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GOVERNMENT INTERVENTION AS A MODERATOR IN THE RELATIONSHIP BETWEEN COVID-19 CONTAINMENT MEASURES AND ORGANIZATIONAL PERFORMANCE OF BEVERAGE MANUFACTURING SMES IN GHANA.

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ABSTRACT
This study investigates the moderating role of government intervention in the relationship between COVID-19 containment measures and the organizational performance of beverage manufacturing Small and Medium-sized Enterprises (SMEs) in Accra, Ghana. This study was anchored on Stakeholder Theory (ST). Drawing on a cross-sectional survey of 500 SME leaders, the study employed Structural Equation Modelling (SEM) to test hypothesised relationships. The results reveal a statistically significant positive impact of containment measures on the performance of beverage manufacturing SMEs in Accra, Ghana. Furthermore, government intervention significantly moderates this relationship, enhancing the effectiveness of COVID-19 containment strategies in maintaining operational performance. These findings suggest that government support is crucial in mitigating the adverse economic effects of pandemics on SMEs. The study offers practical implications for policy formulation, highlighting the need for responsive and well-targeted government assistance during public health crises.
Keywords: *COVID-19 containment measures, Government Intervention*, *beverage manufacturing SMEs. organizational performance, Ghana*

INTRODUCTION
The COVID-19 pandemic introduced unprecedented disruptions across global business environments, compelling governments to implement strict containment measures such as lockdowns, curfews, and restrictions on movement. Although necessary to curb the spread of the virus, these interventions triggered substantial economic shocks that disrupted markets, supply chains, and organizational operations worldwide (Ozili, 2020). The pandemic's ramifications have been far-reaching, impacting gross domestic product (GDP), foreign direct investment (FDI), and fundamentally altering business processes and models (Verma & Gustafsson, 2020).

While considerable research has explored the macroeconomic effects of the pandemic, much of it has focused on national and international scales, offering limited insights into how sector-specific small and medium-sized enterprises (SMEs) were affected (World Economic Forum, 2020; Park & Pierce, 2020). In Ghana, SMEs—particularly in the beverage manufacturing sector—faced significant operational constraints due to their reliance on physical distribution and labour-intensive processes. Although government interventions such as stimulus packages and tax reliefs were introduced to cushion these effects, empirical understanding of their role in moderating business outcomes remains sparse.

SMEs are vital to Ghana's economic development and job creation, yet their limited financial resilience makes them highly susceptible to external shocks. Despite studies that examine the general impact of the pandemic on SMEs (Kaimann & Tanneberg, 2021; Pleninger et al., 2022; Li et al., 2021), few have addressed the interplay between containment measures and organizational performance within specific sectors. Moreover, existing research often overlooks how government support mechanisms moderate this relationship. This study addresses these research gaps by focusing on beverage manufacturing SMEs in Accra, Ghana. It investigates:

a) The direct influence of COVID-19 containment measures on the performance of beverage manufacturing SMEs.
b) The moderating effect of government intervention on the relationship between containment measures and organizational performance.

Research Questions

a) How do COVID-19 containment measures influence the performance of beverage manufacturing SMEs in Ghana?
b) Does government intervention moderate the relationship between containment measures and organizational performance?

SIGNIFICANCE OF THE STUDY

This study makes several key contributions to the literature on organizational performance, crisis management, and public policy in developing economies. First, it fills a critical gap by providing sector-specific empirical evidence on how COVID-19 containment measures affected SMEs' performance, specifically within Ghana's beverage manufacturing sector. This focus on a single industry enables a more nuanced understanding of pandemic-induced disruptions, beyond the generalised SME discourse.

Second, the study contributes to theory by examining the moderating role of government intervention (e.g., stimulus packages, tax reliefs) in the relationship between containment measures and SME performance—an area largely underexplored in existing research.

Finally, the findings provide actionable insights for policymakers, development partners, and business support institutions. By highlighting the conditions under which government interventions become most effective, the study supports the design of more targeted and responsive policy frameworks to enhance SME resilience in crises. It thus bridges the gap between academic inquiry and practical policymaking for post-crisis economic recovery in low- and middle-income countries.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Stakeholder Theory

The Stakeholder Theory, initially introduced by Freeman (1984), emphasises the importance of recognising and managing the interests of all individuals or groups who can affect or are affected by an organisation's activities. The theory is grounded in the belief that stakeholders—such as employees, customers, suppliers, financiers, local communities, and governments—hold legitimate interests that must be acknowledged and considered in organizational decision-making.

According to Freeman (1984), stakeholders are not only those who contribute financial capital but also those whose support is essential to the organisation's survival and success. This perspective shifts corporate responsibility beyond shareholders to a broader network of actors. Jones (1980) further supports this view, arguing that corporations have obligations to all constituent groups in society.

The Stakeholder Theory promotes inclusivity, transparency, and ethical management, particularly in addressing conflicts among diverse stakeholder interests. Managers are positioned as the central figures responsible for balancing these interests in alignment with the organisation's objectives (Bruiji, 2022). Although stakeholders may have different expectations and goals, the theory provides a basis for identifying and incorporating these interests into strategic decisions.

Harrison, Freeman, and Abreu (2015) note that Stakeholder Theory can guide the design of systems, processes, and strategies that improve stakeholder cooperation, trust, and mutual respect. In the context of this study, SMEs in Ghana's beverage manufacturing sector operate within a complex network of stakeholder relationships. The theory offers a relevant framework for understanding how stakeholder dynamics may influence organizational outcomes, especially in times of crisis such as the COVID-19 pandemic.

Given the economic disruptions caused by the pandemic, SMEs must identify and manage stakeholder interests—such as those of employees, customers, suppliers, and regulatory bodies—to sustain performance and adapt to changing environments. The theory, therefore, underpins this study by providing a lens through which various stakeholders' roles, influences, and interactions can be examined in relation to the performance of SMEs during and after the pandemic.

COVID-19 Containment Measures

During the COVID-19 pandemic, governments worldwide adopted various containment measures to halt the spread of the virus. While some measures proved effective in flattening the infection curve in certain regions, others had limited impact, often due to delayed implementation, low compliance, or varying ecological and socio-economic conditions. According to Deb et al. (2020), many interventions implemented were non-pharmaceutical and designed to reduce transmission rates and limit fatalities. These included enhanced diagnostic testing, contact tracing, mandatory isolation and quarantine, mobility restrictions, enforcement of social distancing, and compulsory face mask wearing. In high-risk areas, curfews and lockdowns were imposed to reduce community spread. In addition, most countries introduced broader restrictions such as the closure of schools and workplaces, bans on public gatherings, suspension of public transport, limitations on international travel, and stay-at-home directives (National Emergency Response Committee on Coronavirus, 2021). Though vital from a public health standpoint, these actions significantly disrupted global economic activities and business operations. SMEs, particularly those in sectors dependent on physical operations, were heavily affected. In Ghana, beverage manufacturing SMEs experienced considerable setbacks due to supply chain interruptions, reduced workforce mobility, and declining consumer demand. Despite these challenges, the pandemic also created opportunities for innovation, especially in adopting technology and new operational models to sustain business continuity. This study examines the relationship between these containment measures and the performance

of beverage manufacturing SMEs in Ghana. The analysis focuses on how these policy interventions influenced operational efficiency, revenue generation, and overall business resilience during the pandemic.

Government Interventions

Government interventions play a critical role in stabilising business environments, particularly during periods of crisis such as the COVID-19 pandemic. Faced with widespread disruptions, many governments adopted a range of policy measures to control the spread of the virus and mitigate its economic impact on businesses. These interventions included improvements in diagnostic capacity, enforcement of isolation and quarantine measures, social distancing mandates, and targeted lockdowns (Pleninger, 2022). In addition to public health measures, economic support strategies were introduced to cushion the effects of the pandemic on SMEs. Such interventions included stimulus packages, tax relief schemes, low-interest loans, and grants to support liquidity and operational continuity. These interventions were particularly relevant for SMEs in the beverage manufacturing sector, which rely heavily on physical distribution and face-to-face operations.

Governments also undertook temporary regulatory adjustments to reduce administrative burdens and ease business compliance. These included streamlined approval processes, deferred tax payments, and relaxed reporting requirements, all aimed at enhancing the resilience of affected firms. Furthermore, many governments issued sector-specific workplace health and safety protocols to ensure employees operated safely. These protocols encompassed social distancing within factory settings, enhanced hygiene standards, and access to protective equipment. This study examines government intervention as a moderating factor in the relationship between COVID-19 containment measures and the performance of beverage manufacturing SMEs. Understanding the extent and effectiveness of these interventions is essential for evaluating how policy actions influenced business outcomes during the crisis.

Organizational Performance

Organizational performance is a multidimensional concept that has been interpreted differently depending on the organization's strategic orientation, purpose, and nature. While some definitions are rooted in financial outcomes, others adopt a broader view that includes non-financial indicators. Various scholars have proposed diverse perspectives on the meaning and measurement of organizational performance (Aboramadan & Borgonovi, 2016; Appiah-Kubi, 2020; Edwards & Hulme, 2022; Kariega, 2020). This diversity has led to inconsistencies in performance measurement frameworks across sectors. Aboramadan and Borgonovi (2016) argue that organizational performance should be assessed using both financial and non-financial indicators. Financial indicators include profitability, liquidity, returns on investment, and revenue growth. Non-financial measures involve operational efficiency, quality of service delivery, effective use of resources, transparency in financial reporting, employee productivity, strategic partnerships, and the organisation’s broader impact on society. Similarly, Abubakari, Abdulai, and Adam (2022) describe organizational performance as encompassing cost reduction, revenue expansion, increased operational efficiency, and enhanced market share. These dimensions reflect both internal efficiency and external competitiveness.

Appiah-Kubi (2020) emphasises the importance of assessing how well an organisation achieves its intended outcomes relative to its targets. This involves evaluating the tangible results of activities or interventions with projected goals, particularly relevant in performance analysis during periods of disruption, such as the COVID-19 pandemic. Given these varying perspectives, this study adopts a comprehensive performance view by incorporating financial and non-financial metrics. This approach allows for a more accurate assessment of how beverage manufacturing SMEs in Ghana performed during the COVID-19 crisis, especially in response to external factors such as government interventions and containment measures. It recognises that performance is not solely reflected in profit margins but also resilience, adaptability, and operational continuity.

Small and Medium Enterprises (SMEs) In Ghana

The COVID-19 pandemic has had far-reaching effects on global economies, disrupting businesses, communities, and livelihoods. Micro, Small, and Medium Enterprises (MSMEs) have been disproportionately affected, despite their vital role in supporting national, regional, and global economic development. Across the world, many SMEs faced workforce reductions, income losses, and difficulties in meeting financial obligations such as loan repayments and salary commitments. Globally, SMEs account for approximately 90% of businesses and contribute significantly to employment and economic output, particularly in developing economies (Abubakari, Abdulai, & Adam, 2022). In Ghana, SMEs form the backbone of the economy. According to the African Development Bank Group (2022), they constitute about 85% of all enterprises and contribute roughly 70% of the country's Gross Domestic Product (GDP). Furthermore, SMEs represent about 90% of the private sector and employ more than 60% of Ghana's labour force.

Despite their economic significance, Ghanaian SMEs face persistent challenges, including limited access to finance, inadequate infrastructure, minimal exposure to external markets, and restricted capacity development opportunities (Kumaza, 2021). The situation was further exacerbated by the COVID-19 crisis, which disrupted supply chains, reduced demand, and heightened operational uncertainties. In Ghana's urban centres, particularly Accra, SMEs operate predominantly in the manufacturing, services, and agriculture sectors. The business environment in these areas is marked by innovation and resilience, yet it remains vulnerable to systemic shocks like the pandemic (Li et al., 2021). Out of over 25,000 registered enterprises in Ghana, more than 80% are classified as SMEs, solidifying their position as the engine of economic growth. Given their prominence and vulnerability, this study focuses on SMEs in the beverage manufacturing sector in Accra to explore the impact of COVID-19 containment measures and the effectiveness of government interventions in mitigating performance challenges during the pandemic.

EMPIRICAL LITERATURE REVIEW

COVID-19 Containment Measures and SME Performance

Since the onset of the pandemic, empirical research on the impact of COVID-19 containment measures on the performance of small and medium-sized enterprises (SMEs) has gained increasing attention. Several studies have examined the effectiveness of these measures in controlling the virus's spread and their implications for business operations and resilience. Kaimann and Tanneberg (2021) conducted a large-scale empirical study analysing data from 68 countries, 50 US federal states, and several Australian and Canadian states, comprising 6,941 daily observations. Their findings indicate that containment

measures such as lockdowns, school closures, public gathering bans, and mobility restrictions significantly reduced the growth rate of infections. The study concluded that concurrently implementing a combination of containment strategies was more effective in flattening the infection curve than isolated interventions. However, the study did not explore how these measures affected SMEs' operational or financial performance, particularly in developing economies.

Using cantonal-level data and a vector autoregressive model, Pleninger, Streicher, and Sturm (2022) analysed the interaction between non-pharmaceutical interventions and human behaviour in Switzerland. Their results revealed that stricter containment measures, including business closures and remote working policies, significantly reduced infection rates. The study also demonstrated the effects of feedback on the severity of interventions and behavioural changes. Although helpful in understanding disease control, the research offered limited insight into SME performance under these restrictive conditions.

Enesi and Ibrahim (2021) examined the effects of the COVID-19 pandemic on SME performance in Abuja, Nigeria. Using a quantitative approach, data were collected from 100 respondents across 10 SMEs through structured questionnaires. The study revealed that due to pay cuts, SMEs faced reduced revenue, difficulty meeting financial obligations, and staff attrition. While the research provided evidence of COVID-19's impact on SME operations, it did not focus specifically on the role of containment measures or distinguish between different policy responses.

Li, Anaba, Ma, and Li (2021) explored the role of entrepreneurial orientation in the performance of Ghanaian food processing SMEs during the pandemic. Data were obtained from 702 SME owners/managers and analyzed using partial least squares structural equation modelling (PLS-SEM). Their findings showed that entrepreneurial orientation, innovation, and intellectual property strategies significantly positively affected enterprise performance amid the crisis. The study emphasized internal strategic capabilities but did not directly address external containment measures or government interventions.

These empirical studies reveal important insights but highlight several gaps. Specifically, limited research has been conducted in the Ghanaian beverage manufacturing to examine how COVID-19 containment measures affected SME performance. Moreover, few studies have investigated the role of government support in moderating these effects. This study, therefore, seeks to fill this gap by empirically assessing the influence of containment measures and government interventions on the performance of beverage manufacturing SMEs in Accra, Ghana. Drawing from stakeholder theory and supported by empirical evidence, this study proposes the following hypotheses:
H1: COVID-19 containment measures significantly affect the performance of beverage manufacturing SMEs in Accra, Ghana.

COVID-19 Containment Measures, Government Intervention, and SME Performance

Empirical studies have examined the effectiveness of government interventions in supporting businesses during the COVID-19 crisis, particularly with SME performance. Huynh, Nguyen, and Dao (2021) analysed the impact of government responses to COVID-19 on 20 sectoral stock indices in Australia over six months. Their findings showed that

financial market interventions stabilised key sectors such as healthcare, industrials, and mining. However, sectors that did not benefit from financial support exhibited minimal performance improvement. Despite the insights, the study primarily focused on large, listed firms, limiting its generalizability to SMEs, which often operate outside formal financial markets. Furthermore, the study did not evaluate long-term business recovery or the mechanisms through which government support affected smaller enterprises.

Pu, Qamruzzaman, Mehta, Naqvi, and Karim (2021) investigated the role of innovative finance, technology adaptation, and government support in sustaining 2,000 SMEs in Bangladesh during the pandemic. Using structural equation modelling, they found that technology integration and access to innovative finance significantly enhanced SME sustainability. However, government support exhibited an insignificant mediating effect in the relationship between innovation and business sustainability. The study underscores the limited direct impact of general government support mechanisms unless tailored to SMEs' operational needs.

Innovation for Poverty Action (IPA, 2020) conducted a large-scale survey in Ghana, interviewing 1,357 business owners and employees. The findings indicated widespread job losses, with 29% of respondents reporting unemployment. SMEs faced severe liquidity constraints, hindering their ability to meet financial obligations. While the study recommended policy responses such as remote training, infrastructure investment, and flexible financial support, it did not empirically assess the effectiveness of these interventions in enhancing SME performance.

These studies collectively highlight mixed results regarding the effectiveness of government interventions. While financial and technological support appear beneficial in some contexts, the impact on SMEs varies depending on the design and targeting of the interventions. There is limited empirical evidence on how such support mechanisms influenced SME resilience and performance in Ghana's beverage manufacturing sector. This study, therefore, aims to fill this gap by assessing the moderating role of government intervention in the relationship between COVID-19 containment measures and the performance of beverage-manufacturing SMEs in Accra. Drawing from stakeholder theory and supported by empirical evidence, this study proposes the following hypotheses:
H2: Government intervention significantly moderates the relationship between COVID-19 containment measures and the performance of beverage manufacturing SMEs in Accra, Ghana.

CONCEPTUAL FRAMEWORK

This study is underpinned by a conceptual framework that links COVID-19 containment measures, government intervention, and the organizational performance of beverage manufacturing SMEs in Accra, Ghana. Specifically, COVID-19 containment measures are conceptualised as the independent variable, organizational performance as the dependent variable, and government intervention as the moderating variable. This relationship is illustrated in Figure 1. COVID-19 Containment Measures refers to the interventions governments implement to control the spread of COVID-19. Its indicators include: Nationwide curfews, Restricted movement, Lockdowns, Remote-working arrangements, Compulsory quarantine, Social distancing enforcement, Testing and contact tracing. These indicators are adopted from previous studies, including Kaimann & Tanneberg (2021), Ha

et al. (2021), Howard et al. (2021), Kraemer et al. (2020), and Ferretti et al. (2020). Government Intervention reflects the support mechanisms provided by the government to mitigate the economic impact of the pandemic on SMEs. Its indicators include: SME subsidies, shortened work hours, Structural policy adjustments, Debt moratoriums, Relaxed taxation policies, and Non-banking financial support. These were adopted from Zhou et al. (2023), OECD (2021), and Borisova et al. (2022). Organizational performance is measured using financial and non-financial indicators relevant to SME operations. These include: Profitability, Productivity, Growth, Competitiveness, Operating efficiency, and Perceived firm value. Measurement indicators are grounded in the works of Venkatraman & Ramanujam (1986), Kaplan & Norton (2005), Delmar et al. (2003), and Richard et al. (2009)

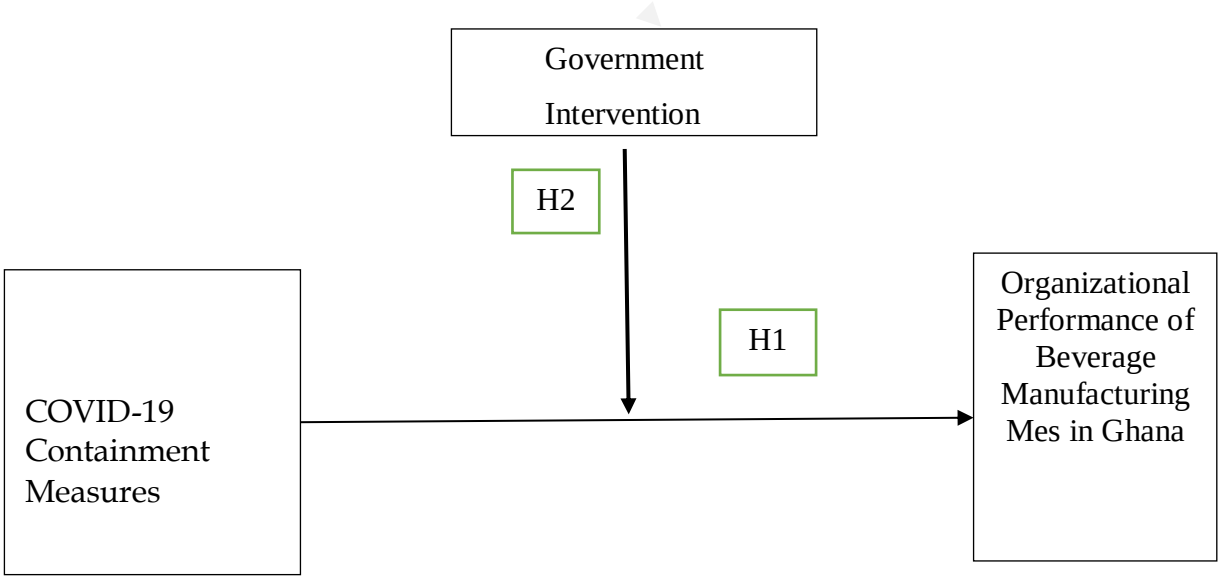


Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

Research Design

This study employed a quantitative, cross-sectional research design to gather data at a single point in time, offering a snapshot of the relationships among key variables. An explanatory approach was adopted to assess the causal links between COVID-19 containment measures, government interventions, and organizational performance among SMEs in the beverage manufacturing sector.

Target Population

The target population comprised 600 top managers/leaders from 100 registered beverage-manufacturing SMEs in the Greater Accra Region of Ghana. These individuals were selected due to their leadership roles and firsthand experience with COVID-19-related business disruptions.

Sampling Technique

A purposive sampling technique was used to identify the 100 SMEs. Within each SME, simple random sampling was employed to select six (6) senior leaders or managers, ensuring equal probability of inclusion. This dual approach (purposive + random)

enhanced representativeness and minimised selection bias, increasing the generalizability of the results (Creswell, 2017).

Sample Size Determination

Using Yamane's formula (1967), a minimum sample size of 398 was calculated at a 95% confidence level and 5% margin of error. To account for potential non-response, an additional 26% buffer was added following Israel (1992), yielding a final sample size of 500. This ensured statistical power of ≥0.90 (Hair et al., 2021).

Instrument

A structured questionnaire was developed to collect data on the Respondents' demographics, COVID-19 containment measures, Government interventions, and Organizational performance. Items were derived from established literature (e.g., Kaimann & Tanneberg, 2021; Zhou et al., 2023; Kaplan & Norton, 2005). The instrument used closed-ended questions with Likert scales for consistency in measuring responses.

Data Collection Procedure

Six hundred questionnaires were distributed in person with the assistance of trained research assistants. A letter of introduction was provided to SMEs for institutional consent. After two months (October-December 2024), 500 valid responses were retrieved, reflecting a high response rate of 83.3%.

Ethical Considerations

Ethical clearance was obtained before data collection. Consent was secured from participants via WhatsApp communication, where the purpose of the study was explained. Confidentiality and anonymity of responses were strictly upheld.

Validity and Reliability Testing

The instrument underwent expert review to ensure content validity. Factor loadings exceeded 0.60, and Average Variance Extracted (AVE) values were above 0.50, confirming convergent validity (Hair, 2021). Cronbach's alpha values ranged from 0.72 to 0.89 for all constructs, indicating acceptable internal consistency (Sarstedt et al., 2019).

Data Analysis

Data were cleaned and analysed using SPSS version 26. Descriptive statistics (means, standard deviations, frequencies) were computed for demographic and profile variables. Structural Equation Modelling (SEM) assessed the structural relationships among COVID-19 containment measures, government interventions, and organizational performance.

FINDINGS

The analysis's results are presented in three main stages. First, we present the descriptive statistics of the study variables, followed by the correlation analysis to examine the bivariate associations. Lastly, we assess the structural relationships among the constructs using Structural Equation Modelling (SEM) with SmartPLS 3.

Demographic Profile of Respondents

This section presents the demographic characteristics of the 500 respondents who participated in the study, covering gender, age, work experience, and academic qualification.

Table 1: Descriptive Statistics

Variable	Category	Frequency	Percent (%)	Cumulative (%)	Percer
Gender	Male	319	63.8	63.8	
	Female	181	36.2	100.0	
Age	18–30 years	100	20.0	20.0	
	31–40 years	98	19.6	39.6	
	41–50 years	118	23.6	63.2	
	51–60 years	99	19.8	83.0	
	61 years and above	85	17.0	100.0	
Work Experience	1–5 years	88	17.6	17.6	
	6–10 years	111	22.2	39.8	
	11–15 years	122	24.4	64.2	
	16–20 years	94	18.8	83.0	
	21 years and above	85	17.0	100.0	
Academic Qualification	Certificate	100	20.0	20.0	
	Diploma	115	23.0	43.0	
	Undergraduate	144	28.8	71.8	
	Postgraduate	106	21.2	93.0	
	Other (Specify)	35	7.0	100.0	

Most of the respondents were males (63.8%), and 36.2% were females. This represents gender imbalance in participation and might be a reflection of actual workforce structure in SMEs or the beverages sector in Accra. The highest age group was 41–50 (23.6%), and this was followed closely by 51–60 (19.8%), and 31–40 (19.6%). This is verified to confirm that most of the respondents are adult-aged individuals who would most likely be in senior or decision-making ranks. Most of the participants (24.4%) possessed 11–15 years of experience, and then there were 22.2% who had 6–10 years of experience. This indicates that the majority of participants have many years of professional experience, hence they bring professionalism to what they see about organizational performance and leadership during COVID-19. Most of the participants (28.8%) were undergraduate degree holders, followed by diploma holders (23%) and postgraduates (21.2%). This educationally well-educated sample is ideally suited for research into careful consideration of organizational dynamics.

Descriptive Statistics

Table 2: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
SMESPERFORMANCE	500	1.30	5.00	3.4292	.59728
GOVERNMENTINTERVENTION	500	1.00	5.00	3.4003	.69944
CONTAINMENTMEASURES	500	1.67	5.00	3.7470	.70965
Valid N (listwise)	500				

Table 2 presents the descriptive statistics for the study variables, including the mean and standard deviation (SD), which reflect response tendencies and variability (Field, 2024). Organizational performance recorded a mean of 3.43 (SD = 0.60), suggesting a moderate perception of performance during the COVID-19 period. COVID-19 containment measures had a mean of 3.75 (SD = 0.71), indicating moderate agreement regarding implementing and enforcing such measures. Government intervention showed a mean of 3.40 (SD = 0.70), reflecting a moderate perception of government support, including tax reliefs and financial assistance provided to SMEs.

Pearson Correlation Matrix

Table 3: Pearson Correlation Matrix

Variables	1	2	3
1. SME Performance	1		
2. Government Intervention	.335 (p = .000)	1	
3. Containment Measures	.285 (p = .000)	.187 (p = .000)	1

The results reveal that SME performance is significantly and positively correlated with government intervention ($r = .335$, $p < .001$), suggesting that supportive government policies moderately enhance business outcomes. Similarly, containment measures are positively associated with SME performance ($r = .285$, $p < .001$), indicating a small-to-moderate influence of COVID-19 control efforts on operational success.

The correlation between government intervention and containment measures is relatively weaker ($r = .187$, $p < .001$), highlighting their conceptual distinction while acknowledging some association level. All correlation coefficients are below the 0.80 threshold, minimizing concerns of multicollinearity in subsequent regression or structural equation modelling (SEM) analyses (Hair et al., 2021).

Assessment of the Measurement Model

The measurement model was evaluated by focusing on three key aspects: reliability, convergent validity, and discriminant validity. Factor loadings, as shown in Table 4, exceeded the 0.6 threshold (Hair et al., 2021).

Factor loading

Table 4 presents the factor loadings for constructs such as COVID-19 containment measurement, government interventions, and beverage manufacturing SMEs. Most items load well above the recommended 0.70 threshold, affirming strong construct validity and internal consistency as per Hair et al. (2021).

Table 4: Factor Loadings for Measurement Model

Variable	COVID-19 Measurement	Containmer	Financial Performance	Government Interventions
CM1	0.992			
CM2	0.992			
CM3	0.984			
CM4	0.985			
GI3				0.774
GI4				0.802
GI5				0.856
GI6				0.745
OFP1			0.780	
OFP2			0.826	
OFP3			0.850	
OFP4			0.831	
OFP5			0.800	

Factor loadings represent the correlation between observed items and their corresponding latent constructs, indicating how well each item reflects the underlying variable (Hair et al., 2021). The recommended thresholds were:
Loadings ≥ 0.70: Strong and desirable.
Loadings between 0.40–0.70: Acceptable if Composite Reliability (CR) and Average Variance Extracted (AVE) are adequate.
Loadings < 0.40: Should be dropped from the model.

The Construct-Level Analysis showed:
COVID-19 Containment Measures (CM1–CM4):
All items demonstrated exceptionally high loadings (≥ 0.984), indicating excellent reliability and construct representation.

Government Interventions (GI3–GI6):

Loadings ranged from 0.745 to 0.856, exceeding the 0.70 benchmark and suggesting strong indicator reliability. GI1 and GI2 were excluded due to low loadings or redundancy, enhancing the model's overall construct validity.
OrganizationalFinancial Performance (OFP1–OFP5):
Factor loadings ranged from 0.780 to 0.850, all above the recommended threshold, confirming that these items are valid financial performance indicators.
This careful item retention process contributes to a robust measurement model by ensuring only valid and reliable indicators are used.

Construct Reliability and Validity.

This report's reliability and validity results for constructs are shown in Table 4.9
Table 5: Construct Reliability and Validity

Variable	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Varianc Extracted (AVE)
COVID-19 Containmer Measurement	0.992	0.997	0.994	0.977
Financial Performance	0.876	0.876	0.910	0.669
Government Interventions	0.805	0.807	0.873	0.632

Table 5 shows that all constructs—COVID-19 Containment Measures, Government Interventions, and Financial Performance met the reliability and validity benchmarks. Cronbach's Alpha values ranged from 0.805 to 0.992, and rho_A ranged from 0.807 to 0.997, exceeding the recommended 0.70 threshold (Hair et al., 2021), indicating strong internal consistency. Composite Reliability (CR) scores were between 0.873 and 0.994, confirming high measurement consistency (Fornell & Larcker, 1981). Average Variance Extracted (AVE) values ranged from 0.632 to 0.977, surpassing the 0.50 cutoff, which confirms good convergent validity. These results validate the robustness of the measurement model and its suitability for further structural equation modelling.

Discriminant Validity Fornell-Larcker Criterion

This shows the application of the Fornell-Larcker criterion for assessing discriminant validity among the constructs.

Table 6: Discriminant Validity Fornell-Larcker Criterion

Variable	COVID-19 Containment	Financial Performance	Government Interventions
COVID-19 Containment	**0.988**		
Financial Performance	0.670	**0.818**	
Government Interventions	0.578	0.554	**0.795**

The findings in Table 6 confirm discriminant validity among the constructs—COVID-19 Containment Measures, Government Interventions, and Financial Performance—using the Fornell–Larcker criterion. The square roots of the AVE values (diagonal) exceed the inter-construct correlations (off-diagonal), satisfying the standard set by Fornell and Larcker (1981). While correlations such as 0.670 (COVID-19 Containment & Financial Performance) and 0.578 (Containment & Government Interventions) are moderately high, they remain below the 0.85 threshold (Hair et al., 2021; Henseler et al., 2015). These findings confirm that the constructs are distinct and complementary from multicollinearity, supporting the validity of the measurement model for further structural analysis.

Discriminant validity Heterotrait-Monotrait Ratio (HTMT)

HTMT estimates for discriminant validity testing of the study constructs are shown in Table 4.11.

Table 7: Discriminant validity Heterotrait-Monotrait Ratio (HTMT)

Variable	COVID 19 CONTAINMENT MEASUREMENT	FINANCIAL PERFORMANCE	GOV'T INTERVENTIONS
COVID 19 CONTAINMENT MEASUREMENT			
FINANCIAL PERFORMANCE	0.715		
GOV'T INTERVENTIONS	0.644	0.658	

Table 7 presents the Heterotrait-Monotrait Ratio (HTMT) values assessing discriminant validity among COVID-19 Containment Measures, Government Interventions, and Financial Performance. All HTMT values—such as 0.715 (Containment & Performance) and 0.658 (Government Interventions & Performance)—are below the conservative threshold of 0.85, as recommended by Henseler et al. (2015). These findings confirm the constructs are empirically distinct, supporting the measurement model's integrity and the subsequent structural analyses' validity.

Discriminant Validity via Cross Loadings

Table 8: Discriminant Validity – Cross Loadings

Indicator	**COVID-19 Measures**	**Containmer**	**Financial Performance**	**Government Interventions**
CM1	0.992		0.667	0.577
CM2	0.992		0.610	0.546
CM3	0.984		0.729	0.605
CM4	0.985		0.631	0.552
GI3	0.437		0.430	0.774

Indicator	COVID-19 Measures	Containmer	Financial Performance	Government Interventions
GI4	0.434		0.403	0.802
GI5	0.482		0.469	0.856
GI6	0.480		0.453	0.745
OFP1	0.531		0.780	0.442
OFP2	0.571		0.826	0.447
OFP3	0.542		0.850	0.448
OFP4	0.539		0.831	0.428
OFP5	0.554		0.800	0.499

Table 8 shows that each item loads higher on its intended construct—COVID-19 Containment Measures, Government Interventions, or Financial Performance—than on any other, in line with Hair et al. (2021). For example, CM1–CM4 load ≥ 0.984 on their construct and significantly lower on others. Similarly, GI3–GI6 and OFP1–OFP5 load strongest on their respective constructs. This confirms discriminant validity through the cross-loading criterion.

Collinearity

Table 9 presents the multicollinearity of the study results.

Table 9: Collinearity

Outer VIF Values	
	VIF
CM1	3.976
CM2	2.796
CM3	1.403
CM4	1.563
GI3	1.667
GI4	1.801
GI5	2.015
GI6	1.484
OFP1	1.924
OFP2	2.163
OFP3	2.342
OFP4	2.394
OFP5	2.021

Table 9 presents the Variance Inflation Factor (VIF) estimates for COVID-19 containment measures, government interventions, and SME performance. All VIF values range from 1.403 to 3.976, well below the commonly accepted threshold of 5, indicating that multicollinearity is not a concern. This supports the stability and robustness of the measurement model, consistent with guidelines from Hair Jr et al. (2021).

Model Fit

Table 10: Model Fit-Fit Summary

Variable	Saturated Model	Estimated Model
SRMR	0.059	0.059
d_ULS	0.413	0.413
d_G	0.402	0.402
Chi-Square	1143.660	1143.660
NFI	0.860	0.860

Table 10 presents model fit indices for COVID-19 containment, government interventions, and SME performance. The SRMR value (0.059) is below the 0.08 threshold, indicating good model fit (Hu & Bentler, 1999). Although the Chi-square statistic (1143.660) is high—likely due to sample size sensitivity (Kline, 2023)—the d_ULS (0.413) and d_G (0.402) values are within acceptable limits (Henseler et al., 2015). The NFI value (0.860), while slightly below the 0.90 benchmark, still suggests an acceptable fit. The indices confirm that the model is robust and appropriate for evaluating the study's hypothesised relationships.

Coefficient determination

Table 11: Coefficient determination

Variable	R Square	R Square Adjusted
FINANCIAL PERFORMANCE	0.514	0.511

Table 11 presents the R^2 value for Financial Performance, which is 0.514. This indicates that the model explains 51.4% of the variance in the dependent variable. The adjusted R^2 (0.511) accounts for model complexity and sample size. According to Hair et al. (2021), R^2 values above 0.50 demonstrate moderate to strong explanatory power in behavioural research, supporting the model's effectiveness in predicting SME financial performance.

Structural Measurement Assessment

This section explores the relationships between the constructs—COVID—19 containment measurement, government interventions, and the performance of beverage manufacturing SMEs in Ghana. The structural model evaluates the proposed hypotheses by examining the relationships among predictors and outcomes, including direct and moderating effects.

RO1: To examine the impact of COVID-19 containment measures on the organizational performance of beverage manufacturing SMEs in Accra, Ghana

Table 12 presents the SEM results examining the impact of COVID-19 containment measures on the organizational performance of beverage manufacturing SMEs in Accra, Ghana.

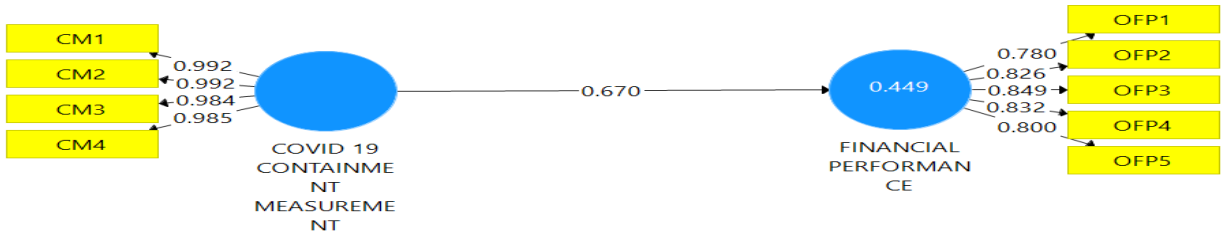
Table 12: Impact of COVID-19 containment measures on the organizational performance of beverage manufacturing SMEs

Structural Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
COVID-19 CONTAINMENT MEASUREMENT -> PERFORMANCE of Beverage Manufacturing SMEs	0.67(	0.67(	0.03(	22.667	0.000

Structural Path Analysis

Table 12 presents the structural path analysis for the direct effect of COVID-19 containment measures on SME performance. The standardised path coefficient (β = 0.670) indicates a strong positive relationship. With a t-value of 22.667 and a p-value of 0.000, the effect is statistically significant at the 1% level. These results confirm that pandemic containment strategies substantially and positively influenced beverage-manufacturing SMEs' performance in Ghana. Thus, Hypothesis One (H01) is supported, highlighting the critical role of public health measures in sustaining organizational outcomes during crises.

Figure 3: Path Diagram Showing the Effect of COVID-19 Containment Measures on Organizational Performance of Beverage Manufacturing SMEs



The diagram depicts a direct, positive, and significant relationship between COVID-19 containment measures and SME performance (β = 0.670, t = 22.667, p < 0.001). This supports Hypothesis One (H01), indicating that effective containment strategies contributed to improved organizational outcomes in the beverage sector.

RO2: To assess the moderating role of government intervention in the relationship between COVID-19 containment measures and organizational performance of beverage manufacturing SMEs in Accra, Ghana

Table 13 presents the SEM results examining the moderating role of government intervention in the relationship between COVID-19 containment measures and organizational performance of beverage manufacturing SMEs in Accra, Ghana.

Table 13: Government Intervention Moderating Effect

Structural Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics(|O/STDEV|)	P Values
GOV'T INT Mod CM -> FINANCIAL PERFORMANCE	0.13(	0.121	0.046	2.842	**0.005**

Table 13 presents the results of the moderation analysis testing whether Government Intervention strengthens the effect of COVID-19 Containment Measures on SME Financial Performance. The interaction term is significant (β = 0.130, t = 2.842, p = 0.005), confirming that government intervention positively and significantly moderates this relationship. This supports Hypothesis Two (H02), indicating that supportive government actions enhance the effectiveness of containment strategies on organizational performance.

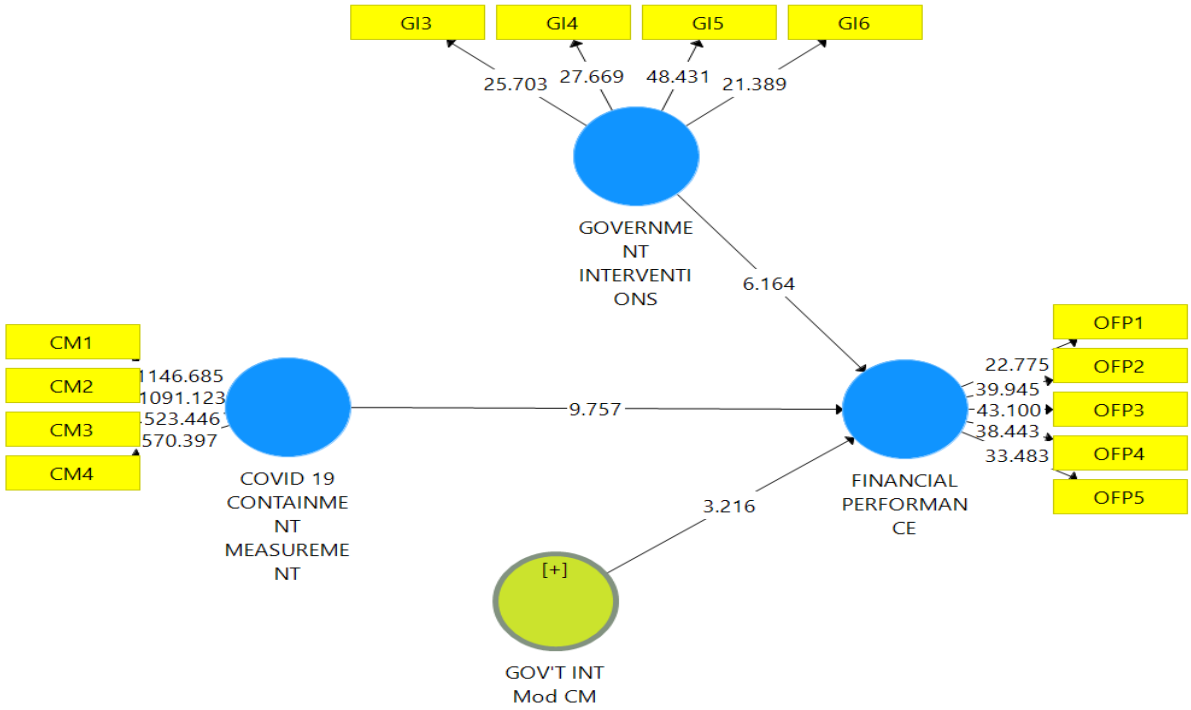


Figure 4: Moderation Path Diagram

Figure 4 illustrates the moderating effect of Government Intervention (GI) on the relationship between COVID-19 Containment Measures (CM) and Financial Performance (FP) of beverage manufacturing SMEs. The interaction path (β = 0.130, t = 2.842, p = 0.005)

is statistically significant, supporting Hypothesis 3 (H02). This indicates that government intervention strengthens the positive effect of containment measures on SME performance.

DISCUSSION OF RESULTS

This study examined the impact of COVID-19 containment measures on the organizational performance of beverage manufacturing SMEs in Accra, Ghana, focusing on the moderating role of government interventions. Structural Equation Modelling (SEM) results revealed a COVID-19 containment measures have a significant positive impact on the organizational performance of beverage manufacturing SMEs in Accra, Ghana, suggesting that although containment policies posed operational challenges, they also prompted adaptive responses that sustained or enhanced SME performance. This aligns with Kaimann and Tanneberg (2021), who found that lockdowns and travel restrictions mitigated virus spread and stabilised business environments. Pleninger et al. (2022) observed that stricter containment strategies helped reduce infection rates and preserve economic stability. Li et al. (2021) also highlighted how firms that combined policy compliance with innovation were more resilient during the pandemic.

The study further established that government intervention significantly moderated the containment-performance relationship. This means that government support—such as tax relief, subsidies, or financial assistance—amplified the positive effect of containment measures on SME outcomes. This is consistent with Huynh et al. (2021), who found that industries receiving direct support showed improved performance. However, Pu et al. (2021) reported mixed results, indicating that the effectiveness of government intervention can vary depending on policy design and implementation. Little empirical work has explored this moderating effect in the Ghanaian SME context, especially within the beverage sector. By addressing this gap, the study contributes novel insights into the interplay between public health policy and SME performance, emphasising that the success of containment strategies depends not only on internal adaptability but also on timely and targeted external support.

IMPLICATIONS OF THE STUDY

Theoretical Implications

The findings reinforce the critical role of government interventions as external stakeholder actions that shape organizational outcomes during crises. The results support the argument that effective SME performance depends on the strategic alignment between internal capabilities and the external institutional environment. This study contributes theoretically by integrating stakeholder and contingency perspectives, demonstrating their relevance in navigating uncertainty and sustaining performance under pandemic conditions.

Practical Implications

The adaptability of manufacturing SMEs positions them well to respond to evolving policy environments, making them suitable platforms for implementing economic recovery initiatives. However, to maximise their potential, leadership strategies and business models must align with the socio-economic and operational realities of the Ghanaian context. The pandemic has further highlighted the need for SMEs to develop digital capabilities—such as remote working systems, online customer engagement, and digital payment platforms—as part of long-term resilience strategies.

Policy Implications

Policy should shift from temporary relief measures toward building long-term SME resilience through investments in infrastructure, training, and digital transformation. Institutional frameworks such as the Ministry of Trade or the National Board for Small Scale Industries (NBSSI) should establish permanent SME crisis response units focused on disaster preparedness and business continuity planning. Additionally, developing a performance tracking system that evaluates SME responses to crises can foster benchmarking, accountability, and the dissemination of best practices.

LIMITATIONS OF THE STUDY

This study has several limitations. First, it focused solely on beverage manufacturing SMEs in Accra, which may limit the generalisability of findings to other regions, sectors, or countries. The exclusive use of self-reported questionnaire data also presents the risk of common method bias and socially desirable responses. Additionally, the cross-sectional design restricts insight into long-term effects and evolving dynamics. The lack of qualitative data further limits the exploration of deeper contextual or behavioural factors. Finally, variations in technological readiness among SMEs and Ghana's cultural and institutional uniqueness were not fully accounted for, which may affect the applicability of results to other settings.

SUGGESTIONS FOR FUTURE RESEARCH

Future research should explore other SME sectors such as healthcare, agriculture, or education, to enhance the generalisability of these findings. Longitudinal studies are recommended to capture the long-term impact of containment measures and policy interventions. Incorporating qualitative methods, such as interviews or case studies, could provide deeper insights into leadership behaviours and emotional responses during crises. Cross-country comparisons within Africa could also reveal how institutional differences shape SME resilience. Additionally, future studies could examine the mediating role of digital technologies in the link between leadership, government support, and organizational performance.

CONCLUSION

This study examined how government intervention moderates the relationship between COVID-19 containment measures and the organizational performance of beverage manufacturing SMEs in Accra, Ghana. The findings reveal that while containment measures posed operational challenges, they also stimulated innovation, strategic adaptation, and operational efficiency among SMEs. Significantly, government interventions, such as financial support, tax relief, and policy adjustments, significantly enhanced the positive effects of these containment strategies on business performance. The study concludes that SMES' resilience in times of crisis depends on their internal adaptability and the external institutional support they receive. Effective government interventions act as a critical buffer, enabling SMEs to sustain performance amidst uncertainty. Therefore, a coordinated policy framework integrating public health measures with targeted business support is essential for strengthening SME resilience during and beyond pandemics.

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