation analysis was conducted to examine relationships among the study variables. As shown in Table 4, significant associations emerge. ABC adoption is positively correlated with cost accuracy ($r = 0.767$, $p < 0.01$), indicating that ABC use is associated with more accurate cost information. ABC adoption also shows a moderate correlation with managerial decision-making quality ($r = 0.545$, $p < 0.01$). Cost accuracy demonstrates a strong relationship with decision-making quality ($r = 0.680$, $p < 0.01$). Organizational support is positively related to cost accuracy ($r = 0.296$, $p < 0.01$) and decision quality ($r = 0.637$, $p < 0.01$).

Table 4: Pearson Correlation Matrix

Variable	ABC Adoption	Cost Accuracy	Decision-Making Quality
ABC Adoption	1		
Cost Accuracy	0.767**	1	
Decision-Making Quality	0.545**	0.680**	1
Organizational Support	0.065	0.296**	0.637**

Note: $p < 0.01$ (two-tailed)

5. Regression Analysis: Impact of ABC Adoption on Cost Accuracy

To examine the impact of Activity-Based Costing

adoption on cost accuracy (Objective 2), simple linear regression was conducted with cost accuracy as the dependent variable and ABC adoption as the predictor, as reported in Table 5. The model is statistically significant ($F = 285.234$, $p < 0.001$) and explains 58.8 percent of the variance in cost accuracy ($R^2 = 0.588$). The standardized regression coefficient is positive and significant ($\beta = 0.767$, $p < 0.001$), indicating that higher levels of ABC adoption lead to significantly improved cost accuracy in agri-business organizations.

Table 5: Regression Results – ABC Adoption and Cost Accuracy

Predictor	Standardized β	t-value	Sig.
ABC Adoption	0.767	16.889	0.000
Constant	—	0.466	0.642

Model Statistics: $R = 0.767$, $R^2 = 0.588$, Adjusted $R^2 = 0.586$, $F = 285.234$, $p < 0.001$

6. Regression Analysis: Impact of Cost Accuracy on Decision-Making Quality

To address Objective 3, a regression analysis examined the effect of cost accuracy on managerial decision-making quality, as reported in Table 6. The model is statistically significant ($F = 171.623$, $p < 0.001$) and explains 46.2 percent of variance ($R^2 = 0.462$). Cost accuracy exerts a strong positive effect on decision-making quality ($\beta = 0.680$, $p < 0.001$), confirming its importance.

Table 6: Regression Results – Cost Accuracy and Decision-Making Quality

Predictor	Standardized β	t-value	Sig.
Cost Accuracy	0.680	13.100	0.000
Constant	—	17.058	0.000

Model Statistics: $R = 0.680$, $R^2 = 0.462$, Adjusted $R^2 = 0.459$, $F = 171.623$, $p < 0.001$

Discussion

The findings provide strong empirical evidence on the role of Activity-Based Costing in enhancing cost accuracy and managerial decision-making within Indian agri-business organizations. Regression results show that ABC adoption significantly improves cost accuracy, explaining nearly 59 percent of its variation, highlighting the effectiveness of ABC in addressing limitations of traditional costing systems in activity-intensive environments. Further, cost accuracy is found to play a critical role in improving managerial decision-making quality by supporting pricing, budgeting, and resource allocation decisions. Together, these results establish a clear empirical pathway linking ABC adoption to improved decision-making through enhanced cost accuracy, extending prior management accounting evidence to the underexplored agri-business context.

Conclusion and Implications

This study demonstrates that Activity-Based Costing adoption significantly enhances cost accuracy and, consequently, managerial decision-making quality in Indian agri-business organizations. Using primary data and regression analysis, the study provides defensible evidence supporting advanced costing systems in complex environments. Managerially, ABC enables improved pricing, budgeting, and strategic decisions. Professionally, the findings highlight the strategic role of management accountants. The study is limited by perceptual data and direct relationships; future research may employ longitudinal designs or mediation models with larger empirical samples. MA

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