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Measuring Organizational Resilience in a Resource-Constrained Environment: An Empirical Study of Micro-and-Small-Service-Enterprises (MSSEs) in Nigeria

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ABSTRACT

There is growing evidence that a preponderance of resilience indicators discussed in management scholarship is often developed with limited consideration of the context in which micro-and-small-service enterprises (MSSEs) operate. Given their strategic relevance to developing economies, it thus becomes necessary to understand the meaning of resilience for MSSEs operating in resource-constrained environments. Drawing on a sample of 219 MSSEs, we tested five resilience indicators using hierarchical regression models. Results show that personal network (PN), resource slack (RS), creative problem-solving (CPS), and adaptive capacity (AC) all had significant positive effects on organizational resilience (OR), while planning and crisis readiness (PCR) lacked confirmatory validity as a resilience indicator. A key theoretical contribution in this study is the emergence of our four-dimensional resilience model that more closely captures the nature and dynamics of small-scale venturing in under-resourced business landscapes. We discussed the implications of these findings for theory, policy, and practice.

1 | Introduction

How do micro-and-small-service enterprises (MSSEs) survive in an increasingly volatile and uncertain business environment that continues to challenge their operational and economic stability? And how best should MSSEs navigate the myriad of unforeseen and potentially disruptive events that often threaten their survival? These questions have become the focus of recent research in the crisis entrepreneurship literature (Iborra et al. 2020; Sharma et al. 2024; Terstriep et al. 2025), particularly, in light of burgeoning global crises (Okoli and Ogwu 2024) and growing entrepreneurial bottlenecks that tend to more significantly impact MSSEs (Radic et al. 2022; Jussli and Schwarz 2025; Kolbe et al. 2025). Defined as the ability to adapt, survive, and thrive amidst turbulence (Burnard and Bhamra 2011), scholars have conceptualized entrepreneurship resilience as a key capability which MSSEs must possess to enhance venture survival (Do et al. 2022; Anwar et al. 2023; Dawa et al. 2025). While it is generally agreed that resilience building is key to firm survival in turbulent times (Sharma et al. 2024; Bartuseviciene et al. 2024), the challenge remains that existing resilience indicators are largely designed for larger businesses, with far too many studies still failing to take into consideration the notion of resource limitations and the more stringent conditions that MSSEs tend to navigate on a daily basis (Baier-Fuentes et al. 2023; Damoah 2025; Sarfo et al. 2025).

In light of the above, it felt imperative to understand what entrepreneurial resilience entails for MSSEs within the Nigerian context, an environment where small startups hardly survive their first 5 years of existence (Etim et al. 2022). According to Oduwole (2023), Nigeria is home to over 36.9 million micro,

Summary

- Empirical studies on organizational resilience often target medium and large-sized organizations to the detriment of firms operating in resource-constrained environments.
- Understanding the key resilience capabilities that influence the performance of micro-and-small-service-enterprises (MSSEs) remains an important theoretical and policy priority in a developing world context.
- Personal network (PN), resource slack (RS), creative problem-solving (CPS), and adaptive capacity (AC) are all significant contributors to organizational resilience (OR) among the MSSEs,
- Adaptive capacity (AC) emerged as the strongest contributor to OR, suppressing the effects of the other resilience indicators in the hierarchical regression model.
- The paper advocates a shift from the conventional view of bricolage as a resource-deficit construct, to one that portrays how smaller firms make prudent and effective use of available resources.

small, and medium-sized enterprises (MSMEs), accounting for 96.7% of all businesses in the country. However, while MSMEs contribute over 45% to Nigeria's gross domestic product (GDP), it is worth mentioning that 98.8% of these firms operate as micro-and-small-scale-service-enterprises (MSSEs). This helps to explain our focus on MSSEs, construed as micro-level enterprises (businesses with 0–9 employees), small-scale enterprises (businesses with 10–49 employees), and service enterprises (businesses that specialize in the delivery of skilled or creative works). MSSEs are deemed fundamental to the survival of any economy, allowing micro or small-scale entrepreneurs to leverage their skills, expertise, and domain knowledge in solving "grand societal problems" (Doh and Kim 2014; Hilson et al. 2018; Damiano and Valenza 2025), while also contributing toward job creation and poverty alleviation (Ogunsade and Obembe 2016; Oduwole 2023).

Our focus on this under-represented group of enterprises (MSSEs) is, therefore, deemed logical and timely for the following reasons. First, existing literature on MSSE resilience within the Nigerian context is sparse, with current research on the subject often failing to consider the resilience factors that more accurately depict the multiple challenges facing MSSEs in resource-constrained environments (Loonam and O'Regan 2022; Huang and Jahromi 2021). This knowledge gap, therefore, necessitated a reassessment of existing resilience indicators to focus on a range of key indicators that more accurately reflect the reality of MSSEs in the Nigerian context. Hence, recognizing that the resilience of MSSEs is potentially enabled or constrained by other fundamental factors (Alalade et al. 2013; Akinadewo 2020; Akoh 2020; Ekechi et al. 2024), we focused on five key resilience factors that more closely capture the needs of MSSEs in the developing world context, that is, resource slack (RS), adaptive capacity (AC), creative problem solving (CPS), personal network (PN), and planning and crisis readiness (PCR). Our goal is to statistically test the relative strengths and contributory effects of these resilience indicators on organizational resilience.

Second, we believe that understanding the antecedents of organizational resilience in relation to MSSEs will aid knowledge advancement beyond the lopsided focus of current research on medium and larger-sized organizations (Banki and Ismail 2015; Branicki et al. 2017). While no organization is entirely immune to the negative impacts of major disruptions, evidence shows that MSSEs are often the hardest hit in the face of external shocks (Doh and Kim 2014; Belitski et al. 2022; Iborra et al. 2020; Do et al. 2022; Sharma et al. 2024). Policy makers and entrepreneurial researchers can, therefore, build on our findings to better understand the resilience indicators that are most critical to MSSEs and their ability to adapt to external stressors or recover from shocks.

Third, this study is premised on the notion that various proactive and reactive mechanisms are necessary to build resilience in organizations, and that understanding the existence of, and relationships, between these key resilience indicators is key to measuring resilience in relatively smaller organizations (Loonam and O'Regan 2022). On this note, we leveraged the inductive strength of exploratory factor analysis (EFA), subsequently validated through confirmatory factor analysis (CFA), to develop a resilience model that more accurately explains the resilience of MSSEs. Hierarchical regression is employed to test these relationships and interactions using a sample of 219 Nigerian MSSEs.

Given the raft of challenges that the Nigerian MSSEs face, including but not limited to resource scarcity, poor access to loans and credit facilities, poor power supply, increased product shortages, and commodity price hikes (Olutunla and Obamuyi 2008; Banki and Ismail 2015; Etim et al. 2022), the need to investigate how these enterprises cope with, adapt to, and thrive in a resource-constrained business environment (such as Nigeria) has never been more pertinent (Onwuegbuzie and Mafimisebi 2021; Oduwole 2023). Put together, the overarching question that drives this study is: what resilience indicators most significantly contribute to organizational resilience among MSSEs in the Nigerian context?

The remainder of this paper is organized as follows: first, we reviewed the extant literature to synthesize existing research. We then developed six hypothetical statements that form the basis for subsequent statistical testing. The research methodology, including data collection, sampling method, and hierarchical regression analysis, is then discussed. Results are presented, namely a four-dimensional resilience model, the outputs of validity and reliability checks, as well as hierarchical regression outputs. Finally, the paper concludes by discussing the implications of our findings for theory, policy, and managerial practice.

2 | Literature Review

2.1 | Resilience in MSSEs

The ability to survive disruptions and still maintain business continuity has never been more crucial than it is in today's business landscape (Essuman et al. 2022), and understanding the key survival tactics that underpin service firms' operations has

remained increasingly pertinent post-COVID-19 (Do et al. 2022; Hadjielias et al. 2022; Maha et al. 2023; Trupp et al. 2025). This drives the need to examine the key resilience factors that aid MSSEs' ability to "weather the storm," despite the environmental and institutional constraints they routinely face (Dawa et al. 2025).

The concept of resilience is a multidimensional, sociotechnical phenomenon that addresses how an entity—individuals, groups, or systems—manages uncertainty and disruptions (Lee et al. 2013; Allende et al. 2017; van den Berg et al. 2022). Reinforcing its relevance to practice, the subject of resilience helps to uncover why similar organizations would perform differently when dealing with a crisis of similar magnitude and impact. Hollnagel et al. (2008) proposed at least four capabilities that define the quality of an entity's resilience: the ability to respond to multiple disturbances or threats; the ability to monitor and understand one's environment flexibly; the ability to anticipate potential disruptions; and the ability to learn from experience.

A major narrative often promulgated by resource-endowed scholars is the notion that MSSEs, by definition, are resource-deficient (Pal et al. 2014; Gayed and El Ebrashi 2023; Mao et al. 2023). The view that MSSEs are resource-scarce, coupled with their inherent attribute of smallness, positions them to be less resilient and constantly scrambling for survival (Schäffer 2020). However, these lines of argument have, over the years, been rebuffed by bricolage scholars (Baker and Nelson 2005; Dawa et al. 2025; Francisco 2025), who continue to research the intersection between organizational resilience, crisis entrepreneurship and resourcefulness, particularly, in resource-constrained environments. Studies on bricolage have shown that resource-constrained firms are not necessarily incapacitated in periods of disruptions (Eggers 2020; Baier-Fuentes et al. 2023). Instead, these firms are able to leverage their inherent features of smallness and respond to potential disruptions in novel and efficient ways, for example, through harnessing of internal resources (Anwar et al. 2023), creativity and improvisation (Vera and Crossan 2005), adaptation, agility, and flexibility (Vogus and Sutcliffe 2007), as well as market (re)positioning (Verreynne et al. 2023; Terstriep et al. 2025).

Differentiating the key resilience factors that influence firm survival in resource-constrained contexts, however, remains a knowledge gap in the extant literature (Akoh 2020; Magobe et al. 2024). For instance, studies have shown that MSSEs in Nigeria are often confronted with unexpected turns of events that are peculiar to their service environment, such as supply disruptions, high inflation, poor access to loans and credit facilities, unstable foreign exchange, bad debts, unstable power supply, poor sales, strapped cash flow, and terrorist attacks (Olutunla and Obamuyi 2008; Ekechi et al. 2024). Our quest to investigate the key resilience-enhancing activities that most significantly contribute to MSSEs' overall resilience in Nigeria is therefore justified on the basis that most of the existing resilience tools are either too generalized across business types (e.g., see Gonçalves et al. 2019; Radic et al. 2022; Anwar et al. 2023), or too detached from the realities of running a small business in a resource-constrained environment—within a developing world context (Agyapong et al. 2017; Hilson et al. 2018; Etim et al. 2022).

2.2 | Resource Slack

According to Schaffer (Schäffer 2020, 13), slack refers to the availability of (actual or potential) resources that serve to provide a buffer for organizations in times of crises. Owing to their limited operational and technological resources (Pettit et al. 2010; Doern 2016), as well as their meager financial buffer (Bourgeois III 1981; Jin and Liu 2025), scholars have argued that MSSEs are often rendered helpless in the face of adversity when compared to their medium and large-scale counterparts. However, despite the positive role that RS plays in building firm resilience, it has been argued that resource scarcity could actually drive MSSEs to become more frugal and efficient, allowing small business managers to make appropriate changes to their business models in order to compensate for such resource limitations (Michaelis et al. 2020; Essuman et al. 2022). For instance, Dawa et al. (2025) studied the coping mechanisms of Ugandan female entrepreneurs through the lens of entrepreneurial bricolage. Findings from their qualitative study showed that despite operating within an informal sector characterized by limited access to formal resources, these women often demonstrated remarkable resourcefulness in creating and sustaining successful businesses. Thus, in line with the bricolage theory, we argue that a firm's resource endowment does not necessarily imply resourcefulness. The perception of the strategic value of slack (or idle resources at hand) may in fact prove counterproductive and affect a firm's ability to achieve more with less (Baier-Fuentes et al. 2023; Francisco 2025).

On this note, we hypothesize that:

H1. *Resource slack will not be significantly associated with organizational resilience among the Nigerian MSSEs.*

2.3 | Adaptive Capacity

The idea of resilience as adaptive behavior helps to explain how organizations manage the tension between change and stability. In view of this, many scholars support the notion that resilience mostly relates to an organization's ability to anticipate, cope, and adapt (Iborra et al. 2020; Damiano and Valenza 2025), to be flexible and adapt (Best and Gooderham 2015), to plan, absorb, recover, and adapt (Gonçalves et al. 2019), to bounce back and adapt (Bartuseviciene et al. 2024), and to repeatedly adapt (de Oliveira Teixeira and Werther 2013). Thus, a recurring theme across these studies is the emphasis on adaptation as a vital antecedent of organizational resilience (OR).

Adaptiveness as a resilience indicator has often been discussed in parallel with the concept of dynamic capability, which was first introduced by Teece et al. (1997, 516). Drawing on the tenets of the dynamic capability theory (DCT), adaptiveness explains how a business synthesizes different characteristics, builds new competencies, and reconfigures its strategy to better address sudden disruptions within a business environment (Lee et al. 2013; Sevilla et al. 2023; Maha et al. 2023; Terstriep et al. 2025).

On this note, we hypothesize that:

H2. *Adaptive capacity will have a significant association with organizational resilience among the Nigerian MSSEs.*

2.4 | CPS

Scholars have discussed CPS as a useful change-oriented action that links well with OR (Lengnick-Hall and Beck 2005; Branicki et al. 2017; Liu et al. 2019). This supports the view that to survive in an ever-changing business landscape, firms may need to explore a different course of action from what is generally perceived as the norm (Iborra et al. 2020; Do et al. 2022). To be resilient, therefore, firms may require a set of capabilities that enable them to quickly address disruptions or sudden changes (Jussli and Schwarz 2025), such that by using information and knowledge in creative ways they are able to spot operational gaps, develop alternative plans of action, and ultimately provide agile novel alternatives (Mallak 1998; Ferreira et al. 2024). Shifting from conventional problem-solving strategies and engaging in entrepreneurial activities that promote discovery and efficiency is therefore construed as an important facet of entrepreneurial resilience (Best and Gooderham 2015; Gbadegeshin 2018).

With considerable scholarly evidence from the crisis entrepreneurship literature showing a strong link between CPS, firm size, and resource availability (Herbane 2019; Michaelis et al. 2020; Anwar et al. 2023), there is now wider recognition that smaller firms are, particularly, skilled at using their inherent feature of being under-resourced to their advantage (Gbadegeshin 2018; Eggers 2020; Magobe et al. 2024). Hence, given that CPS entails the use of existing resources most prudently and innovatively rather than simply amassing new resources (Baker and Nelson 2005; Branicki et al. 2017; Akoh 2020), we hypothesize that:

H3. *Creative problem-solving (CPS) will have a significant association with organizational resilience among the Nigerian MSSEs.*

2.5 | PN

Considering that entrepreneurship is construed as something borne out of social interaction, PN has been defined as an "operating medium through which resources are articulated, obtained and exchanged" (Anderson et al. 2007, 264). Within the context of MSSEs, the importance of relational ties cannot be overemphasized, given that a firm's network of relationships, including family, friends, or even strangers, may provide a rich source of social capital in terms of knowledge, information, financial, and emotional support in times of crises (Aldrich 2012). PN has been associated with successful recovery among smaller firms that lack complex social networks (Sauser et al. 2017), and has also been discussed as a key asset that aided long-term recovery post-Katrina (Torres et al. 2019). PN not only provides MSSEs access to new entrepreneurial opportunities (Danes et al. 2008), but also offers smaller businesses access to both knowledge and complementary resources which may otherwise be difficult to acquire through conventional market conditions (Agyapong et al. 2017; Herbane 2019).

In light of the above, we hypothesize that:

H4. *Personal network will have a significant association with organizational resilience among the Nigerian MSSEs.*

2.6 | PCR

Crisis PCR are mostly used interchangeably, since preparing an organization for crises invariably enhances its readiness (Parnell 2021). PCR is thus focused on building two key strategic capabilities: assembling a crisis management team (CMT) and developing a testable crisis management plan (CMP). It is often assumed that organizations that proactively pursue these capabilities are more likely to exhibit greater awareness of, and concern for, crises (Pal et al. 2014; Kantur and Say 2015; Parnell 2021).

However, while resilience is sometimes understood as planning for extreme events (Koh et al. 2024), there is compelling evidence to suggest that when faced with unprecedented disruptions, firms may require more than planning to survive (Baker and Nelson 2005; Branicki et al. 2017; Burnard and Bhamra 2011; Liu et al. 2019). We argue that the survival of businesses in conditions of high uncertainty is more likely to be hinged on their level of adaptability and flexibility, rather than that of planning (Vogus and Sutcliffe 2007). This is truer for MSSEs who are inherently hampered by limited financial resources (Doern 2016; Herbane 2013, 2019; Jin and Liu 2025) and institutional bottlenecks (Ekechi et al. 2024), and may therefore struggle to invest the time, energy, and resources required to fund and facilitate crisis planning initiatives (Mensah et al. 2020).

In light of the above, we hypothesize that:

H5. *Planning and crisis readiness will not be significantly associated with organizational resilience among the Nigerian MSSEs.*

2.7 | The Influence of Firm Characteristics

In addition to the core resilience indicators earlier discussed, the influence of firm characteristics and how they contribute to OR have also received considerable attention in the crisis entrepreneurship literature (Olutunla and Obamuyi 2008; Roux-Dufort 2009; Wolbers et al. 2021). Specifically, it is argued that firms that perceive themselves as valuable (both in tangible and intangible terms) are more likely to develop formal crisis management procedures, such as buying the right insurance policy or having an established crisis team (Herbane 2013). Furthermore, scholars have shown that prior experience of a crisis may potentially encourage firms to become more proactive in developing key resilience capabilities (Radic et al. 2022; Bartuseviciene et al. 2024). This is because managers tend to think more proactively about crises based on lessons learned from past crisis events (Mensah et al. 2020).

Put together, we hypothesize that:

H6. *Firm specific characteristics (value of business, experience of a previous disruption, availability of insurance cover) will have a significant association with organizational resilience among the Nigerian MSSEs.*

Figure 1 presents a conceptual framework that visually maps the five resilience indicators (independent variables) to OR (dependent variable). To clarify, firm characteristics (H6) were

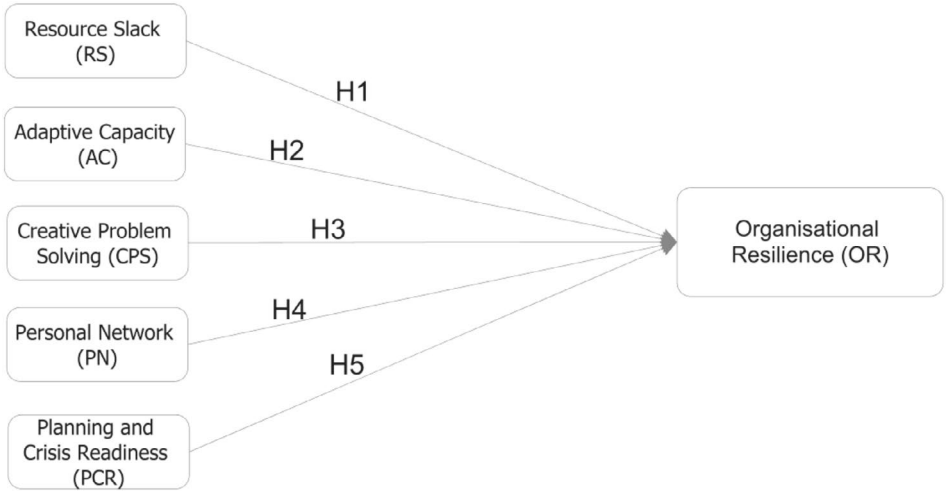

FIGURE 1 | Conceptual framework.

simply inputted into our hierarchical regression model as covariates and therefore only tested for statistical significance at that level of interaction (see Table 6). This ultimately explains the omission of H6 from our conceptual framework as shown in Figure 1.

3 | Methods

3.1 | Data Collection

In this study, we focused on MSSEs that offer local services to their immediate or wider communities, as well as entrepreneurs that heavily draw on their indigenous knowledge to serve the various communities in which they operate (Onwuegbuzie and Mafimisebi 2021, 3). Data was collected between December 15, 2023, and May 1, 2024. Since most MSSEs fundamentally operate in the informal sector (i.e., are not formally registered with the Nigerian Corporate Affairs Commission [CAC] as a business entity), we found the need to lean more substantially on social media (mainly WhatsApp) in recruiting potential MSSEs for the study. For context, it is worth mentioning that most small-scale entrepreneurs in Nigeria would typically be part of one or more WhatsApp business groups where they would informally engage to share best practices and exchange business-related ideas. Leveraging our personal contacts and social networks, the three authors enlisted in this paper collectively identified six gatekeepers who all had access to various MSSE groups on WhatsApp. With the support of these key contacts, we electronically disseminated our questionnaire across the respective WhatsApp business groups, targeting a representative sample of 1000 MSSEs. The potential MSSE participants were advised to complete the questionnaire only if they met the following study criteria: (i) are predominantly service-based ventures, (ii) have no more than 49 employees, (iii) have been running their businesses for at least 12 months, and (iv) must either be the owner or manager of the business. A total of 225 MSSEs eventually completed the survey, resulting in a response rate of 22.5%. Out of the 225 returned questionnaires, 6 cases of incomplete responses were noted and consequently removed from any subsequent analysis, resulting in a dataset comprising 219 valid cases.

3.2 | Measures

All constructs used in this study were assessed using established scales, with only minor adaptations made where appropriate (see Table 1). All our measurement scales utilized a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

OR, our dependent variable, was measured through a four-item scale adapted from Anwar et al. (2023). The Cronbach's α for this measurement scale was 0.864.

RS was measured using a four-item scale developed by Danneels (2008). This scale was favored here because of its emphasis on the availability of financial and manpower resources. The Cronbach's α for this measurement scale was 0.718.

To measure CPS, we adapted item scales from (Verreynne et al. 2023; Vera and Crossan 2005) to develop our seven-item scale. The Cronbach's α for this measurement scale was 0.713.

Adaptiveness (ADPT) was measured using a four-item scale developed by Verreynne et al. (2023). This scale supports our conceptualization of adaptiveness as the ability to absorb shocks and react to issues quickly. The Cronbach's α for this measurement scale was 0.726.

PN was measured through a three-item scale adapted from Herbane (2019). One item was dropped for being a nominal question, resulting in two remaining items. The Cronbach's α for this measurement scale was 0.711.

PCR was measured using a five-item scale adapted from Verreynne et al. (2023) and Lee et al. (2013). The Cronbach's α for this measurement scale was 0.572, which is below the recommended threshold of 0.7. Additionally, the individual items appeared to have loaded poorly following EFA (see Table 1), thereby denting the reliability of the measurement items. It was

TABLE 1 | Resilience constructs and exploratory factor analysis (EFA) item loadings.

Construct	Abbreviation	Indicator	Loadings
Organizational resilience	OR1	The flow of day-to-day systems are easily restored in the event of disruption.	0.650
	OR2	Does not take long to regain normal operational performance after a disruption.	0.833
	OR3	Can easily recover and return to its original state after disruption.	0.871
	OR4	Can easily deal with disruptions.	0.831
Resource slack	RS1	Has a reasonable amount of resources in reserve.	0.752
	RS2	Has ample financial resources to use when needed.	0.699
	RS3	Always find sufficient workforce to work on important projects	0.680
	RS4	Usually do not use up all resources in projects	0.701
Creative problem-solving	CPS1	Can deal with unanticipated events on the spot.	[a]
	CPS2	Able to make decisions when carrying out work related tasks	[a]
	CPS3	Tries new and novel approaches when solving difficult problem.	0.714
	CPS4	Staff are encouraged to take risks when trying new ideas.	0.635
	CPS5	Team members demonstrate originality in their work.	0.731
	CPS6	Staff are rewarded for thinking outside the box.	0.531
	CPS7	Job requires staff to deal with an ambiguous assignment for which no previously established procedure exists.	[a]
Adaptiveness	ADPT1	Able to accommodate disruptions while maintaining current role as a service provider.	0.590
	ADPT2	Able to move things around in the face of adversity and still deliver value to customers.	0.708
	ADPT3	Can always find the right amount of manpower required to deliver key services to customers.	[a]
	ADPT4	View changes in circumstances as opportunities to increase, improve or change capabilities	0.661
Planning and crisis readiness	PCR1	Maintain and encourage training that goes beyond job requirements.	[a]
	PCR2	Amidst new challenges, put together workable solutions from existing resources.	0.609
	PCR3	Quickly restores business performance after a disruption	0.746
	PCR4	Have a formal written crisis/emergency or business continuity plan.	[a]
	PCR5	Have enough external contacts and are able to access external resources at short notice if required.	[a]
Personal network	PN1	Ability to recover from major disruptions is reliant on resources that originate from a personal network of social relationships.	0.818
	PN2	Can rely on goodwill from networks to support recovery from a major disruption	0.811

[a]Cross loaded items.

thus deemed appropriate to remove the PCR scale from subsequent CFA analysis (with the exception of PCR 3, which was merged to a different construct). This is further discussed in Section 5.

3.3 | Data Analysis

Data cleaning and processing were performed in Microsoft Excel and then exported to SPSS version 28, where we

undertook EFA and hierarchical regression. For CFA, we utilized the AMOS software (version 29) to validate the EFA outcomes and to run further validity and reliability checks. Finally, hierarchical regression analysis was performed to test our various hypotheses.

4 | Results

4.1 | Personal and Business Profile of the MSSEs

With considerable representation across the six geopolitical zones in Nigeria (see Table 2), the MSSE participants showcased an extensive array of service offerings across a wide range of service domains, including Agro-based consultancies, recharge card sales, POS services, catering, tailoring, real estate, IT support, private tutoring, beauty and cosmetics, photography, and creative designs. Table 2 also shows that the majority of the MSSEs (64.9%) have been established within 5 years, while only 16.4% appear to have existed beyond 10 years. Furthermore, most of the MSSEs (89.6%) reportedly have a workforce size of 10 employees or less, making our sample size truly representative of the micro-level enterprises. Additionally, a significant proportion of the MSSEs (95%) valued their businesses to be in the range of ₦ 1,000,000.00 (approximately $800) or less, with approximately 57.1% of these enterprises claiming to have previously experienced a business disruption compared to 42.9% that had not. Finally, a whopping 86.3% of the MSSEs reportedly operate without insurance coverage compared to 13.7% that claim to have purchased an insurance cover.

4.2 | EFA

EFA was performed using the principal component for extraction and the varimax rotation technique, with the minimum factor loading criteria set at 0.50. The communality of the scale, which indicates the amount of variance in each dimension, was also assessed to ensure acceptable levels of evaluation. The results show that all communalities were above 0.50, as recommended by Child (2006). In the first round of EFA, three items (CPS1, ADPT3, PCR1) failed to load significantly on any dimension; three items (CPS7, PCR4, PCR5) indicated cross-loadings (factor loading of 0.32 or higher on two or more factors), and one item (CPS2) indicated cross-loading but with a factor loading less than 0.32. Hence, seven items were removed from subsequent analysis (see Table 1).

We then reran the EFA, excluding the seven unsuitable items, which resulted in a four-factor structure in the emergent model structure (see Figure 2).

The Kaiser–Meyer–Olkin (KMO) measure for sampling adequacy was 0.841, which is above the recommended minimum threshold of 0.600 (Kaiser 1974), and Bartlett's test of Sphericity (Bartlett 1950) was significant (χ^2 [171] = 1421.439, $p < 0.001$), indicating that the data were suitable for structure detection. Furthermore, none of the extracted communalities was below the recommended threshold ($h^2 < 0.20$) for any item (Child 2006). All included factors had Eigenvalues above 1, with

TABLE 2 | Demographic and business-related characteristics of the MSSEs.

	No. (%)
Age of respondents	
< 21	19 (8.7)
21–30	69 (31.5)
31–40	72 (32.9)
41–50	48 (21.9)
51+	11 (5.0)
Size of workforce	
1–5	162 (74.0)
6–10	35 (15.6)
11–50	19 (8.7)
51–250	3 (1.7)
Insurance policy cover	No. (%)
Yes	30 (13.7)
No	189 (86.3)
Regional distribution	
FCT	27 (12.2)
North-Central	34 (15.4)
North-East	1 (0.5)
North-West	1 (0.5)
South-East	18 (8.1)
South-South	34 (15.4)
South-West	104 (47.9)
Value of business (₦)	
< 250,000	50 (22.8)
251,000–500,000	75 (34.2)
501,000–750,000	52 (23.7)
751,000–1,000,000	31 (14.2)
> 1,000,000	11 (5.0)
Length of business (years)	
< 2	51 (23.3)
2–5	91 (41.6)
6–10	41 (18.7)
11–20	30 (13.7)
20+	6 (2.7)
Previous business disruption	
Yes	125 (57.1)
No	94 (42.9)

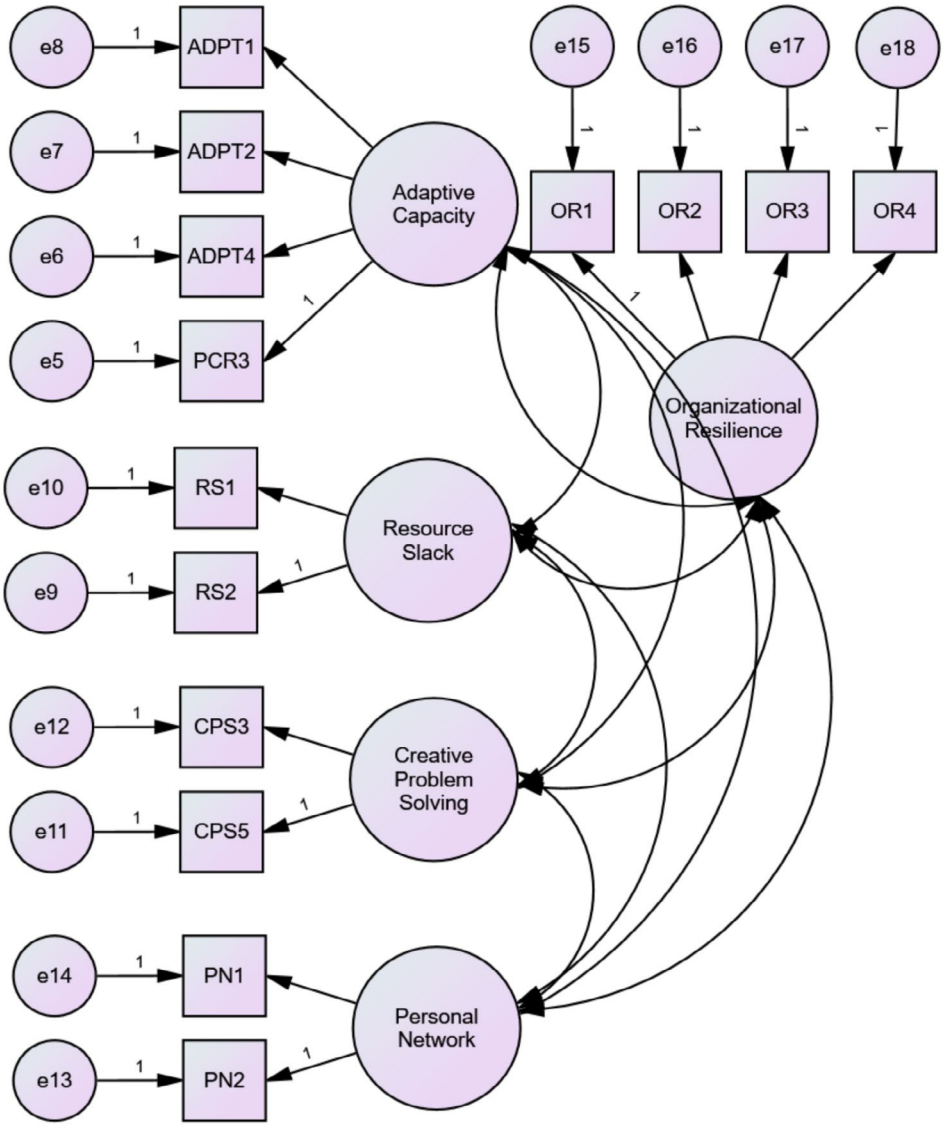

FIGURE 2 | Four-dimensional resilience measurement model. [Color figure can be viewed at wileyonlinelibrary.com]

the four-factor structure explaining a total of 60.62% of the variance in the model, which exceeds the recommended threshold of 60.00% (Hair et al. 2014). All factor loadings were significant and above the chosen threshold of 0.5, indicating adequate factor loading and thus establishing convergent validity.

Table 3 shows the new measurement model following the deletion of the seven items.

A notable observation is the disappearance of the PCR dimension from the new model (aside PCR3), which corroborates the low Cronbach's α earlier reported for PCR ($\alpha = 0.572$). Leveraging the explorative nature of EFA, we deemed it fit to move PCR3 to the adaptiveness (ADPT) dimension, resulting in the emergence of a four-item scale, which we renamed "AC" (see Table 3).

4.3 | CFA

All the retained items and model structure from the EFA were further subjected to CFA. Five items (CPS4, CPS6, RS3, RS4, PCR2) were further identified as not loading sufficiently and were consequently excluded. The items included in our final model, along with their corresponding factor loadings and other measures of adequacy, are summarized in Table 3. All factor loadings were significant and above the threshold of 0.50 and, therefore, considered adequate. Moreover, the measurement model displayed a good model fit: $\chi^2/df = 1.216$, the comparative fit index (CFI) = 0.986, Tucker–Lewis index (TLI) = 0.981, the normative fit index (NFI) = 0.926, goodness-of-fit (GFI) statistic = 0.949, and root mean square error of approximation (RMSEA) = 0.031. The model fitness indices are summarized in Table 4.

4.4 | Further Validity and Reliability Checks

Both convergent and discriminant validity were examined to assess the construct validity of the model. Based on the measurement model assessment shown in Table 3, convergent validity was confirmed since the average variance extracted (AVE) for each construct was above the recommended threshold of 0.40

TABLE 3 | Measurement model assessment.

Items	Factor loadings	CA	CR	AVE	MSV
Organizational resilience (DV)					
OR1	0.650***	0.864	0.871	0.633	0.324
OR2	0.833***				
OR3	0.871***				
OR4	0.831***				
Resource slack					
RS1	0.752***	0.718	0.707	0.547	0.230
RS2	0.699***				
Creative problem-solving					
CPS3	0.714***	0.713	0.679	0.516	0.402
CPS5	0.731***				
Adaptive capacity					
ADAPT1	0.590***	0.726	0.741	0.467	0.402
ADAPT2	0.708***				
ADAPT4	0.661***				
PCR3	0.746***				
Personal network					
PN1	0.818***	0.711	0.718	0.562	0.176
PN2	0.811***				

Abbreviations: AVE = average variance extracted, CA = Cronbach α, CR = composite reliability, MSV = maximum shared variance.
***$p < 0.001$.

(Lam 2012). Furthermore, composite reliability (CR) for each construct was above the recommended value of 0.60 (Lam 2012; Nusair and Hua 2010). As expected, the AVE for all constructs is less than their respective CR and greater than their respective maximum shared variance (MSV). Discriminant validity was assessed using the Fornell–Larcker criterion (Fornell and Larcker 1981), and given that the square root of AVE for each construct is greater than its respective correlation with other constructs, discriminant validity was deemed satisfactory (see Table 5).

4.5 | Hierarchical Regression

To better understand the relative contributions of the independent and control variables to organizational resilience (DV), hierarchical regression was deemed most appropriate. For this purpose, the control variables were dummy-coded, while the dependent and independent variables (IVs) were mean-centered to reduce the potential effects of multicollinearity (Shieh 2011). Value of Business was dummy coded as low (≤₦1,000,000) and high (>₦1,000,000). Insurance coverage and previous business disruption were each coded yes and no. The order of the hierarchical analysis is as follows: the three control variables (value of business, availability of insurance cover, experience of business disruption) were entered first as model 1, followed sequentially by the other four IVs in the order of PN, RS, CPS, and AC. The hierarchical order was determined using individual R^2 values, namely 13.2%, 16.1%, 20.1%, and 28.8%, respectively, for PN, RS, CPS, and AC. The control variables were included in all the Models (1–5) for consistency. VIF for all the variables were less than the recommended 5.0 (O'brien 2007), suggesting there was no problem of multicollinearity. Durbin and Watson (1950) value of 1.948 satisfies the assumption of independence across the

TABLE 4 | Model fit indices.

	χ^2/df	CFI	TLI	NFI	GFI	RMSEA
Model fit indices	1.216	0.986	0.981	0.926	0.949	0.031
Recommended values	Between 1 and 3	≥0.95	>0.90	>0.90	≥0.90	<0.05
Remark	Good	Good	Good	Good	Good	Good

Abbreviations: CF = comparative fit index, GFI = goodness-of-fit statistic, NFI = the normative fit index, RMSEA = root mean square error of approximation, TLI = Tucker–Lewis index.

TABLE 5 | The Fornell–Larcker criterion for discriminant validity.

Factor	1	2	3	4	5
1. Organizational resilience	**0.796**				
2. Resource slack	0.349***	**0.740**			
3. Creative problem solving	0.399***	0.480***	**0.718**		
4. Adaptive capacity	0.569***	0.398***	0.634***	**0.684**	
5. Personal network	0.325***	0.396***	0.380***	0.429***	**0.750**

Note: Square root of average variance extracted is shown on the diagonal in bold. The correlations between constructs are shown off-diagonal.
***$p < 0.001$.

TABLE 6 | Results of hierarchical regression analysis.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Insurance—Yes	0.120	0.088	0.056	0.036	0.063
Insurance—No	−0.121	−0.091	−0.060	0.093	−0.063
Prior business disruption—Yes	−0.215*	−0.205*	−0.016*	−0.145*	−0.012
Prior business disruption—No	0.203*	0.187*	0.142*	0.125*	0.099
Value of business—Low	0.088	0.057	0.147	0.045	0.054
Value of business—High	−0.078	−0.044	−0.033	−0.036	−0.052
Personal network		0.268**	0.226**	0.181*	0.103
Resource slack			0.184*	0.125	0.078
Creative problem-solving				0.223*	0.090
Adaptive capacity					0.362**
Model fit statistics					
F	2.900*	5.395**	5.768**	6.624**	9.390**
R^2	0.064	0.132	0.161	0.201	0.288
ΔR^2	—	0.069	0.028	0.041	0.086
Largest VIF	1.940	1.044	1.207	1.215	1.513

Abbreviations: Independent variable = organizational resilience; ΔR^2 = change in R^2.
*$p < 0.005$.
**$p < 0.001$.

residuals. Additionally, the computed Breusch and Pagan (1979) value of 1.095 is less than the critical value of $\chi^2(7) = 14.067$, confirming there are no issues with heteroscedasticity. Table 6 shows the hierarchical regression output.

In Model 1, our goal was to test whether any of the three control variables had significant influence on OR, as well as the direction of the relationships. The overall model was significant (F-value = 2.900, $p < 0.005$), thereby showing support for H6. However, upon further analysis, previous business disruption—yes showed a negative significant effect on OR ($\beta = -0.215$, $p = 0.002$), while previous business disruption-no showed a positive significant effect on OR ($\beta = 0.203$, $p = 0.003$). The other two covariates (value of business, availability of insurance cover) showed no significance on OR.

Controlling for covariates, each IV showed significant and positive effects on OR when included into their respective blocks, that is, Model 2, PN ($\beta = 0.268$, $p < 0.001$); Model 3, RS ($\beta = 0.184$, $p < 0.05$); Model 4, CPS ($\beta = 0.223$, $p < 0.05$); and Model 5, adaptive capability ($\beta = 0.362$, $p < 0.001$). In addition, each resulting model following the inclusion of each IV appeared significant, that is, Model 2 (F-value = 5.395, $p < 0.001$), Model 3 (F-value = 5.768, $p < 0.001$), Model 4 (F-value = 6.624, $p < 0.001$), and Model 5 (F-value = 9.390, $p < 0.001$). These findings show support for H2, H3, and H4, but not H1.

The largest change in R^2 (8.6%) was observed in Model 5 with the inclusion of AC, effectively suppressing the influence of the other IVs and the covariates. Put differently, since none of the other variables showed significant effects on OR in Model 5 apart from AC ($\beta = 0.362$, $p < 0.001$), it is inferred that AC exerted the strongest effect (explanatory power) on OR when compared to other resilience indicators.

Finally, the regression model showed evidence of progressive explanatory power with the inclusion of each IV, following the increase in R^2 values across Models 1–5, that is, a sequential R^2 increase from 13.2% in Model 1 to 28.8% in Model 5.

5 | Discussion

Revisiting the research question originally posed at the start of this paper (i.e., what resilience indicators most significantly contribute to organizational resilience among MSSEs in Nigeria?), this section evaluates and synthesizes key evidence from our findings in answering the said research question. First, recall that the PCR dimension failed to successfully meet the required EFA thresholds as it lacked the statistical power to even progress to CFA. This ultimately led to our dissolution of the PCR scale as a viable resilience indicator and the annulment of H5 as a testable hypothesis (see Table 3). This result challenges conventional claims that have emphasized the sensitization of smaller businesses to the adoption of formal crisis planning as a resilience tool (e.g., Kantur and Say 2015; Brown et al. 2017; Koh et al. 2024). While it is acknowledged that formal crisis planning could potentially enhance organizational resilience and help firms to identify emergent risks and possible areas of vulnerability, the results here support existing claims that these formalizations mostly apply to larger organizations (Herbane 2013, 2019). MSSEs generally lack the time and resources to pursue the

prospects of crisis formalization, and thus often struggle to invest in formal resilience activities. In part, this is because potential returns on such investments are often difficult to measure or quantify (Sevilla et al. 2023), and in part because MSSEs are more likely to prioritize other potentially important financial obligations that may yield quicker rewards (Branicki et al. 2017).

With PCR excluded from the hierarchical models, the other four resilience indicators (i.e., PN, RS, CPS, and adaptive capability) showed a significant association with organizational resilience (see Figure 3). In relation to RS, the lack of statistical support for our H1 suggests that the Nigerian MSSEs rarely identify themselves as resource-deficient or under-resourced—perhaps signaling the perceived belief among the MSSE owner-managers in possessing "enough" resources to perform their entrepreneurial ventures. The question then is how do MSSEs utilize the resources at their disposal in the most efficient and creative ways? We believe the answer lies in the core tenets of the bricolage stream of research that emphasizes a superior wisdom embedded in MSSEs compared to larger enterprises (Baier-Fuentes et al. 2023; Dawa et al. 2025). These studies show that MSSEs have a natural affinity to leverage their smallness (Baker and Nelson 2005), access to indigenous knowledge (Onwuegbuzie and Mafimisebi 2021), and flexibility (Eggers 2020; Trupp et al. 2025) to build firm resilience. Ultimately, this finding lends considerable support to the idea that MSSEs typically view resources not in the real sense of "quantity," but on the basis of what they could possibly achieve with "what is at hand" (Baker and Nelson 2005; Eggers 2020; Baier-Fuentes et al. 2023; Magobe et al. 2024).

Further, our results support MSSEs' proclivity for improvisation, with CPS showing a significant association with organizational resilience. This lends credence to prior studies that underscore the role of CPS as a way to foster innovation, creativity, and authenticity in terms of how MSSEs deliver their services (Branicki et al. 2017; Akoh 2020; Magobe et al. 2024). For PN, our findings are consistent with previous studies purporting that MSSEs, compared to their larger counterparts, are more likely to rely on support from personal or communal networks through both formal and informal ties that are developed over time (Danes et al. 2008; Torres et al. 2019). With AC, our results support prior discussions of the construct as a vital tool for survival, particularly, given the high level of uncertainty and volatility that typify the business environment where MSSEs operate (Lee et al. 2013; Kolbe et al. 2025; Damoah 2025).

It is also worth mentioning that the positioning of AC as the most dominant resilience indicator among the Nigerian MSSEs further reinforces the importance of adaptive practices in achieving firm resilience (Teece et al. 1997; Bartuseviciene et al. 2024). This is largely because the nature of present-day crises unwittingly places necessity on firms to comprehend new realities and develop flexible response strategies, potentially enhancing MSSEs' resilience amidst constantly changing business conditions (Wolbers et al. 2021). This also explains why AC is gaining wider recognition as a vital survival toolkit that firms can leverage when faced with crises (de Oliveira Teixeira and Werther 2013; Schäffer 2020; Maha et al. 2023), including in resource-constrained environments (Sevilla et al. 2023).

6 | Implications for Theory, Policy, and Managerial Practice

Scholars have given far less consideration to understanding what makes smaller organizations resilient, despite evidence suggesting that these firms are often able to bounce back and bounce forward amidst the exogenous threats they are constantly exposed to (Doern 2016; Sharma et al. 2024). Hence, while MSSEs are known to demonstrate grit and resilience in their ability to bounce back from shocks, the tactics upon which such resilience is built are often less understood and/or ignored, leading to lost learning opportunities both in theory and practice (Onwuegbuzie and Mafimisebi 2021; Maha et al. 2023). We hereby discuss the implications of our findings for theory, policy, and managerial practice.

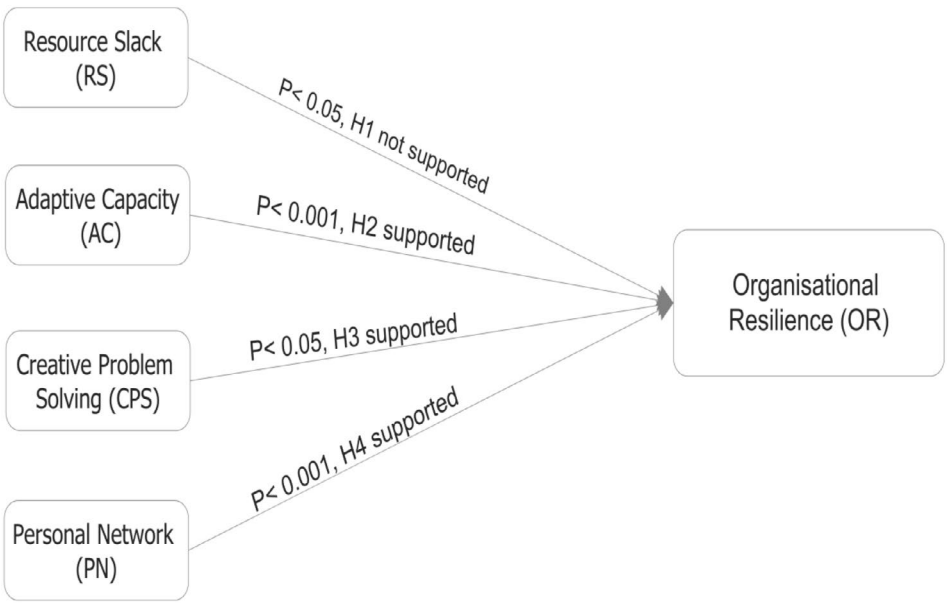

FIGURE 3 | Validated conceptual framework (four-dimensional resilience model).

First, given that the OR literature has often struggled to uncover the resilience factors that more accurately depict the multiple challenges that MSSEs face in resource-constrained environments (Burnard and Bhamra 2011; Huang and Jahromi 2021; Loonam and O'Regan 2022), a reassessment of existing resilience indicators was deemed worthy in the context of our study. In light of this, our research focused on five key indicators that we believe to more accurately reflect the reality of MSSEs in the Nigerian context (albeit with PCR eventually dissolved, resulting in only four resilience indicators). A key theoretical contribution in this regard is the emergence of our four-dimensional resilience model (see Figure 3) that more closely captures the nature and dynamics of small-scale venturing in under-resourced business landscapes, such as Nigeria. Since we rarely found any existing study that simultaneously explored the interactive effects of these four resilience indicators for MSSEs in a developing world context, our emergent model is hoped to appeal to OR and crisis entrepreneurship scholars who may benefit from gaining a better understanding of the key resilience capabilities that need prioritizing for micro and small businesses.

Second, despite current conceptualizations in the resilience literature typically viewing MSSEs as under-resourced when compared to their larger-sized counterparts (Doh and Kim 2014; Belitski et al. 2022; Etim et al. 2022; van den Berg et al. 2022), our results showed a positive and significant association between RS and organizational resilience. On the basis that the MSSEs do not necessarily perceive resource scarcity as a constraint to firm resilience, we propose an alternative discourse to the deficit narrative. This call for a paradigm shift closely aligns with Strauss's original conceptualization of the bricolage theory (Gbadegeshin 2018; Magobe et al. 2024, for a review), and corroborates Baker and Nelson's (Baker and Nelson 2005, 359) assertion suggesting that "entrepreneurs are not constrained by resources to the degree that the resource-orientated proponents often suggest." We therefore advocate a shift from the conventional view of bricolage as a resource-deficit construct to one that portrays how smaller firms make prudent and effective use of available resources. It is hoped that these considerations further enhance the theorization of entrepreneurial bricolage.

Finally, our findings lend considerable support to the DCT, showing, in particular, how small firms can leverage multiple resources and knowledge assets to stay resilient in an increasingly competitive and dynamic business environment (Teece et al. 1997). Drawing on DCT, we purport that survival in a resource-constraint environment would require that MSSEs develop and nurture the four resilience capabilities validated in this study (i.e., PN, RS, CPS, and AC). As our findings suggest, it is the operationalization of these capabilities that will bolster MSSEs' resilience against possible disruptions.

Next, we discuss two practical applications and at least one policy implication of our findings. First, to improve and strengthen MSSE resilience, we advocate focusing planned interventions and/or support activities around the four resilience indicators validated in this paper. That is, future training and intervention programs should be developed to enhance the entrepreneurial mindset of MSSE owner-managers to be (i) resource-efficient, that is, utilizing scarce resources in the most prudent and creative ways; (ii) connected, that is, maximizing the range of social capital and community support at their disposal; (iii) responsive, that is, increasing their quest for CPS while also trusting their entrepreneurial instincts; and (iv) viable, that is, developing and honing their adaptive capabilities which, in turn, increase their chances of survival. Collectively, these capabilities are seen as important antecedents in fostering organizational resilience and should therefore provide sufficient layers of defense to MSSEs in times of crises.

Second, MSSE owner-managers should learn to embrace the exact features that define their uniqueness relative to larger enterprises. This includes, but is not limited to, their inherent attributes of localized representation, adaptiveness, informal structure, flexibility, higher tolerance for ambiguity, access to indigenous knowledge, and CPS skills. As such, it is recommended that the key stakeholders (e.g., policymakers, support agencies, and educators) tasked with the development and implementation of entrepreneurial interventions emphasize the relevance of these core capabilities when designing workshops and training sessions tailored to MSSEs. Where a formal crisis plan is deemed plausible, MSSE owner-managers should be taught to recognize when to trust their entrepreneurial instincts and when an over-reliance on crisis formalizations may undermine their intuitive and improvisation skills.

Finally, given MSSEs' proclivity for creativity and improvisation, the policy environment should consider promoting an innovation-friendly policy to boost entrepreneurial ambitions. Measures should include creating innovation funds, organizing exhibition events to showcase and reward entrepreneurial inventions, providing access to digital tools and low-cost e-commerce platforms that could potentially boost sales, as well as providing technical support and infrastructural development to aid productivity and ultimately foster small business resiliency.

7 | Conclusion, Limitations, and Future Directions

In this study, we have shown that PN, RS, CPS, and AC all contributed positively and significantly to MSSEs' resilience, with AC having the strongest effect on organizational resilience. Also, with PCR failing to pass the relevant validity checks and subsequently excluded from our hierarchical regression models, our hope is that these findings continue to spark debates regarding the perceived benefits of crisis formalisations for smaller firms. As shown in this study, concerns remain that the formalization of crisis plans might inadvertently disrupt free-flowing creative tendencies that characterize MSSE operations.

Furthermore, this paper provides an additional layer of evidence suggesting that MSSEs do not necessarily see resource scarcity as a constraint to their entrepreneurial activities, contrary to claims that MSSEs often lack the resources required to stay resilient (e.g., Mao et al. 2023). Overall, our study extends the bricolage theory beyond its core tenet of "making do with what is at hand" to reinforce the current understanding that MSSEs are more inclined to leverage the four validated resilience capabilities in the quest to navigate systemic and institutional barriers.

This study is not without some limitations. First, while the resilience indicators tested in this study were carefully selected based on contextual alignment with the Nigerian business landscape, there is a possibility that other resilience indicators are ignored that could potentially influence organizational resilience in MSSEs. Relatedly, the exclusion of PCR may have resulted in the recalibration of our resilience model, but this also means that the resulting resilience indicators are much better contextualized to the Nigerian entrepreneurial ecosystem. Second, the decision to select participants across multiple entrepreneurial ventures implies that our findings are not, particularly, targeted at a specific venture where the demands and requirements for resilience may differ somewhat, but this also means that the generalizability of our findings is perhaps more far-reaching.

We highlight possible avenues for future research. First, based on suggestions that personal resilience often impacts firm-level resilience, future studies could explore the extent to which individual managers' resilience might influence their pursuit of resilience at the firm level. Second, since our study is focused on service-based enterprises, there is scope for future studies to test the plausibility of our developed model against product-based enterprises. A key objective in this regard would be to assess whether the hierarchical progression of our four resilience indicators is any different for product-based firms. Third, future studies should extend the scope of the bricolage theory beyond its current application as a firm's capability to "do more with less," and instead explore its relevance as a dynamic capability tool deployable in times of crises. Finally, future studies should further investigate the influence of PCR in fostering organizational resilience, particularly, in resource-constrained environments.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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