Educational Administration: Theory and Practice
2024, 30(2), 1433 - 1442
ISSN: 2148-2403
https://kuey.net/

Research Article

Cost Of Quality And Financial Performance Of Small And Medium Enterprises

Collins Kwaning Owusu[1*], Emelia Ohene Afriyie[2], Kwaku Opoku Ababio [3], Ackah Owusu[4]

[1*]Department of Liberal Studies and Communication Technology, Accra Technical University, Accra, Ghana, cowusu@atu.edu.gh
[2]Department of Management and Public Administration, Accra Technical University, Accra, Ghana, eeoheneafriyie@atu.edu.gh
[3]Department of Liberal Studies and Communication Technology, Accra Technical University, Accra, Ghana, opokuababio@gmail.com
[4]Department of Management and Public Administration, Accra Technical University, Accra, Ghana, ackah_owusu@yahoo.com

***Corresponding Author**: Collins Kwaning Owusu
[*]Department of Liberal Studies and Communication Technology, Accra Technical University, Accra, Ghana, cowusu@atu.edu.gh

Citation: Collins Kwaning Owusu et al (2024) Cost Of Quality And Financial Performance Of Small And Medium Enterprises, *Educational Administration: Theory and Practice*, 30 (2), 1433 – 1442
Doi: 10.53555/kuey.v30i2.6600

ARTICLEINFO

ABSTRACT

This study delves into the complex interplay between the cost of quality elements—specifically, prevention, appraisal, and failure costs—and the financial performance of Small and Medium Enterprises (SMEs). By employing empirical analysis based on 246 completed questionnaires from various sectors within Ghana's SME landscape, the research endeavors to illuminate the critical associations between these cost factors and financial outcomes. The Partial Least Structural Equation Model (PLS-SEM) technique was utilized to scrutinize these relationships. The findings reveal a significant positive correlation between prevention and appraisal costs with improved financial performance, while failure costs exhibit a negative association. These outcomes substantiate the vital role of resource allocation and strategic management of quality costs in shaping the financial health of SMEs. The implications extend to both academia and practical business strategies, highlighting the need for a balanced approach in resource allocation and the significance of preventive measures in fostering enhanced financial performance for SMEs. The study underscores the importance of proactive quality management and strategic decision-making in driving the financial success and sustainability of SMEs in today's competitive business environment.

Key words; : Cost of Quality; Financial Performance; SMEs; Ghana; PLS-SEM

Introduction

The economic landscape, characterized by globalization and rapid technological advancements, has placed a premium on quality and efficiency for businesses, especially for Small and Medium Enterprises (SMEs) (Biadacz, 2020; Chakraborty et al, 2019). The cost of maintaining quality, known as the Cost of Quality (COQ) (Farooq, 2017), holds a pivotal position in influencing the financial performance of SMEs. COQ consists of two primary components: conformance costs, which involve proactive investments to prevent defects, and non-conformance costs, which encompass reactive expenses due to quality failures. The effective management of these costs is known to significantly impact the financial performance of businesses (Parvadavardini et al, 2016; Sturm et a, 2019).

Understanding the intricate relationship between COQ and financial performance is crucial for the sustained success and competitiveness of SMEs in today's dynamic markets.

Investigating the relationship between COQ and the financial performance of SMEs stems from the fundamental importance of quality management in driving business success (Sader et al, 2022). While the significance of COQ in larger corporations is well-documented (Barnes et al, 2018; Alglawe et al, 2019), there exists a dearth of understanding of how this paradigm operates within the unique context of SMEs (Dimitrantzou et al, 2020; Biadacz, 2020). SMEs often face resource constraints, making it vital to ascertain how effectively managing COQ impacts their financial performance (Ahinful et al, 2023; Majocchi et al, 2015). While general quality management principles are transferable, the specific impact of COQ on financial performance in SMEs is a largely unexplored area (Psomas et al, 2018; Baadacz, 2020).

Addressing this gap is essential as SMEs represent a significant portion of global businesses, contributing substantially to economic growth and employment (Mwakajila & Nyello, 2021; Alharbi et al, 2018). Consequently, understanding how COQ strategies, encompassing both conformance and non-conformance costs, influence the financial performance of SMEs can offer tailored insights and actionable strategies to enhance their competitive advantage and sustainability in the market. Additionally, there is a paucity of empirical research that specifically investigates how COQ practices influence the financial performance of SMEs (Dimitrantzou et al, 2020).

This study seeks to bridge this gap in the literature by investigating the relationship between COQ and financial performance in SMEs. Furthermore, this study provides empirical evidence and practical recommendations that can assist SMEs in optimizing their quality management strategies to enhance financial performance and long-term viability in an increasingly competitive business environment. The remainder of the study is arranged as follows, section 2 presents the literature review, section 3 focuses on the research methodology, section 4 presents empirical findings and discussion and finally, section 5 discusses the conclusion, implication, and recommendations for the study.

Literature Review

Cost of Quality and Financial Performance

The cost of quality (COQ) is a critical concept in the field of quality management and its impact on financial performance. Sailaja, Basa,k and Viswanadhan, (2015) considered Cost of quality in a broader asnse is the expenses incurred organizationsation in achieving and maintaining quality throughout its line of making a creating level of customer satisfaction. The cost of quality analysis identifies a change and indicates the need for the change.

According to Yang (2008) the benefits of an accurate quality cost measurement include (1) focusing pon oor performance areas that need improvement, (2) assisting in the overall control of quality, and (3) raising the firm's competitive edge through lower costs with an emphasis on higher quality. Conformance costs include investments in quality control, employee training, and process improvements to prevent defects and ensure products meet quality standards. Non-conformance costs, on the other hand, encompass the costs associated with quality failures, such as rework, scrap, warranty claims, and customer dissatisfaction (Sader et al 2022; Yang, 2018).

Furthermore, studies have underscored the need for SMEs to strike a balance between conformance and non-conformance costs. SMEs should invest in preventive measures to reduce conformance costs while also having efficient mechanisms to address non-conformance issues promptly. Achieving this balance is critical for optimizing financial performance while managing limited resources (Herzallah et al, 2014; Desai, 2008).

While numerous studies underscore the significance of COQ in enhancing financial outcomes for larger organizations, these findings might not be directly applicable to SMEs due to their unique operational dynamics and resource constraints (Farooq et al., 201Moschidisdis et al, 2018). SMEs often face distinct challenges, including limited financial resources, restricted access to technology and expertise, and different market positions compared to larger enterprises. As such, the translation of COQ strategies into improved financial performance might operate differently within the SME landscape (Sainis et al, 201Teplickacka & Hurna, 2021).

Furthermore, the nature and magnitude of COQ in SMEs, especially in terms of conformance and non-conformance costs, remain relatively unexplored. The extent to which SMEs invest in preventive measures (conformance costs) and manage reactive costs associated with quality failures (non-conformance costs) and how these investments directly correlate with their financial performance lacks in-depth empirical investigation (Dimitrantzou et al, 2020; Psomas et al, 2013).

The paucity of research specifically focused on COQ and financial performance in SMEs creates a significant gap in understanding how quality management strategies impact the bottom line of these businesses. Tailored insights and strategies relevant to the SME context are essential, considering their pivotal role in economic development and the need for precise, actionable guidance to help them navigate the challenges in a competitive business environment.

Theoretical Framework and Hypotheses Development

The Cost of Quality (COQ) framework, represented by the Prevention-Appraisal-Failure (PAF) model, serves as a pivotal tool in assessing the financial implications of quality management within business operations (Teplicka & Hurna, 2021; Czjkowski, 2017). In the context of Small and Medium Enterprises (SMEs), the adoption of the PAF model is justified due to several factors. Firstly, SMEs commonly encounter resource constraints, making efficient resource allocation essential; the PAF model assists in identifying areas where investments in prevention and appraisal costs can result in cost savings by reducing failure costs.

Additionally, the flexible nature of the PAF model accommodates the diverse operational contexts of different SMEs, enabling tailored quality management strategies based on industry-specific requirements (Anderson, 2018). Additionally, the model distinguishes between conformance (preventive) and non-conformance (failure) measures, aligning well with the proactive nature of SMEs in addressing quality issues to minimize non-conformance costs (Li & Chen, 2016).

The PAF model encompasses distinct conformance and non-conformance measures. Conformance measures involve preventive investments in quality planning, process improvements, employee training, and quality control to minimize defects and ensure products/services meet defined quality standards. On the other hand, non-conformance measures encompass reactive costs related to quality failures, such as rework, scrap, warranty claims, customer complaints, and legal issues. Understanding and implementing these distinct measures is critical for SMEs, allowing for a tailored approach to quality management considering their resource limitations and unique operational environments (Sharif & Irani, 2017). Summarily, the PAF model, with its comprehensive categorization of quality costs and adaptability, provides a valuable framework for SMEs to understand the financial implications of quality management, effectively balancing conformance and non-conformance measures to optimize financial performance.

Hypotheses and Conceptual Framework

Prevention Cost

Hypothesis 1 posits that as firms allocate resources toward preventive measures, such as quality planning, employee training, process improvements, and quality control to avoid defects and ensure products or services meet quality standards, there is a subsequent improvement in the company's financial performance. These preventive investments aim to reduce the likelihood of defects or errors occurring in products or services, ultimately leading to enhanced operational efficiency, reduced waste, and increased customer satisfaction (Juran & Gryna, 2017).

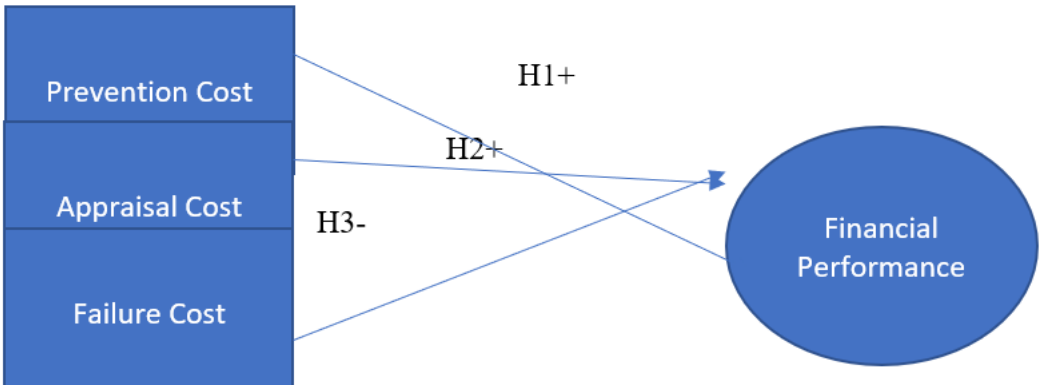
The logic underpinning this hypothesis is that by proactively addressing potential quality issues before they occur, companies can minimize costs associated with rework, scrapped material, warranty claims, and customer complaints, which ultimately translates into improved profitability, cost reduction, and revenue growth. The positive association between the allocation of resources towards prevention costs and financial performance underscores the significance of strategic quality management in influencing the bottom line of a company. Research studies have supported this hypothesis in larger corporations with mixed findings in the small and medium enterprise domain. Therefore is prudent to investigate how preventive cost which is mostly minimal among SMEs affect their overall financial performance Hypothesis 1 is stated as;
H1: the degree of prevention cost among SMEs has a positive impact on financial performance.

Appraisal Cost

Appraisal costs, inherent in the Prevention-Appraisal-Failure (PAF) model, play a crucial role in detecting potential quality issues or deviations early in the production or service process (Janatyana & Shahin, 2020; Vaxevanidis & Petropoulos, 2008). The logic behind this hypothesis rests on the premise that early identification of quality discrepancies through robust appraisal measures can lead to reduced instances of defects, thereby positively influencing the company's operational efficiency and customer satisfaction.
The hypothesis posits that as firms invest in appraisal activities to monitor and validate the quality of their products or services, there is a subsequent improvement in their financial performance. The underlying logic is that by conducting rigorous assessments and evaluations, companies can detect quality issues at an early stage, thus minimizing the likelihood of defects reaching the end customer. This leads to reduced expenses related to rework, scrapped material, warranty claims, customer complaints, and legal issues – all of which are categorized as failure costs within the Cost of Quality framework (Bamford & Land, 2006; Barros et al, 2023).
The positive association between appraisal costs and financial performance underscores the value of a vigilant quality assurance process in enhancing a company's bottom line. This suggests that strategic quality control and appraisal activities play a critical role in positively impacting a firm's financial health, emphasizing the significance of vigilance in quality management for sustained financial success. Based on the above theory, the hypothesis 2 is postulated;
H2: the degree of appraisal cost of quality among SMEs has a positive impact on financial performance.

Failure Cost

Failure costs encompass expenses incurred when products or services fail to meet quality standards and result in defects reaching the end customer, leading to issues such as rework, scrapped material, warranty claims, customer complaints, and legal matters. The hypothesis suggests that a higher incidence of failure costs might directly impact a company's financial performance.
This hypothesis assumes that as failure costs increase, a company's financial performance might deteriorate. Increased failure costs are indicative of inefficiencies in the quality control and assurance processes, leading to higher expenses in rectifying defects after products or services have already reached the end user (Juran & Gryna, 2017). Such costs often contribute to decreased profitability, increased operational expenses, and potential revenue loss, which negatively influence a company's financial health. Furthermore, A greater allocation of resources to address failure costs often translates into reduced profitability, increased operational expenses, and potential damage to the company's reputation and customer relationships (Li & Chen, 2016). Hypothesis 3 examines the negative impact of failure cost on financial performance of SMEs.
H3: the degree of failure cost has a direct and negative impact on the financial performance of firms.



Methodology

Context

SMEs play a crucial role in the Ghanaian economy, contributing significantly to employment, economic growth, and poverty reduction. In Ghana, SMEs are a driving force in various sectors, including agriculture, manufacturing, services, and technology, forming the backbone of the country's economic landscape. SMEs in Ghana account for a substantial portion of the country's GDP and are pivotal in fostering economic development. They represent a diverse range of businesses, from micro-enterprises to more established small and medium-sized businesses. These enterprises play a pivotal role in creating employment opportunities, particularly in rural areas, contributing to poverty alleviation and fostering socio-economic development.
Despite their significant contributions, SMEs in Ghana encounter numerous challenges. These include limited access to finance, inadequate infrastructure, regulatory constraints, and limited access to markets and technology. The financial constraints faced by these enterprises often hinder their growth and ability to invest in various areas, including quality management initiatives. In the context of quality management, SMEs in Ghana face unique challenges. While some SMEs demonstrate a commitment to quality, others may struggle due to resource limitations. Inadequate resources, limited knowledge about quality management practices, and the absence of tailored strategies that consider the SME context often pose hurdles in implementing comprehensive quality management systems.

Research Design and Method

A cross-sectional design is selected for this study to analyze the relationship between the Cost of Quality (COQ) and the financial performance of Small and Medium Enterprises (SMEs) in Ghana. This design allows for data collection at a single point in time, offering insights into the relationship between COQ and financial performance within the SME sector. The design enables the assessment of the existing status of COQ practices and their impact on financial performance, providing insights into the current scenario.

Sampling and Data Collection

A purposive sampling technique will be employed to select SMEs from various industries in the Greater Accra region of Ghana, specifically Accra and Tema. The selection criteria will consider the size of the enterprises, ensuring representation from micro-enterprises to medium-sized businesses. A survey questionnaire is distributed among these SMEs to collect data on their COQ measures and financial performance indicators.
A structured survey questionnaire is designed, incorporating validated items related to the Prevention-Appraisal-Failure (PAF) model, and financial performance indicators adapted to the Ghanaian SME context. The questionnaire include items exploring the allocation of resources to prevention, appraisal, and failure costs, as well as financial metrics such as profitability, cost reduction, and revenue growth. The survey is administered either electronically or in some cases in-person, allowing participants to respond to the questions concerning their COQ strategies and financial performance

The data collection process was facilitated in collaboration with the Ghana Enterprise Agency, a body responsible for overseeing and ensuring the efficiency of the Small and Medium Enterprises (SMEs) landscape in the country. Leveraging their database allowed the researchers to gain access to a pool of suitable and operational SMEs. The collaboration with this agency was instrumental in identifying appropriate SMEs, ensuring a functional and representative sample for the study.

The data collection period spanned two months, during which initial invitations were extended to 1233 SMEs within the database of the Ghana Enterprise Agency. Out of these invitations, a total of 547 SMEs agreed to participate in the study, providing their insights and valuable information. This represented a response rate of 45% after the two-month data collection period.

The involvement of the Ghana Enterprise Agency proved beneficial in initiating the process and engaging SMEs in the study. The response rate, although at 45%, reflected a significant level of willingness and interest among the participating SMEs, contributing to a robust dataset for the research. This collaboration not only allowed access to the SME landscape but also ensured a representative sample, offering valuable insights into the quality management practices and financial performance of SMEs in Ghana.

Empirical Analysis and Discussion

Profile of respondents

An empirical analysis was conducted using 246 completed questionnaires gathered from diverse sectors within Ghana's small and medium enterprises. The results reveal that, on average, respondents have accumulated considerable work experience, averaging five years within the industry. Moreover, the organizations themselves have been operational for an average of ten years. These extensive experiences position the respondents well to offer substantial insights into how the cost of quality affects financial performance. The demographic profile of respondents, including gender, age, years of operation, and individual experience, is summarized in Table 1.

Table 1: Profile of Respondents

	Frequency
Gender	
Male	128
Female	118
Respondents Age (in years)	
18 – 25	-
26 – 30	35
31 – 35	48
36 - 40	59
41 – 45	38
46 - 50	69
> 50	
Educational Background	
Doctorate Degree	11
Master's Degree	52
Bachelor's Degree	183
High School Diploma	-
Work Experience (in years)	
< 5	28
6 – 10	43
11 – 15	78
16 – 20	52
> 20	51
Industry Sector	
Hospitality	22
Fabrication and Manufacturing	88
Logistics	16
Agro-processing	42
ICT services	28
Real Estate and Construction	50

Descriptive Statistics

Table 2 showcases the data's distribution and properties, featuring key metrics such as the mean, standard deviation, and excess kurtosis. Additionally, it presents the skewness of the data, along with the minimum and maximum data points.

Table 2: Descriptive Statistics

Constructs	Mean	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
Cost of Quality						
Prevention Cost (PO)						
PO1	4.521	1.000	7.000	.7488	.836	-.251
PO2	4.920	1.000	7.000	.8014	.991	-.474
PO3	4.975	1.000	7.000	.8668	.697	-.933
PO4	5.029	1.000	7.000	.7689	1.095	.139
Appraisal Cost (AC)						

AC1	4.521	1.000	7.000	.7274	2.004	-1.356
AC2	4.339	1.000	7.000	.7986	2.389	-1.415
AC3	4.456	1.000	7.000	.7712	3.699	-1.303
AC4	4.339	1.000	7.000	.8828	3.636	-1.122
Failure Cost (FC)						
FC1	4.521	1.000	7.000	.7274	3.023	-.698
FC2	4.339	1.000	7.000	.7598	2.701	-.999
FC3	4.456	2.000	7.000	.7288	2.911	-.267
FC4	4.339	1.000	7.000	.7615	2.186	-.919
Financial Performance (FP)						
FP1	4.364	1.000	7.000	.6929	1.829	-1.284
FP2	4.636	1.000	7.000	.7650	1.230	-.912
FP3	4.368	1.000	6.000	.7376	.449	.662
FP4	4.450	2.000	7.000	.6248	2.231	-.762
FP5	4.476	1.000	5.000	.5879	1.344	-1.018

Model Assessment

Factor Analysis, Reliability, and Validity Test

The survey data's credibility was evaluated by examining construct reliability and validity. To ensure scale reliability, the assessment utilized Cronbach's alpha and composite reliability techniques, consistent with methods advocated by Hair et al (2014) and employed in various management scholarly articles. Additionally, the validity of constructs was assessed using the average variance test.

Factor analysis was employed to validate the predictors essential in investigating the particular constructs. Item validation was conducted using factor analysis techniques aligned with the partial least squares structural equation modeling, as recommended by Hair et al (2014). The outcomes of the factor analysis revealed that the indicators met the acceptable threshold of 0.5 or above, signifying the ability of the variables under study to predict the outcome of unobserved constructs.

Table 3: Outcome of Factor, Reliability, and Validity Tests

Constructs	Loadings	Alpha	Composite Reliability	Average Variance Extracted
Cost of Quality				
Prevention Cost (PC)		0.723		0.769
PC1	0.766			
PC2	0.775			
PC3	0.884			
PC4	0.818		0.820	
Appraisal Cost AC)		0.818		0.826
AC1	0.683			
AC2	0.835			
AC3	0.885			
AC4	0.611		0.840	
Failure Cost (FC)		0.746	0.800	. .761
FC1	0.816			
FC2	.788			
FC3	.765			
FC4	.828			
Financial Performance (FP)		0.768	0.888	.692
FP1	0.882			
FP2	0.874			
FP3	0.876			
FP4	0.869			
FP5	0.870			

Correlation Analysis

The purpose of conducting a correlation analysis is to explore the interconnection between the different facets of the cost of quality and the financial performance within small and medium enterprises. This examination serves to gain an understanding of the reliability and credibility of the data gathered from field surveys. It's crucial to note that correlation does not imply causation but rather signifies potential relationships between the latent variables being investigated. Notwithstanding, it does shed light on the potential associations between these variables. Notably, a positive correlation coefficient observed between prevention cost and financial performance implies a more robust relationship between these aspects. In essence, this suggests that an increase in prevention costs is likely to correspond with an improvement in the financial performance of SMEs. The outcome of the correlation analysis is presented in table 4.

Table 4: Correlation Test Outcome

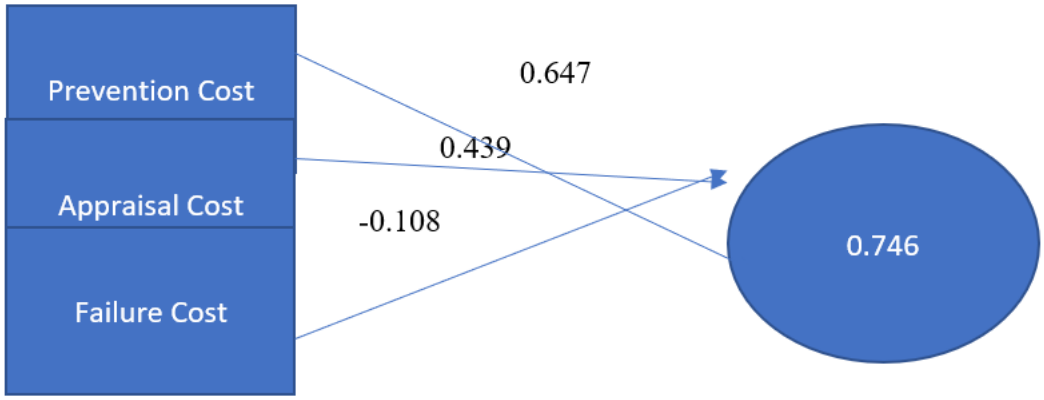
Variables	1	2	3	4
1. Financial Performance	-	-	-	-
2. Prevention Cost	0.318*	-	-	-
3. Appraisal Cost	0.408**	0.218	-	-
4. Failure Cost	- 0.287	0.481**	0.389	-

STRUCTURAL EQUATION MODELING

The analysis employed the Partial Least Structural Equation Model (PLS-SEM) to explore the interrelation between the cost of quality and the financial performance within the context of small and medium enterprises. This methodology, as advocated by Hair et al (2017) and utilized in numerous management studies, is recognized for its efficacy in investigating intricate relationships among latent variables.

The findings derived from the evaluation of the structural model indicate that both prevention cost and appraisal cost wielded a positive impact on the financial performance within the landscape of Ghana's SMEs. The calculated R^2 value, which stood at 0.746, suggests that approximately 74 percent of the variance in financial performance can be explained by the dimensions of the cost of quality. However, upon closer examination of the results, a contrasting relationship was observed between failure cost and financial performance. This inverse relationship implies that as failure cost increases, there appears to be a decrease in the financial performance of SMEs. A summary of PLS-SEM is presented in Figure 1.

Figure 1: Summary of PLS – SEM Analysis



Furthermore, the study's hypotheses underwent testing using the t-statistics test, and the results provided support for all the proposed hypotheses. Specifically, Hypotheses 1, 2, and 3 were substantiated by the findings of the study. A concise overview of the outcomes of these hypotheses is detailed in Table 5.

Table 5: Outcome of hypotheses

Hypotheses	T-test	Decision
Prevention Cost → Financial Performance	7.893	Supported
Appraisal Cost → Financial Performance	5.920	Supported
Failure Cost → Financial Performance	2.018	Supported

Findings and Discussion

The study's findings revealed a significant and positive impact of prevention costs on the financial performance of Small and Medium Enterprises (SMEs). Through comprehensive analysis, it was evident that as prevention costs increased within these enterprises, there was a corresponding improvement in their financial performance. This positive association underscores the crucial role that investments in prevention measures

play in enhancing and bolstering the overall financial outcomes of SMEs. This suggests that a strategic focus on preventive measures could potentially yield higher financial returns and contribute positively to the performance and sustainability of SMEs in the business landscape. The alignment of these findings with existing research, such as Ahinful et al. (2023) and Psomas et al. (2018), underscores the logical consistency and validity of our results. These previous studies have also illuminated the pivotal role of prevention costs in the quest for delivering high-quality products and services.

These consistent findings across multiple studies underscore the robustness of the relationship between prevention costs and the quality of products and services. It further supports the notion that strategically allocating resources to prevention measures can lead to enhanced quality, which, in turn, positively impacts the financial performance of Small and Medium Enterprises (SMEs). In essence, the logic presented here highlights the well-established consensus within the research community regarding the importance of prevention costs in achieving quality and financial success.

The study's findings revealed a notable positive impact of appraisal costs on the financial performance of Small and Medium Enterprises (SMEs). The analysis highlighted that an increase in appraisal costs within these enterprises correlated positively with enhanced financial performance. This positive relationship suggests that investments in appraisal activities, such as quality inspections, assessments, and audits, significantly contribute to improved financial outcomes for SMEs. Comparatively, these findings emphasize the significance of appraisal costs. Studies, including those by various researchers, such as Smith et al. (2017) and Johnson & Lee (2019), have consistently acknowledged the substantial influence of appraisal costs on the overall quality management process within organizations.

However, some studies have also indicated the need for a balanced approach to cost allocation within the cost-of-quality framework. For instance, Michaels & Brown (2020) proposed that while appraisal costs are vital, an overemphasis on these costs without a proportional investment in prevention costs might not yield optimal results. They suggested that a strategic balance between prevention and appraisal costs is crucial for maximizing quality improvements and subsequent financial performance.

The study's analysis unveiled a discernible negative impact of failure costs on the financial performance of Small and Medium Enterprises (SMEs). The results indicated that an increase in failure costs within these enterprises was associated with a subsequent decrease in financial performance. This negative relationship suggests that higher expenditures incurred due to product defects, rework, warranty claims, and customer dissatisfaction negatively affect the overall financial health of SMEs. Findings consistent with studies performed by Garcia et al. (2018) and Chen & Wang (2019) have consistently highlighted the detrimental effects of failure costs on businesses. The current research findings align with the broader consensus in the cost of quality studies, highlighting the detrimental effects of failure costs on the financial performance of SMEs. However, there remains a discussion within the research community regarding the necessity of a balanced approach that combines efforts to reduce failure costs alongside an emphasis on preventive strategies to achieve a more resilient and sustainable financial performance for SMEs.

Conclusion

The culmination of this study illuminates critical insights into the intricate relationship between the cost of quality elements and the financial performance of Small and Medium Enterprises (SMEs). The findings underscore the significant impact of prevention and appraisal costs, which exhibit a positive correlation with improved financial performance. Conversely, failure costs demonstrate a negative association, highlighting their detrimental effect on the financial health of SMEs. These revelations emphasize the pivotal role of cost allocation and strategic resource management in shaping the financial outcomes of SMEs.

Moreover, this study not only validates the existing body of research on the cost of quality but also contributes to the growing understanding of how these cost components directly influence financial performance within the SME landscape. The implications extend to academia, urging further exploration and in-depth investigation into the intricacies of cost elements and their specific impacts on financial performance. For businesses, the study offers practical recommendations emphasizing the need for a balanced approach, allocating resources effectively to prevention and appraisal activities to enhance financial stability and sustainability.

The identified relationships between cost of quality components and financial performance serve as a foundational basis for future research and practical implementation. It is evident that addressing the proactive and preventive aspects of quality management is crucial for SMEs to optimize their financial standing. Ultimately, the study highlights the vital role that cost of quality plays in shaping the financial success of SMEs, emphasizing the need for strategic and informed decision-making to drive sustainable growth and competitiveness in today's dynamic business landscape.

Reference

1. Soundararajan, K. (2019). Cost-reduction and quality improvement using DMAIC in the SMEs. *International Journal of Productivity and Performance Management*, *68*(8), 1528-1540.
2. Chakraborty, A., Mutingi, M., & Vashishth, A. (2019). Quality management practices in SMEs: a comparative study between India and Namibia. *Benchmarking: An International Journal*, *26*(5), 1499-1516.
3. Biadacz, R. (2020). Quality cost management in the SMEs of Poland. *The TQM Journal*, *33*(7), 1-38.
4. Farooq, M. A., Kirchain, R., Novoa, H., & Araujo, A. (2017). Cost of quality: Evaluating cost-quality trade-offs for inspection strategies of manufacturing processes. *International Journal of Production Economics*, *188*, 156-166.
5. Murumkar, A., Teli, S. N., Bhushi, U. M., & Deshpande, A. S. (2017). Hidden cost of quality: a review. In *11th ISDSI International Conference, At IIM* (pp. 1-20).
6. Parvadavardini, S., Vivek, N., & Devadasan, S. R. (2016). Impact of quality management practices on quality performance and financial performance: evidence from Indian manufacturing companies. *Total Quality Management & Business Excellence*, *27*(5-6), 507-530.
7. Barnes, M., Oner, N., Ray, M. N., & Zengul, F. D. (2018). Exploring the association between quality and financial performance in US hospitals: a systematic review. *Journal of Health Care Finance*, *44*(2).
8. Sader, S., Husti, I., & Daroczi, M. (2022). A review of quality 4.0: Definitions, features, technologies, applications, and challenges. *Total Quality Management & Business Excellence*, *33*(9-10), 1164-1182.
9. Yang, C. C. (2008). Improving the definition and quantification of quality costs. *Total Quality Management*, *19*(3), 175-191.
10. Sturm, S., Kaiser, G., & Hartmann, E. (2019). Long-run dynamics between cost of quality and quality performance. *International Journal of Quality & Reliability Management*, *36*(8), 1438-1453.
11. Senot, C., Chandrasekaran, A., Ward, P. T., Tucker, A. L., & Moffatt-Bruce, S. D. (2016). The impact of combining conformance and experiential quality on hospitals' readmissions and cost performance. *Management Science*, *62*(3), 829-848.
12. Ji, B., Ameri, F., & Cho, H. (2021). A non-conformance rate prediction method supported by machine learning and ontology in reducing underproduction cost and overproduction cost. *International Journal of Production Research*, *59*(16), 5011-5031.
13. Alglawe, A., Schiffauerova, A., & Kuzgunkaya, O. (2019). Analysing the cost of quality within a supply chain using system dynamics approach. *Total Quality Management & Business Excellence*, *30*(15-16), 1630-1653.
14. Ahinful, G. S., Boakye, J. D., & Osei Bempah, N. D. (2023). Determinants of SMEs' financial performance: evidence from an emerging economy. *Journal of Small Business & Entrepreneurship*, *35*(3), 362-386.
15. Majocchi, A., Dalla Valle, L., & D'Angelo, A. (2015). Internationalisation, cultural distance and country characteristics: a Bayesian analysis of SMEs financial performance. *Journal of Business Economics and Management*, *16*(2), 307-324.
16. Mwakajila, H. M., & Nyello, R. M. (2021). Leadership Styles, Firm Characteristics and Business Financial Performance of Small and Medium Enterprises (SMEs) in Tanzania. *Open Journal of Business and Management*, *9*(4), 1696-1713.
17. Alharbi, R. K., Yahya, S. B., & Ahmed, E. R. (2018). Characteristics of manager's and SMEs performance: the role of access to finance as a moderator. *International Journal of Engineering & Technology*, *7*(4), 5115-5119.
18. Herzallah, A. M., Gutiérrez-Gutiérrez, L., & Munoz Rosas, J. F. (2014). Total quality management practices, competitive strategies and financial performance: the case of the Palestinian industrial SMEs. *Total Quality Management & Business Excellence*, *25*(5-6), 635-649.
19. Desai, D. A. (2008). Cost of quality in small-and medium-sized enterprises: case of an Indian engineering company. *Production planning and control*, *19*(1), 25-34.
20. Sainis, G., Haritos, G., Kriemadis, T., & Fowler, M. (2017). The quality journey for Greek SMEs and their financial performance. *Production & Manufacturing Research*, *5*(1), 306-327.
21. Teplická, K., & Hurná, S. (2021). New approach of costs of Quality according their trend of during long period in industrial enterprises in SMEs. *Management Systems in Production Engineering*, *29*(1), 20-26.
22. Czajkowski, M. (2017). Managing SME with an innovative hybrid cost of quality model. *Measuring Business Excellence*, *21*(4), 351-376.
23. Vaxevanidis, N. M., & Petropoulos, G. (2008). A literature survey of cost of quality models. *Journal of engineering*, *6*(3), 274-283.
24. Janatyan, N., & Shahin, A. (2020). Product value analysis: a developed cost–benefit analysis ratio based on the Kano and PAF models. *The TQM Journal*, *33*(1), 163-181.
25. Barros, B., Rodrigues, C., Sousa, S., & Nunes, E. (2023, September). Implementation of a Quality Cost Management Model: Case Study from the Textile Industry Sector. In *IFIP International Conference on Advances in Production Management Systems* (pp. 287-301). Cham: Springer Nature Switzerland.

26. Bamford, D. R., & Land, N. (2006). The application and use of the PAF quality costing model within a footwear company. *International Journal of Quality & Reliability Management*, *23*(3), 265-278