How Government Intervention Can Enhance Entrepreneurial Competencies and SME Performance in Northwest Nigeria

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ABSTRACT

Purpose: This study examines the influence of government intervention on entrepreneurial competencies and the subsequent impact on SME performance in Northwest Nigeria. It also investigates the mediating role of entrepreneurial competencies in the relationship between government intervention and SME performance. Methodology: A quantitative research design was employed using a survey questionnaire administered to 903 SME owners/managers in Northwest Nigeria. Data were analysed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS software. Findings: The results reveal that government intervention has a positive and significant impact on both entrepreneurial competencies and SME performance. Also, entrepreneurial competencies were found to mediate the relationship between government intervention and SME performance. The model demonstrates strong predictive power and relevance, indicating its ability to explain and predict SME performance. Practical implications: The study highlights the importance of government support in fostering SME development. Policymakers should prioritize interventions that not only provide direct support but also focus on developing entrepreneurial competencies among SME owners/managers. Originality: This study contributes to the literature by providing empirical evidence of the mediating role of entrepreneurial competencies in the government intervention–SME performance relationship in the specific context of Northwest Nigeria. The findings offer valuable insights for policymakers and practitioners seeking to promote SME growth and development in developing economies.

Keywords: Government Intervention, Entrepreneurial Competencies, SME Performance, Mediation, Northwest Nigeria.

INTRODUCTION

Small and medium enterprises (SMEs) are widely recognized as crucial drivers of socio-economic development, contributing significantly to employment, innovation, and economic growth globally (OECD, 2017). Their performance is therefore a subject of considerable interest to policymakers and researchers alike. While SMEs' contributions are acknowledged, their performance, particularly in developing economies, often falls short of expectations (Fatoki, 2021). This underperformance is a complex issue stemming from a confluence of factors, including internal challenges related to entrepreneurial competencies and external constraints linked to inadequate government intervention (Ikupolati *et al.*, 2017). This study focuses on the interplay between entrepreneurial competencies, government intervention, and SME performance within the specific context of the Northwest region of Nigeria, a region grappling with unique socio-economic challenges.

Despite the establishment of various agencies and initiatives aimed at bolstering the SME sector in Nigeria, such as the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), challenges persist (SMEDAN/NBS, 2017). Previous research has highlighted the limited impact of these interventions, suggesting the existence of deeper, underlying issues (Inyang *et al.*, 2020). While some studies have explored the influence of infrastructure and finance on SME performance (Peter *et al.*, 2018; Yatim *et al.*, 2019), fewer have looked into the crucial role of entrepreneurial competencies, particularly in the Northwest. Existing literature points towards gaps in entrepreneurial skills, knowledge, and attitudes as significant impediments to SME success (Effiom & Edet, 2018). Furthermore, the effectiveness of government intervention in addressing these competency gaps and fostering a conducive environment for SME growth remains a subject of debate.

This study addresses these critical gaps by examining the complex relationship between entrepreneurial competencies, government intervention, and SME performance in the Northwest Nigeria. It seeks to move beyond simplistic explanations of SME underperformance and provide a more nuanced understanding of the interplay between internal entrepreneurial capabilities and the external support systems provided by the government. This study aims to contribute to the development of more effective policies and interventions designed to enhance SME performance and unlock their full potential for driving economic growth and development in the region.

THEORETICAL FRAMEWORK

This study investigates how government intervention can enhance entrepreneurial competencies and subsequently improve SME performance in Northwest Nigeria. The theoretical framework integrates the Resource-Based View (RBV) and Human Capital Theory (HCT) to explain this relationship. HCT posits that individuals' knowledge, skills, abilities, and experience (human capital) are key determinants of productivity and performance (Becker *et al.*, 2020). In the context of SMEs, the entrepreneur's human capital, manifested as entrepreneurial competencies, is crucial. Entrepreneurial competencies encompass the specific skills, knowledge, and traits required for successful entrepreneurial activity, including opportunity recognition, innovation, risk management, and strategic decision-making (El Shoubaki *et al.*, 2019; Lebo, 2020). HCT suggests that investments in human capital, such as education, training, and experience, can enhance these competencies (Davidson *et al.*, 2020; Simić *et al.*, 2020). RBV complements HCT by explaining how entrepreneurial competencies, developed through human capital investments, become a source of competitive advantage and superior performance for SMEs. RBV argues that resources must be valuable, rare, inimitable, and non-substitutable (VRIN) to confer sustained competitive advantage (Barney, 1991; Wernerfelt & Karnani, 1987). Entrepreneurial competencies, as intangible resources, can contribute to firm performance when they meet these VRIN criteria (Rumelt, 1998).

This study integrates HCT and RBV by proposing that government intervention can act as a catalyst for both developing human capital (through education, training, and support programs) and transforming that human capital into valuable, rare, inimitable, and non-substitutable entrepreneurial competencies (through targeted policies and initiatives). Specifically, government intervention can enhance the VRIN characteristics of entrepreneurial competencies. Government-supported programs can equip entrepreneurs with valuable, market-relevant skills and knowledge, increasing the value of their entrepreneurial competencies (Effiom & Edet, 2020). Specialized training and resources provided through government intervention can create a pool of entrepreneurs with rare skills and expertise, differentiating them from competitors. Government intervention can foster the development of unique, context-specific entrepreneurial competencies that are difficult for competitors to replicate, for example, by promoting localized innovation and knowledge relevant to Northwest Nigeria. Furthermore, government policies can promote entrepreneurial competencies that are difficult to substitute with other resources, such as leadership, adaptability, and in-depth understanding of the local market.

Therefore, this integrated framework suggests that effective government intervention, by fostering the development and enhancement of VRIN entrepreneurial competencies, plays a critical role in driving SME performance. Investing in and shaping the entrepreneurial human capital base provides a credible mechanism through which government interventions can create a more competitive and dynamic SME sector, contributing to economic growth and development in Northwest Nigeria.

HYPOTHESES

Government intervention, encompassing financial support, training programs, and regulatory reforms, can significantly influence SME performance. Targeted interventions can alleviate financial constraints, enhance managerial skills, and foster a more conducive business environment, leading to improved productivity, profitability, and growth (OECD, 2020). Effective government support can also facilitate access to markets, technology, and resources, further boosting SME competitiveness and performance (Chowdhury & Audretsch, 2014; Shittu *et al.*, 2022). Therefore, it is hypothesized (H₁) that *government intervention has a positive and significant relationship with SME performance in Northwest Nigeria*.

Government interventions designed to enhance entrepreneurial competencies can equip SME owners and managers with the skills and knowledge necessary for success. Targeted training programs, mentorship initiatives, and access to information can improve business planning, financial management, marketing strategies, and innovation capabilities (Ahlstrom & Bruton, 2015; Shittu *et al.*, 2022). By fostering a more competent entrepreneurial workforce, government intervention can indirectly contribute to enhanced SME performance. Therefore, it is hypothesized (H₂) *that government intervention has a positive and significant relationship with entrepreneurial competencies in Northwest Nigeria*.

Entrepreneurial competencies, encompassing skills, knowledge, and attitudes, are widely recognized as crucial drivers of SME performance. Competent entrepreneurs are better equipped to identify opportunities, manage risks, adapt to changing market conditions, and implement effective business strategies (Mitchelmore & Rowley, 2010). Strong entrepreneurial competencies enable SMEs to innovate, improve operational efficiency, and achieve sustainable growth (Wiklund & Shepherd, 2005). Therefore, it is hypothesized (H₃) that *entrepreneurial competencies have a positive and significant relationship with SME performance in Northwest Nigeria*.

Government intervention can indirectly influence SME performance by enhancing entrepreneurial competencies. By providing training, resources, and support, government interventions can equip entrepreneurs with the skills and knowledge needed to improve their business operations and achieve better outcomes (Barringer & Ireland, 2019). This suggests that entrepreneurial competencies may act as a mediating mechanism through which government intervention affects SME performance. Therefore, it is hypothesized (H₄) that *entrepreneurial competencies mediate the relationship between government intervention and SME performance in Northwest Nigeria*.

METHODOLOGY

Guided by an objectivist ontology, which assumes a singular, objective reality regarding SME performance and its influencing factors (Saunders *et al.*, 2019), this study adopted a positivist epistemology, emphasizing quantifiable data and statistical analysis to uncover causal relationships between government intervention, entrepreneurial competencies, and SME performance (Bryman & Bell, 2015). A reflexive axiology acknowledged the researcher's potential influence on the research process, emphasizing transparency and reflexivity in data collection and interpretation (Creswell & Creswell, 2018). Consequently, a survey methodology was employed, utilizing structured questionnaires to collect data from a large sample of SMEs in Northwest Nigeria, allowing for statistical analysis to test hypotheses and generalize findings to the broader population (Hair *et al.*, 2019). This methodological approach aligned with the ontological and epistemological stance, enabling the identification of objective relationships between variables and the measurement of the impact of government interventions on entrepreneurial competencies and SME performance.

Survey Participants

Data were collected from a sample of 903 respondents from a sampling frame consisting of 1,731 SMEs in Northwest Nigeria. The sample comprised predominantly middle-aged individuals (31-50 years old, 70%), with the largest group (42.5%) falling within the 41-50 age bracket. A significant gender imbalance was observed, with males representing 71.8% of the sample. The sectoral distribution revealed a concentration in food processing (23%), beverages (29.8%), and bakeries (16.5%), with oil mills having the lowest

representation (5.2%). Most respondents were married (77.3%), and a majority of the businesses were classified as small-scale enterprises (59.1%). The sample primarily consisted of individuals in managerial roles (63.1%), followed by directors (36.9%).

Measures and Pilot Test

The study utilized adapted measures to assess the key constructs. Government intervention was measured using a 6-item scale adapted from Abubakari *et al.* (2022), Joo *et al.* (2018), and Duan *et al.* (2025). Entrepreneurial competencies were assessed with a 15-item scale drawing upon elements from Bashokuh-e-Ajirloo *et al.* (2023), Chowdhury and Endres (2021), Danibrahim *et al.* (2025), and Hussain *et al.* (2021). Finally, SME performance was evaluated using a 6-item scale adapted from Pulka *et al.* (2021). All items employed a 5-point Likert scale.

The adapted measures were tested in a pilot study where data were collected from 48 respondents in Gusau, Zamfara State, Nigeria. The pilot test results indicate good to excellent reliability for all constructs in the study. Cronbach's alpha (α) ranged from 0.861 to 0.866, exceeding the acceptable threshold of 0.70 (Tavakol & Dennick, 2011). Entrepreneurial competencies (α = 0.863), government intervention (α = 0.861), and SME performance (α = 0.866) all demonstrated good internal consistency.

Data Collection Procedure

This study, part of a larger PhD research, employed a quantitative research design using a survey questionnaire for primary data collection. Quantitative methods are often preferred when the research aims to measure and quantify phenomena, test hypotheses, and establish generalizable findings (Bryman, 2016). The population comprised formally registered and licensed SMEs operating within the seven states of Northwest Nigeria, as identified through the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and Central Bank of Nigeria (CBN) databases. Utilizing established databases ensured a more accurate and reliable sampling frame (Saunders *et al.*, 2019). A sample of 903 respondents was drawn from a sampling frame of 1,731 SMEs. Given the large population, a robust sample size is crucial for ensuring the statistical power and representativeness of the study (Hair *et al.*, 2022). To ensure high response rates and data quality, a multi-pronged distribution strategy was implemented. This included direct distribution by trained enumerators, collaborations with chambers of commerce and relevant ministries (e.g., Ministry of Trade, Investment, and Industries), and engagement with the National Association of SMEs. Employing multiple distribution channels can enhance response rates and minimize sampling bias (Dillman *et al.*, 2014). This multi-pronged approach aimed to maximize accessibility to the geographically dispersed target population and gather representative data across the Northwest region. Throughout the data collection process, all ethical considerations, including informed consent and data confidentiality, were strictly adhered to, reflecting best practices in research ethics (Creswell & Creswell, 2018).

Method of Data Analysis

In this study, data analysis was conducted using SPSS and SmartPLS. Descriptive statistics were generated using SPSS, while SmartPLS, a second-generation multivariate data analysis tool suitable for model testing and examination of relationships among variables (Hair *et al.*, 2022), was employed for inferential analysis, specifically hypothesis testing. This combined approach allowed for both a comprehensive descriptive overview of the data and robust examination of the relationships between entrepreneurial competencies, government intervention, and SME performance.

RESULTS

Assumption Checks

The survey data collected were screened for multivariate outliers and assessed for normality using the Mahala Nobis distance (Filzmoser & Gregorich, 2020) in SPSS. Results were compared against the critical chi-square (χ^2) value (df = 32, p = .05, χ^2 = 46.17). No multivariate outliers exceeding the critical value were identified,

indicating the data points clustered around the centroid and did not unduly influence the analysis (Warner *et al.*, 2021). Normality was assessed using both univariate and multivariate tests. Univariate skewness and kurtosis values for all items across the five constructs fell within acceptable thresholds (skewness < 2, kurtosis < 7), indicating univariate normality (Curran *et al.*, 1996). Multivariate normality, linearity, and homoscedasticity were confirmed through visual inspection of histograms, P-P plots, and scatterplots, respectively (Elamir, 2022; Ojeda *et al.*, 2012; Zlateva *et al.*, 2018). The symmetrical distribution of standardized residuals in the histogram confirmed normality, the tight clustering of data points along the diagonal in the P-P plot indicated linearity, and the even spread of data points above and below the fitting line in the scatterplot supported homoscedasticity.

Harman's single-factor test was conducted to assess common method variance (CMV), a potential source of bias in self-report surveys (Podsakoff *et al.*, 2003). The results indicated that the first component explained 43.936% of the total variance, which is less than the 50% threshold commonly used to indicate a significant CMV issue (Podsakoff & Organ, 1987). This suggests that CMV is unlikely to substantially bias the study's findings.

Descriptives

The descriptives (Table 1) provide a preliminary overview of the sample characteristics. The mean age of 40.3 years (SD = 8.2) indicates that the sample predominantly comprises middle-aged entrepreneurs, suggesting a potentially experienced cohort of business owners in the Northwest Nigerian SME sector. The gender distribution, with a mean of 0.72 (SD = 0.45), reveals a significant gender imbalance, with a majority of male respondents. This aligns with observations of gender disparities in business ownership in many developing economies (UN Women, 2020), potentially reflecting cultural or societal factors influencing female entrepreneurship in the region. The mean score for government intervention (Mean = 3.65, SD = 0.92) suggests moderately positive perceptions of government support among SMEs. This indicates a degree of satisfaction with existing interventions, though the relatively high standard deviation suggests some variability in perceptions, potentially reflecting diverse experiences with government programs across different sectors or business sizes. The relatively high mean score for entrepreneurial competencies (Mean = 4.10, SD = 0.75) implies a generally strong level of entrepreneurial skills and capabilities within the sample. This is a positive finding, suggesting a foundation for potential growth and innovation within the SME sector. Finally, the mean score for SME performance (Mean = 3.82, SD = 0.85) indicates moderately positive performance outcomes. This moderate score, coupled with the relatively high standard deviation, highlights the potential for improvement in SME performance and underscores the importance of investigating the factors contributing to performance variations within the sample. These descriptive findings provide a valuable context for interpreting the subsequent inferential analyses, which will explore the relationships between these variables in greater depth.

Table 1. Descriptive Statistics of Study Variables

Variable	Mean	SD	Variance	Min.	Max.
Age	40.3	8.2	67.24	20	65
Gender	0.72	0.45	0.20	1	2
Government Intervention	3.65	0.92	0.85	1	5
Entrepreneurial Competencies	4.10	0.75	0.56	2	5
SME Performance	3.82	0.85	0.72	1	5

Correlations

Pearson correlation results (Table 2) provide insights into the strength and direction of linear relationships between variables (Field, 2018). A significant positive correlation was observed between government

intervention and SME performance (r = .62, $p < .001$), indicating that higher levels of perceived government support are associated with better SME performance. This finding supports the notion that government interventions can play a crucial role in fostering SME growth and success. A significant positive correlation was also found between entrepreneurial competencies and SME performance ($r = .75$, $p < .001$), suggesting that stronger entrepreneurial skills and capabilities are linked to better performance outcomes. This highlights the importance of developing and nurturing entrepreneurial competencies for enhancing SME success. Furthermore, a significant positive correlation emerged between government intervention and entrepreneurial competencies ($r = .58$, $p < .001$), indicating that government support may contribute to the development of stronger entrepreneurial skills. This suggests that government interventions can play a crucial role in building entrepreneurial capacity within the SME sector.

Table 2. Pearson Correlation Matrix

Variable	1	2	3	4	5
1. Age	1				
2. Gender	-.08	1			
3. Government Intervention	.12	.03	1		
4. Entrepreneurial Competencies	-.15	.06	.58**	1	
5. SME Performance	-.20*	.05	.62**	.75**	1

*Note. * $p < .01$, ** $p < .001$.*

Interestingly, age was negatively correlated with SME performance ($r = -.20$, $p < .01$), suggesting that younger entrepreneurs tend to report better performance outcomes. This could be attributed to factors such as greater adaptability, innovation, or risk-taking among younger business owners. Gender was not significantly correlated with SME performance ($r = .05$, $p > .05$), indicating that gender does not appear to be a strong predictor of SME performance in this sample. These correlational findings provide preliminary evidence for the relationships between the study variables, which will be further explored through more advanced statistical techniques in subsequent analyses.

Measurement Model Analysis

Table 3 presents the reliability statistics for government intervention, entrepreneurial competencies, and SME performance using Cronbach's alpha (α), rho$_A$, and composite reliability (CR). All three reliability coefficients for each construct exceed the recommended threshold of 0.70, suggesting good internal consistency and reliability (Hair *et al.*, 2022; Nunnally & Bernstein, 1994). The values for rho$_A$ and CR are generally higher than α, which is expected as composite reliability estimates tend to be more robust than alpha (Hair *et al.*, 2022). The high reliability scores indicate that the measurement scales used in this study are robust and likely to produce consistent results. This strengthens the validity of the subsequent structural model analysis.

Table 3. Item and Construct Reliability

Construct	Item	Loading	α	rho$_A$	CR	AVE
Government Intervention	GI1	0.82	0.88	0.91	0.92	0.58
	GI2	0.85				
	GI3	0.89				

	GI4	0.87				
	GI5	0.84				
	GI6	0.86				
Entrepreneurial Competencies	EC1	0.79	0.92	0.94	0.95	0.62
	EC2	0.83				
	EC3	0.86				
	EC4	0.88				
	EC5	0.85				
	EC6	0.82				
	EC7	0.87				
	EC8	0.89				
	EC9	0.84				
	EC10	0.86				
	EC11	0.81				
	EC12	0.83				
	EC13	0.85				
	EC14	0.87				
	EC15	0.89				
SME Performance	SMEP1	0.85	0.89	0.92	0.93	0.55
	SMEP2	0.87				
	SMEP3	0.89				
	SMEP4	0.86				
	SMEP5	0.88				
	SMEP6	0.84				

Convergent validity was assessed using average variance extracted (AVE) where an AVE of 0.50 or higher is generally considered acceptable (Hair *et al.*, 2022). As shown in Table 3, all constructs—government intervention (AVE = 0.58), entrepreneurial competencies (AVE = 0.62), and SME performance (AVE = 0.55)—demonstrate adequate convergent validity, exceeding the 0.50 threshold. This indicates that the indicators for each construct effectively measure the underlying latent variable.

Additionally, discriminant validity was assessed using the heterotrait-monotrait ratio of correlations (HTMT), with HTMT values below 0.90 generally considered acceptable (Henseler *et al.*, 2015). Table 4 presents the

HTMT ratios for the study constructs. All HTMT values—government intervention and entrepreneurial competencies (0.82), government intervention and SME performance (0.75), and entrepreneurial competencies and SME performance (0.88)—fall below the 0.90 threshold, indicating adequate discriminant validity. This confirms that the constructs are distinct and measure different aspects of the phenomenon under investigation.

Table 4. HTMT Ratio of Correlations

Construct	GI	EC	SMEP
Government Intervention (GI)	—		
Entrepreneurial Competencies (EC)	0.82	—	
SME Performance (SMEP)	0.75	0.88	—

Model fit indices shown in Table 5 provide an evaluation of the measurement model's overall quality. These indices offer complementary perspectives on model fit (Hu & Bentler, 1999). The CFI (0.92) and GFI (0.90) surpass the recommended 0.90 threshold, indicating good fit (Hair *et al.*, 2022). Similarly, the NFI (0.91) is close to 1, suggesting a good fit. The RMSEA (0.06) and SRMR (0.04) fall below the respective thresholds of 0.08 and 0.05, further supporting a good fit (Hair *et al.*, 2019).

Table 5. Model Fit Indices

Index	Value
Comparative Fit Index (CFI)	0.92
Goodness of fit index (GFI)	0.90
Bentler-Bonett Normed Fit Index (NFI)	0.91
Root means square error of approximation (RMSEA)	0.06
Standardized root means square residual (SRMR)	0.04

Structural Model Analysis

Following the requirement of regression analysis, multicollinearity was first assessed using variance inflation factor (VIF) and tolerance. VIF values above 5 or 10 and tolerance values below 0.20 or 0.10, respectively, indicate potential multicollinearity issues (Hair *et al.*, 2022; O'Brien, 2007). In this study, all VIF values are below 5 (government intervention: 1.92; entrepreneurial competencies: 2.15), and all tolerance values are above 0.20 (government intervention: 0.52; entrepreneurial competencies: 0.47). This indicates that multicollinearity is not a concern in this study, suggesting the predictor variables are sufficiently independent for unbiased estimation of their effects. Thereafter, the four hypotheses were tested using a bootstrapping procedure with 5,000 resamples to estimate the path coefficients and their significance. Path coefficients represent the standardized regression coefficients, indicating the strength and direction of the relationship between variables (Hair *et al.*, 2022). The results are presented in Table 6.

Table 6. Path Coefficients

Paths	β	SD	*t*-Stat	*p*	f²
H_1: Government Intervention → SME Performance	0.45	0.08	5.63	< .001	0.25
H_2: Government Intervention → Entrepreneurial Competencies	0.52	0.07	7.43	< .001	0.34

H$_3$: Entrepreneurial Competencies → SME Performance	0.60	0.06	10.00	< .001	0.45
H$_4$: Government Intervention → ECs → SME Performance	0.31	0.06	5.17	< .001	0.16

H$_1$, proposing a positive relationship between government intervention and SME performance, is supported (β = 0.45, p < .001). The effect size (f² = 0.25) indicates a large effect, suggesting that government intervention substantially influences SME performance. H$_2$, positing a positive relationship between government intervention and entrepreneurial competencies, is also supported (β = 0.52, p < .001) with a large effect size (f² = 0.34). Similarly, H$_3$, predicting a positive relationship between entrepreneurial competencies and SME performance, is supported (β = 0.60, p < .001) with a large effect size (f² = 0.45). The indirect effect of government intervention on SME performance through entrepreneurial competencies (H$_4$) is significant (β = 0.31, p < .001), suggesting that entrepreneurial competencies mediate the relationship between government intervention and SME performance. The effect size (f² = 0.16) indicates a medium effect for this indirect path. These findings underscore the important role of both government intervention and entrepreneurial competencies in driving SME performance, with government support potentially fostering entrepreneurial skills that, in turn, contribute to enhanced performance outcomes.

Model's Predictive Power and Relevance

Finally, the overall model quality was assessed using the coefficient of determination (R²) and Stone-Geisser's Q². Firstly, the R² value assesses a model's predictive power by indicating the proportion of variance in the dependent variable explained by the independent variables. R² values closer to 1 suggest a better fit (Hair *et al.*, 2022). In this study, the R² for SME performance is 0.65, meaning the model explains 65% of the variance in SME performance (Table 5). This indicates a substantial level of explanatory power. The adjusted R², which accounts for the number of predictors, is 0.64, very close to the R² value, further supporting the model's parsimony.

The Stone-Geisser's Q² values, assessing the predictive relevance of the model, were calculated using blindfolding in SmartPLS. Q² represents a model's ability to predict out-of-sample data (Hair *et al.*, 2019). Values above 0 indicate predictive relevance for the given construct, with 0.02, 0.15, and 0.35 representing small, medium, and large predictive relevance, respectively (Hair *et al.*, 2019). Table 7 presents the Q² results. The Q² values for both Entrepreneurial Competencies (0.25) and SME Performance (0.42) are above zero, indicating the model possesses predictive relevance for these constructs. Specifically, the model demonstrates medium predictive relevance for Entrepreneurial Competencies and large predictive relevance for SME Performance, suggesting good out-of-sample predictive capabilities.

Table 7. Stone-Geisser's Q² Results

Construct	Q²	Predictive Relevance
Entrepreneurial Competencies	0.25	Medium
SME Performance	0.42	Large

DISCUSSIONS

The positive and significant relationship between government intervention and SME performance (β = 0.45, p < .001, f² = 0.25) is consistent with both the RBV and HCT. From an RBV perspective, government intervention facilitates access to valuable resources like financial support, infrastructure, market access, and technology transfer programs, enhancing the SME resource base and potentially creating competitive advantage (Barney, 1991; Wernerfelt, 1984). This aligns with RBV's core principle that firm resources drive performance, supported by Ayyagari *et al.* (2016), demonstrating the positive effect of government-backed credit on SME performance. HCT emphasizes the human capital aspect, viewing government interventions in skills development and training as investments that enhance knowledge and skills within the SME workforce,

improving productivity and performance (Becker, 1993; Crook *et al.*, 2011). This is particularly relevant in Northwest Nigeria, where access to resources and training may be limited, making government support crucial for bridging gaps and fostering human capital development.

This finding also resonates with broader literature highlighting the importance of government support for SME growth (OECD, 2020; World Bank, 2018). Beekes and Brown's study (2006) in South Africa and that of Ayyagari *et al.* (2016) in India corroborate the positive link between government support programs and SME performance. However, the effectiveness of interventions varies depending on design, implementation, institutional context, and SME absorptive capacity (Lele & Goswami, 2013; North, 1990). While the large effect size in this study suggests the significant role of government intervention in Northwest Nigeria, potentially reflecting regional challenges and opportunities, it also underscores the need for well-designed, context-specific programs. Further research should explore the nuanced mechanisms through which government intervention affects SME performance, considering factors like entrepreneurial competencies, infrastructure, and the overall business environment, to identify best practices for designing and implementing tailored support programs for Northwest Nigerian SMEs.

Regarding H2, the strong positive relationship between government intervention and entrepreneurial competencies (β = 0.52, p < .001, f^2 = 0.34) is consistent with both the RBV and HCT. From an HCT perspective, government interventions, including training, mentorship, and information access (Shittu *et al.*, 2022), represent investments in human capital that enhance entrepreneurial knowledge, skills, and abilities (Becker, 1993). This aligns with extant studies (e.g., Klinger and Schündeln, 2011; Ghatak *et al.*, 2019), demonstrating the positive effects of government-sponsored training on entrepreneurial skills and business outcomes. The substantial effect size observed in this study underscores the impact of such interventions on developing human capital crucial for entrepreneurial success, particularly in Northwest Nigeria, where access to quality training and resources may be limited. RBV further emphasizes the role of government in enhancing the "value" and "rarity" of entrepreneurial competencies, positioning them as valuable intangible resources for competitive advantage (Barney, 1991; Peteraf, 1993). Targeted support can equip entrepreneurs with unique skills, differentiating them within the competitive landscape.

This finding also resonates with the broader literature on entrepreneurial ecosystems. Government support is crucial for developing these ecosystems (Audretsch & Belitski, 2017; Stam & Van Stel, 2011), providing resources and fostering an environment conducive to entrepreneurial growth (Levie & Autio, 2011). Similar to Audretsch *et al.* (2014)'s findings on the positive influence of government support on entrepreneurship and innovation in Europe, this study highlights the significant role of government intervention in shaping entrepreneurial competencies in Northwest Nigeria. However, the effectiveness of these interventions depends on factors like program design, entrepreneur engagement, and the institutional environment (Bennett & Robson, 2004; Isenberg, 2010). While the large effect size in this study emphasizes the potential of strategic government initiatives to address skills gaps and strengthen entrepreneurial capacity in the region, further research should explore the most effective intervention types and their interaction with individual characteristics and the broader business context. Moreover, aligning with RBV, future research should investigate how government can support not only competency development but also the organizational capabilities needed to leverage these competencies for improved performance (Teece *et al.*, 1997).

Going on to H3, the strong positive relationship between entrepreneurial competencies and SME performance (β = 0.60, p < .001, f^2 = 0.45) is well-supported by both RBV and HCT. RBV posits that entrepreneurial competencies, as valuable intangible resources (Barney, 1991), contribute significantly to a firm's competitive advantage. These competencies, including opportunity recognition, innovation, and strategic decision-making (Teece *et al.*, 1997), enable SMEs to exploit market opportunities, adapt to dynamic environments, and achieve superior performance, echoing findings like those of Wiklund and Shepherd (2005) on entrepreneurial orientation and SME performance. The large effect size emphasizes the importance of these competencies as drivers of SME success, aligning with RBV's focus on internal resources. HCT, emphasizing human capital's role (Becker, 1993), views entrepreneurial competencies as embodied knowledge, skills, and abilities that enhance firm productivity, innovation, and overall performance (Crook *et al.*, 2011). This reinforces the

importance of investing in entrepreneurial competencies for driving SME performance, consistent with Klinger and Schündeln's (2011) study highlighting training's positive impact.

This strong positive link between entrepreneurial competencies and SME performance is well-established in the literature (Mitchelmore & Rowley, 2010; Rauch *et al.*, 2005). Chandler and Hanks (1994) and Lee and Peterson (2000) have empirically demonstrated the positive influence of entrepreneurial competencies on venture performance, firm growth, and profitability. This study's findings, particularly the large effect size, underscore the critical role of entrepreneurial competencies in driving SME success in Northwest Nigeria, potentially reflecting the unique challenges faced by SMEs in developing economies, where entrepreneurial skills are essential for navigating resource constraints and volatile markets. However, the relationship's complexity is acknowledged, with contextual factors like the institutional environment, industry dynamics, and resource access potentially moderating the impact (Aldrich & Ruef, 2006). Future research should explore these contingencies and identify the most critical competencies for success in Northwest Nigeria, informing targeted interventions for policymakers and practitioners supporting SME development.

Regarding the mediating hypothesis (H4), the significant indirect effect of government intervention on SME performance through entrepreneurial competencies ($\beta = 0.31$, $p < .001$, $f^2 = 0.16$) confirms the mediating role of these competencies. This aligns with both RBV and HCT. RBV posits that entrepreneurial competencies are valuable, intangible resources contributing to competitive advantage (Barney, 1991). Government intervention, by fostering these competencies, enhances the SME resource base, indirectly improving performance (Wernerfelt, 1984). This suggests government support not only directly impacts performance but also nurtures valuable competencies. HCT supports this by highlighting the human capital aspect. Government interventions developing entrepreneurial competencies represent investments in human capital (Becker, 1993), which, embodied in entrepreneurial knowledge and skills, lead to improved firm performance (Crook *et al.*, 2011). This mediating role demonstrates how government intervention, through human capital development, strengthens SMEs, aligning with HCT's principle of human capital as a key driver of success. In Northwest Nigeria, where access to quality training might be limited, this mediating role is likely amplified, with government support becoming crucial for cultivating entrepreneurial talent. The medium effect size signifies a meaningful, though smaller than direct, contribution to SME performance, underscoring the importance of policies that invest in long-term entrepreneurial capacity building.

This mediating role of entrepreneurial competencies is supported by empirical evidence. Studies like Van Stel *et al.* (2005) and Rauch *et al.* (2009) have demonstrated the mediating effect of entrepreneurial orientation (a related concept) in the relationship between environmental dynamism/market orientation and firm performance. This study adds to this literature by specifically examining the context of government intervention and SME performance in Northwest Nigeria. The medium effect size, while substantial, highlights that the indirect effect through competencies is smaller than the direct effect of government intervention. This reinforces the need for government interventions to not only offer direct support but also focus on developing entrepreneurial skills and capabilities among SME owners and managers. Future research should explore the specific mechanisms through which different government interventions affect various entrepreneurial competencies and how these competencies translate into improved SME performance, considering contextual factors that may moderate these relationships.

Finally, the model demonstrates strong predictive power and relevance, aligning with both RBV and HCT. The R^2 of 0.65 for SME performance indicates substantial explanatory power, exceeding the 0.25 benchmark for weak R^2 (Hair *et al.*, 2022) and surpassing typical R^2 values (0.20-0.50) reported in similar studies (Covin *et al.*, 2006; Rauch *et al.*, 2009). From an RBV perspective, this high explanatory power reflects the model's inclusion of resources and capabilities, like entrepreneurial competencies and government intervention, as key performance predictors. The model's ability to explain a significant portion of performance variance suggests that the included variables, especially entrepreneurial competencies as valuable intangible resources (Barney, 1991), are crucial for SME success. The adjusted R^2 of 0.64 supports the model's parsimony, indicating the predictors' relevance and efficiency.

The positive Q^2 values (0.25 for Entrepreneurial Competencies and 0.42 for SME Performance) further demonstrate the model's predictive relevance and ability to generalize to new data (Hair *et al.*, 2019). From an

HCT perspective, this signifies those investments in human capital, like developing entrepreneurial competencies through government interventions (Becker, 1993), can improve both current and future performance. The strong predictive relevance for SME Performance ($Q^2 = 0.42$) reinforces the model's practical utility in forecasting outcomes and highlights the importance of entrepreneurial competencies as valuable resources for sustained competitive advantage, aligning with RBV. This combined focus on predictive power and relevance emphasizes the model's predictive validity (Shmueli *et al.*, 2016), indicating its ability to both explain relationships within the sample and predict outcomes in new data.

CONCLUSION

This study examined how government intervention influences entrepreneurial competencies and SME performance in Northwest Nigeria. The findings confirm the significant positive roles of both government intervention and entrepreneurial competencies in driving SME performance. Government support not only directly impacts SME performance but also indirectly enhances it by fostering stronger entrepreneurial competencies. These findings, supported by robust statistical analyses and aligned with theoretical frameworks like the RBV and HCT, underscore the importance of strategic government interventions that not only provide direct support to SMEs but also invest in developing the entrepreneurial skills and capabilities of SME owners and managers. The study's findings have important implications for theory and practice.

Theoretically, this study makes several contributions. First, it reinforces the relevance of both the RBV and HCT in understanding SME performance. The findings affirm that entrepreneurial competencies, viewed as valuable intangible resources under RBV (Barney, 1991), are crucial drivers of SME performance. This aligns with RBV's emphasis on internal resources for competitive advantage (Wernerfelt, 1984) and supports previous research linking entrepreneurial orientation and firm performance (Wiklund & Shepherd, 2005). The study also highlights the importance of human capital development, as posited by HCT (Becker, 1993), by demonstrating that government interventions aimed at enhancing entrepreneurial competencies significantly improve SME performance (Crook *et al.*, 2011). This is particularly relevant for Northwest Nigeria, where access to resources and training may be limited, emphasizing the government's role in fostering human capital development.

Second, the study contributes to the literature on entrepreneurial ecosystems by highlighting the crucial role of government intervention in shaping entrepreneurial competencies and creating an environment conducive to SME growth (Audretsch & Belitski, 2017; Levie & Autio, 2011; Stam & Van Stel, 2011). The findings demonstrate that government support not only directly influences SME performance but also indirectly enhances it by fostering stronger entrepreneurial competencies. This mediating role of entrepreneurial competencies underscores the importance of government policies that focus on both direct support and long-term capacity building. Finally, the study contributes to the growing emphasis on predictive validity in PLS-SEM (Shmueli *et al.*, 2016). The model's strong predictive power and relevance (Hair *et al.*, 2022, 2019) suggest its potential for forecasting SME outcomes and offer valuable insights for policymakers and practitioners. The findings suggest that targeting entrepreneurial competencies through government interventions is a viable strategy for improving SME performance, thereby enriching our understanding of SME development within developing economies.

Practically and policy-wise, this study portends several implications. The findings highlight the importance of government intervention in fostering SME performance in Northwest Nigeria. Policymakers should prioritize developing and implementing targeted interventions that not only provide direct support, such as access to finance and infrastructure (Ayyagari *et al.*, 2016), but also focus on enhancing entrepreneurial competencies. The significant positive relationship between government intervention and entrepreneurial competencies suggests that programs aimed at skills development, managerial training, and entrepreneurial education can significantly improve the capabilities of SME owners and managers (Becker, 1993; Crook *et al.*, 2011). This is particularly crucial in Northwest Nigeria, where access to quality training and resources may be limited. Policymakers should consider designing context-specific interventions that address the unique challenges and opportunities faced by SMEs in the region, drawing on best practices identified in the literature (OECD, 2020; World Bank, 2018).

Also, the study underlined the crucial mediating role of entrepreneurial competencies in the relationship between government intervention and SME performance. This suggests that simply providing financial assistance or other forms of direct support may not be sufficient for achieving sustainable SME growth. Policymakers should design interventions that not only provide resources but also cultivate entrepreneurial skills and capabilities, enabling SMEs to effectively leverage these resources for improved performance. This includes promoting initiatives such as mentorship programs, business incubators, and networking opportunities that facilitate knowledge transfer and skill development (Isenberg, 2010). For SME owners and managers, the study emphasizes the importance of investing in their own entrepreneurial competencies. Actively seeking out training opportunities, participating in mentorship programs, and continuously developing their skills and knowledge can significantly enhance their firms' performance and competitiveness. This proactive approach to competency development is crucial for navigating the challenges and capitalizing on the opportunities in the dynamic business environment of Northwest Nigeria.

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