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Sustainability Orientation and Entrepreneurial Performance in Resource-Constrained Contexts

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ABSTRACT

This study examines how sustainability orientation shapes entrepreneurial performance in bottom-of-the-pyramid (BoP) markets by theorizing responsible entrepreneurship as a central mechanism and BoP orientation as a contextual contingency. Using survey data from 283 small- and medium-sized enterprises (SMEs) in Ghana, we integrate perspectives from sustainability, entrepreneurship, and inclusive-market research to explain how firms pursuing sustainability create economic and social value under severe resource constraints. Our findings show that sustainability orientation promotes responsible entrepreneurship and that this behavioral pathway translates into stronger entrepreneurial performance. This mediating effect highlights responsible entrepreneurship as a key strategic channel through which sustainability-driven firms realize superior outcomes. We also find that BoP orientation attenuates the performance benefits associated with responsible entrepreneurship. This moderating effect suggests a tension between deep social inclusivity and financial returns in low-income contexts. Implications for theory and practice are discussed.

1 | Introduction

Entrepreneurial activity in emerging and developing economies is often portrayed as a struggle for survival under severe resource constraints and institutional voids (Khoury and Prasad 2016; Mair and Marti 2009). At the same time, these environments face acute social and environmental challenges, such as poverty, inequality, and ecological degradation, which increasingly pressure firms to operate responsibly rather than focus narrowly on short-term financial outcomes. This tension places entrepreneurs in a difficult position, as they must remain economically viable while simultaneously addressing pressing societal and environmental demands.

Within this context, sustainability orientation, defined as the strategic commitment to integrating social and environmental goals into core business practices, has emerged as a potentially important driver of entrepreneurial outcomes (Azeem et al. 2025; Du et al. 2016; Frimpong et al. 2025). By aligning economic objectives with ecological stewardship and social equity, sustainability orientation is often assumed to support long-term value creation. However, particularly in resource-constrained

settings, sustainability-oriented initiatives also require additional investments, managerial attention, and organizational capabilities that may strain already limited resources. As a result, whether and how sustainability orientation enhances entrepreneurial performance remains theoretically and empirically ambiguous.

Prior research reflects this ambiguity. While sustainability orientation is associated with responsible innovation, legitimacy, and resilience (Adomako and Nguyen 2024; Cheng 2020; Jagani and Hong 2022), it can also slow innovation processes and undermine short-term performance if firms lack complementary capabilities or supportive contexts. For example, Adomako and Nguyen (2025) show that sustainability orientation may reduce innovation speed unless firms possess high levels of research and development agility and operate under intense competitive pressure. These findings highlight a central paradox in sustainability-oriented entrepreneurship. Sustainability orientation may be strategically desirable, yet performance enhancing only under certain conditions. What remains insufficiently understood is how sustainability orientation is translated into performance outcomes, particularly in contexts where firms face extreme constraints.

We argue that responsible entrepreneurship provides a critical behavioral mechanism for resolving this paradox. Responsible entrepreneurship captures entrepreneurial actions that recognize and exploit opportunities through sustainable innovation to generate economic, social, and ecological value (Tiba et al. 2019; Xie and Wu 2022). Rather than treating sustainability as an abstract strategic orientation, responsible entrepreneurship reflects its concrete enactment in entrepreneurial decision making. Through responsible practices, such as stakeholder engagement, ethical conduct, and socially embedded innovation, entrepreneurs may convert sustainability commitments into legitimacy, trust, and ultimately performance gains, even under conditions of constraint.

However, the effectiveness of responsible entrepreneurship is unlikely to be uniform across market contexts. In particular, bottom-of-the-pyramid (BoP) markets introduce distinctive challenges that may alter the sustainability and performance relationship. BoP orientation reflects a firm's strategic emphasis on serving low-income and underserved consumers by prioritizing affordability, accessibility, and contextual fit (Zhu et al. 2019). Although BoP markets offer substantial growth potential, they are characterized by chronic resource scarcity, weak institutional support, infrastructure deficits, and highly price-sensitive demand. These conditions can intensify trade-offs between social inclusion and financial viability, potentially diluting the performance benefits of responsible entrepreneurial behavior (Hall et al. 2012).

Importantly, while firms in developed economies also face sustainability-related trade-offs, BoP contexts represent a qualitatively distinct setting in which such challenges are more severe, persistent, and structurally embedded. Unlike firms in developed markets, which often pursue sustainability with the support of mature regulatory frameworks, financial markets, and reputational incentives, BoP-oriented firms must reconcile sustainability goals with survival-driven entrepreneurship and thin margins. Consequently, sustainability orientation in BoP contexts does not automatically translate into superior performance but instead depends on how it is behaviorally enacted and on the strategic emphasis firms place on serving low-income markets.

Against this background, this study seeks to explain how and under what conditions sustainability orientation enhances entrepreneurial performance in BoP contexts. We develop and test a moderated mediation model in which responsible entrepreneurship mediates the relationship between sustainability orientation and entrepreneurial performance, while BoP orientation moderates the performance implications of responsible entrepreneurship. Using survey data from small- and medium-sized enterprises in Ghana, we examine whether sustainability-oriented firms achieve superior performance through responsible entrepreneurial behavior and whether this pathway is weakened when firms are deeply embedded in BoP markets.

This study makes three contributions. First, it advances sustainability and entrepreneurship research by identifying responsible entrepreneurship as a key process mechanism linking sustainability orientation to entrepreneurial performance. Second, it introduces BoP orientation as a critical contextual boundary condition, demonstrating that inclusive market strategies may impose trade-offs that constrain performance outcomes. Third, by focusing on Ghana, the study provides novel empirical evidence from an underresearched African context, contributing to a more nuanced understanding of sustainability-oriented entrepreneurship under conditions of extreme constraint.

2 | Theoretical Background and Hypotheses

2.1 | Conceptual Development

The relationship between sustainability orientation and responsible entrepreneurship has become a central focus of contemporary entrepreneurship research. Scholars increasingly recognize that sustainability orientation reflects more than symbolic concern for social and environmental issues; rather, it represents a firm-level strategic posture that shapes how entrepreneurial opportunities are identified, evaluated, and pursued (Nguyen et al. 2023; Jha and Pande 2024).

Sustainability orientation refers to a firm's strategic commitment to integrating economic, social, and environmental considerations into its core philosophy, decision-making processes, and operational practices, with the aim of achieving long-term value creation while minimizing negative societal and ecological impacts (Du et al. 2016; Roxas et al. 2017). Rooted in the notion of sustainable development, defined as meeting present needs without compromising the ability of future generations to meet their own needs (Brundtland 1987), sustainability orientation emphasizes the simultaneous pursuit of economic viability, social equity, and environmental stewardship, commonly conceptualized as the triple bottom line (Elkington 1997). As such, it reflects a long-term strategic mindset that guides organizational priorities rather than a discrete set of environmental or social practices.

While sustainability orientation establishes a firm's strategic intent, it does not automatically translate into entrepreneurial outcomes. Recent scholarship argues that the performance implications of sustainability orientation depend critically on how it is behaviorally enacted within the entrepreneurial process. This behavioral enactment is captured by the concept of responsible entrepreneurship. Responsible entrepreneurship refers to entrepreneurial activities that recognize, develop, and exploit opportunities through sustainable innovation in ways that simultaneously generate economic value and address social and environmental concerns, with the overarching goal of contributing to sustainable development (Adomako and Nguyen 2024; Xie and Wu 2022).

Responsible entrepreneurship differs from traditional entrepreneurship in that it extends the entrepreneurial objective beyond financial profitability to include accountability to a broader set of stakeholders and long-term societal outcomes (Cohen and Winn 2007; Shepherd and Patzelt 2011). Entrepreneurs engaging in responsible entrepreneurship actively seek opportunities that preserve natural ecosystems, enhance community well-being, and strengthen long-term economic resilience, particularly in contexts characterized by institutional fragility and social vulnerability. In this sense, responsible entrepreneurship represents the concrete manifestation of sustainability orientation within entrepreneurial action.

Prior research suggests that sustainability-oriented firms are more likely to adopt responsible entrepreneurial behaviors because sustainability-oriented values shape opportunity recognition, resource allocation, and strategic decision-making (Jha and Pande 2024; Shepherd and Patzelt 2011). By embedding sustainability principles into their strategic logic, such firms prioritize ethical conduct, stakeholder engagement, and socially embedded innovation, which enhance legitimacy and trust while enabling firms to navigate complex and uncertain environments. Accordingly, sustainability orientation can be understood as an antecedent that motivates and enables responsible entrepreneurship, positioning the latter as a key mechanism through which sustainability-oriented strategies are translated into entrepreneurial outcomes. Figure 1 summarizes this logic and presents the conceptual model guiding the study.

2.2 | Sustainability Orientation and Responsible Entrepreneurship

Sustainability orientation reflects a firm's strategic integration of economic, environmental, and social objectives into its core decision-making and operational practices (Hart 1995; Roxas et al. 2017; Jagani and Hong 2022). The economic dimension emphasizes long-term value creation through cost efficiency, revenue growth, and financial resilience, while the social dimension captures firms' commitment to employee well-being, community engagement, and broader societal welfare (Croom et al. 2018; Kuckertz and Wagner 2010; Tardin et al. 2024). Together with environmental considerations, these dimensions form an integrated strategic posture that guides how firms allocate resources, evaluate trade-offs, and pursue growth opportunities.

Rather than representing isolated sustainability initiatives, sustainability orientation entails a deliberate reconfiguration of firm structures, processes, and activities to minimize environmental harm and enhance long-term societal and economic value (Khizar et al. 2024). As research on sustainability orientation has expanded in recent years, scholars have examined its antecedents, consequences, and boundary conditions across a range of organizational contexts (Adomako, Amankwah-Amoah, et al. 2021; Frimpong et al. 2025; Jagani and Saboori-Deilami 2025; Mrożewski et al. 2026). However, empirical evidence regarding its performance implications remains mixed, suggesting that sustainability orientation alone may be insufficient to explain entrepreneurial outcomes (Hong et al. 2019).

We argue that responsible entrepreneurship constitutes a critical behavioral pathway through which sustainability orientation is enacted. Firms with a strong sustainability orientation are more likely to internalize ethical considerations and adopt a long-term perspective when making strategic and entrepreneurial decisions. First, sustainability-oriented firms tend to prioritize ethical conduct and stakeholder accountability, which encourages entrepreneurial behaviors that protect social and environmental interests. Second, such firms are more likely to proactively address societal and ecological challenges through transparent and fair practices, embedding responsibility into entrepreneurial strategy rather than treating it as a compliance requirement. Third, by viewing responsible conduct as central to legitimacy and long-term survival, sustainability-oriented firms strengthen their commitment to entrepreneurial activities that balance economic viability with social and environmental responsibility. These arguments suggest that sustainability orientation shapes how entrepreneurial opportunities are recognized and pursued, increasing the likelihood that firms engage in responsible entrepreneurship. Accordingly, we propose the following hypothesis:

H1. *Sustainability orientation has a positive influence on responsible entrepreneurship.*

2.3 | The Mediating Role of Responsible Entrepreneurship

In the mediating hypothesis, we argue that responsible entrepreneurship would mediate the link between sustainable orientation and entrepreneurial performance. Entrepreneurial performance refers to the extent to which entrepreneurial firms translate opportunity pursuit and strategic orientations into financial, market, and survival outcomes (Shane and

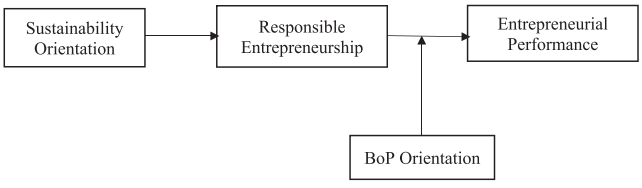

FIGURE 1 | Conceptual model.

Nicolaou 2013). Achieving such outcomes depends not only on the identification of opportunities but also on how these opportunities are enacted through entrepreneurial behavior. In this regard, responsible entrepreneurship involves entrepreneurial activities that recognize, advance, and leverage opportunities through sustainable innovation (Adomako and Nguyen 2024; Werner et al. 2025). By shaping how opportunities are evaluated, developed, and exploited, responsible entrepreneurship provides a behavioral pathway through which strategic orientations are converted into entrepreneurial performance. The primary objective is to achieve economic, social, or ecological benefits, all aimed at promoting sustainable development (Vallaster et al. 2019; Xie and Wu 2022). It is fundamentally driven by a firm's commitment to societal wellbeing and ethical business conduct. Previous studies suggest that entrepreneurs operating with a mindset of responsibility are more likely to identify and address social grand challenges within their business models (Dacin et al. 2010; Xie and Wu 2022). Accordingly, researchers have noted that responsible entrepreneurs engage with various stakeholder groups, including customers, employees, communities, and nongovernmental organizations (Adomako and Nguyen 2024; Mair and Marti 2009) to foster a collaborative approach to problem-solving, enabling responsible entrepreneurs to gain valuable knowledge about societal issues and needs (Adomako and Tran 2023; Freeman et al. 2010). Thus, we propose that responsible entrepreneurship mediates the link between sustainable orientation and entrepreneurial performance.

First, we argue that responsible entrepreneurship could foster stakeholder trust, which is crucial for translating sustainability efforts into tangible performance gains. A sustainability orientation signals good intentions, but responsible actions such as transparency, fairness, and integrity build credibility and legitimacy (Adomako and Nguyen 2024; Xie and Wu 2022). This trust would enhance customer loyalty, investor confidence, and community support, all of which contribute to stronger financial and reputational performance. Thus, responsible entrepreneurship could bridge the gap between sustainability principles and stakeholder-driven outcomes.

Second, we propose that sustainability-minded entrepreneurs identify social and environmental challenges; however, through responsible entrepreneurship, they can turn these insights into market opportunities. By developing sustainable products and processes, firms can achieve a competitive advantage and enhance their performance. Third, we suggest that responsible entrepreneurship can sustain the long-term benefits of sustainability orientation by integrating responsibility into the firm's strategic core. This alignment could enhance legitimacy, reduce external risks, and build resilience. Firms that consistently act responsibly could gain a stable foundation for growth and profitability. Therefore, responsible entrepreneurship can serve as the key mechanism through which sustainability orientation translates into improved entrepreneurial performance. Thus, the following hypothesis is recommended.

H2. *Responsible entrepreneurship mediates the relationship between sustainability orientation and entrepreneurial performance.*

2.4 | The Moderating Role of BoP Orientation

BoP orientation refers to a firm's strategic emphasis on understanding, targeting, and serving low-income and underserved consumer segments by designing affordable products, services, and business models that address the unique constraints of BoP markets (Zhu et al. 2019). A substantial share of the global population continues to live at the bottom of the pyramid, typically earning between $2 and $8 per day or less than approximately $3000 annually (Guesalaga and Marshall 2008; Prahalad and Hart 1999; Srivastava et al. 2020). These populations are concentrated primarily in rural areas, informal settlements, and urban slums across developing regions, including Africa, Asia, Latin America, and parts of Eastern Europe (Prahalad and Hart 2002; Srivastava et al. 2020).

BoP markets are characterized by chronic poverty, affordability constraints, low literacy levels, and weak institutional infrastructures (Anderson et al. 2010; Mukherjee et al. 2020; Venugopal and Viswanathan 2017). These conditions create a highly resource-constrained environment in which firms must operate under thin margins, infrastructural deficiencies, and institutional voids. As a result, entrepreneurial strategies in BoP contexts are often shaped by survival pressures and cost sensitivity rather than by long-term efficiency or reputational considerations.

Building on this context, we argue that BoP orientation conditions the extent to which responsible entrepreneurship translates into entrepreneurial performance. While responsible entrepreneurship generally enhances legitimacy, stakeholder trust, and innovation outcomes, its performance benefits may be constrained in BoP settings. Firms with a strong BoP orientation must prioritize affordability, accessibility, and cost containment, which can increase operational complexity and limit financial returns. These constraints may reduce the efficiency gains and scalability typically associated with responsible entrepreneurial practices, thereby weakening their impact on performance.

Moreover, institutional voids and competitive pressures prevalent in BoP environments further complicate the performance implications of responsible entrepreneurship (Khoury and Prasad 2016; Mair and Marti 2009). Weak regulatory enforcement, informal market structures, and limited infrastructural support can undermine the effectiveness of responsible practices, making it difficult for firms to fully capture their economic benefits. Under such conditions, even well-intentioned responsible entrepreneurial actions may yield lower or delayed performance returns.

Collectively, these arguments suggest that although responsible entrepreneurship is generally beneficial, its positive effect on entrepreneurial performance is not uniform across contexts. In markets characterized by high BoP orientation, structural constraints and affordability pressures may attenuate the performance gains derived from responsible entrepreneurship. Accordingly, we propose the following hypothesis:

H3. *BoP orientation moderates the relationship between responsible entrepreneurship and entrepreneurial performance,*

such that the positive relationship is weakened at higher levels of BoP orientation.

3 | Methods

3.1 | Study Setting—Ghana

Ghana provides a suitable context for examining how sustainability orientation drives entrepreneurial performance, especially within BoP markets. First, as a lower-middle-income economy with a dynamic entrepreneurial context, Ghana's private sector is dominated by SMEs that operate in resource-constrained environments (Appiah et al. 2025; Nwoba et al. 2025). These conditions mirror the realities of BoP markets, where firms must balance economic survival with social and environmental responsibilities. The country's entrepreneurial ecosystem, characterized by innovation under constraint, informal sector dynamism, and increasing engagement with sustainable development, offers a fertile setting for understanding how sustainability-oriented strategies translate into competitive advantage.

Second, Ghana faces pressing socio-environmental challenges, including youth unemployment, waste management issues, and uneven access to clean energy and water (Asibey et al. 2025; Ibrahim et al. 2024; Istipliler et al. 2025). These challenges have spurred a growing movement among entrepreneurs to integrate sustainability principles into business models to create inclusive and long-term value. Third, culturally, Ghana's strong communal values, ethical entrepreneurship traditions, and emphasis on social responsibility provide a unique social fabric within which sustainability orientation naturally aligns with business legitimacy and performance. Collectively, these contextual features make Ghana an ideal empirical setting for exploring sustainability-oriented entrepreneurship and performance.

3.2 | Sample and Data

To test our hypotheses, we collected data from founders/entrepreneurs and finance managers operating in manufacturing ventures across Ghana. The survey was administered in English, the official language of Ghana and the primary language of formal education and business, ensuring consistency and comprehension among respondents. The initial sample comprised 750 small firms randomly selected from the 2023 edition of the Ghana Company Register. In emerging economies such as Ghana, entrepreneurial activity is dominated by small firms, which are more likely than large corporations to face acute resource constraints, institutional voids, and survival pressures. These firms are also typically owner-managed, making strategic orientations such as sustainability orientation and responsible entrepreneurship more directly reflected in entrepreneurial decision-making. Accordingly, focusing on small firms allows for a more precise examination of entrepreneurial behavior and performance in resource-constrained environments.

Prior to data collection, we sent introductory letters to the founders/entrepreneurs of each firm, outlining the purpose of the study and inviting their participation. Respondents were assured of confidentiality and informed that they would receive a summary of the study's findings. This approach was intended to encourage participation and enhance the reliability and accuracy of the responses.

Data collection was carried out in two waves. In Wave 1 (T1), we gathered information on local sustainability orientation and responsible entrepreneurship, and control variables. In Wave 2 (T2), conducted 4 months later, we collected data on entrepreneurial performance. This time-lagged design was employed to minimize the risk of common method bias typically associated with cross-sectional data (Podsakoff et al. 2003). During Wave 1, one of the co-authors visited each selected firm in person to distribute the questionnaires to founders/entrepreneurs and scheduled a follow-up visit for collection. After multiple phone reminders, we received completed questionnaires from 312 firms, of which 303 were deemed usable.

In Wave 2, questionnaires were emailed to the same 303 firms, but only finance managers were asked to complete the entrepreneurial performance section. After three follow-up reminders, we received 283 fully completed responses, representing a final response rate of 37.73%. Table 1 presents the demographic characteristics of the sample. Overall, 66.43% of the sampled firms operate primarily in manufacturing-related activities, including production and processing, while 33.57% operate in service-related activities, such as trade, logistics, and professional services. The average firm employed approximately 76 workers and had been in operation for about 9 years.

To assess potential nonresponse bias, we conducted a chi-square analysis comparing respondents and nonrespondents on key

TABLE 1 | Characteristics of the sample.

		Number of samples	%
Firm age (in years)	< 3	26	9.19
	3–8	87	30.74
	8–15	100	35.34
	> 15	70	24.73
Firm size (employees)	< 5	66	23.32
	5–10	90	31.8
	11–15	80	28.27
	16–20	26	9.19
	> 20	21	7.42
Industry type			
	Service	95	33.57
	Manufacturing	188	66.43
Sales (in millions)	< 3	123	43.46
	3–8	79	27.92
	8–15	81	28.62

TABLE 2 | Constructs, reliability, and validity.

Details of measurement items	Factor loading	Cronbach's α	CR	AVE
*Sustainability orientation (*Du et al. 2016)		0.94	0.95	0.72
Sustainability criteria for new product development	0.79			
Measuring new product progress on sustainability	0.78			
Future importance of sustainability-type criteria	0.89			
Develop sustainability policies	0.87			
Manage your product's carbon footprint	0.88			
Use triple bottom line for product planning	0.92			
Include sustainability in your product development budget	0.84			
Select suppliers and partners based on sustainability criteria	0.81			
Responsible entrepreneurship (Xie and Wu 2022)		0.88	0.89	0.63
Please indicate your level of agreement with these statements				
This firm adopts a long-term perspective in decision-making to guarantee a persistent superior return to shareholders/owners	0.76			
This firm provides excellent pay, benefits and working conditions for your employees compared with similar enterprises	0.80			
This firm provides good products/services at a good price and demonstrates a willingness to add value to customers' wellbeing	0.81			
This firm is actively engaged in social welfare activities, such as education, housing, and job creation	0.84			
This firm has launched and implemented resource conservation and environmental protection strategies	0.77			
BoP orientation (Zhu et al. 2019).		0.89	0.90	0.66
In the past three years, our firm has:				
Endeavored to explore market opportunities in the BoP market (such as develop new products and formulate business strategies to serve this market)	0.80			
Invested in uncovering the BoP consumer characteristics	0.77			
Thoroughly considered the needs of BoP consumers in serving this segment	0.78			
Thoroughly considered BoP consumer product usage context in serving this segment	0.83			
Thoroughly considered BoP consumer affordability in serving this segment	0.86			
Thoroughly considered BOP consumer's education level to understand product related information in serving this segment	0.84			
Environmental dynamism (Miller and Friesen 1982)		0.86	0.87	0.70
Competitors are constantly trying out new competitive strategies	0.80			
Customer needs and demands are changing rapidly in our industry	0.87			
New markets are emerging for products and services in our industry	0.85			

Abbreviations: AVE = average variance extracted, CR = composite reliability.

characteristics, including firm age, size, and industry type. The results revealed no statistically significant differences between the two groups, suggesting that nonresponse bias was not a major concern in this study.

3.3 | Measure of Focal Construct

Table 2 provides details of the measurement items along with the corresponding assessments of validity and reliability. All items

were rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

3.3.1 | Sustainability Orientation

We measured sustainability orientation using eight items from Du et al. (2016). These items evaluate the integration of sustainability criteria into overall management practices. Consistent with previous research (e.g., Waddock 2008), these items address various aspects of environmental and social sustainability.

3.3.2 | Responsible Entrepreneurship

We employed the five-item scale developed by Xie and Wu (2022) to measure responsible entrepreneurship. This instrument captures firms' engagement in socially responsible practices across the economic, social, and environmental dimensions. It assesses the extent to which a venture demonstrates commitment to fulfilling its responsibilities toward key stakeholders, including shareholders, employees, customers, local communities, and the natural environment.

3.3.3 | BoP Orientation

We measured BoP orientation using six items adapted from Zhu et al. (2019). Respondents were asked to indicate the extent to which their firms deliberately strive to understand consumers in emerging markets and design products and services that effectively meet their unique needs and preferences.

3.3.4 | Entrepreneurial Performance

Given that new venture growth is widely recognized as a key indicator of performance among emerging firms (Adomako and Nguyen 2024), this study employed two primary growth measures (i.e., revenue growth and employment growth). Specifically, we calculated the average annual growth rates in revenue and employment for the year immediately following the survey period to enhance the potential for causal interpretation of our results. Consistent with established practices in entrepreneurship research (Baum and Wally 2003; Hmieleski et al. 2012), these two growth indicators were standardized and aggregated to construct a composite measure of entrepreneurial performance, thereby facilitating a parsimonious yet comprehensive representation of firm growth outcomes.

3.3.5 | Control Variables

We included several control variables that could potentially influence entrepreneurial performance, namely, firm age, firm size, industry type, and environmental dynamism. Firm age was operationalized as the natural logarithm of the number of years since the firm's founding. Older firms often possess more established routines, resources, and networks that can enhance performance, whereas younger ventures may face liabilities of newness that constrain growth and adaptability (Stinchcombe 2013). Controlling for firm age thus helps isolate the effects of our focal constructs from those attributable to firm maturity. Firm size was measured as the natural logarithm of the number of full-time employees. Larger firms generally have greater financial, human, and structural resources, which can positively influence growth and performance outcomes (Penrose 1959). Including firm size as a control accounts for heterogeneity in resource availability that may affect entrepreneurial performance. Industry type was coded as a binary variable, with 0 representing service firms and 1 representing manufacturing firms. Industry context can significantly shape entrepreneurial outcomes, as the competitive dynamics, innovation cycles, and capital intensity differ across industries (Covin and Slevin 1991). Controlling for industry type enables a more accurate estimation of the effects of the main variables across sectors. Finally, environmental dynamism was measured using a three-item scale developed by Miller and Friesen (1982). Highly dynamic environments are characterized by rapid and unpredictable changes in market conditions, technology, and customer preferences, which can influence firms' strategic decisions and performance outcomes (Dess and Beard 1984). By including this variable, we account for external environmental conditions that may moderate or confound the relationship between responsible entrepreneurship and entrepreneurial performance.

4 | Analyses

4.1 | Common Method Variance

Although the study adopted a time-lagged research design and gathered data from different respondents across two waves, the possibility of common method variance (CMV) could not be completely ruled out. To mitigate this concern, we followed well-established procedures (Podsakoff et al. 2003) to assess the extent of CMV. First, we conducted Harman's single-factor test, which revealed that the largest factor accounted for 26.67% of the total variance. This figure is well below the 50% threshold, suggesting that CMV is unlikely to bias our findings.

Second, we performed a confirmatory factor analysis (CFA) by loading all items onto a single latent construct to determine whether one factor could adequately represent the data. The resulting model showed a poor fit ($\chi^2/df = 2.93$, RMSEA = 0.14, CFI = 0.50, TLI = 0.45), indicating that a single-factor structure could not explain the observed relationships among variables. Third, we applied the common latent factor approach recommended by Podsakoff et al. (2003) to further test for CMV. The results of this analysis ($\chi^2/df = 2.89$, RMSEA = 0.10, CFI = 0.66, TLI = 0.70) also revealed a substantially poorer model fit compared to our hypothesized model. Collectively, these results demonstrate that CMV was not a major issue influencing the study's results.

4.2 | Validity and Reliability Assessment

To evaluate the psychometric soundness of our measures, we conducted reliability and validity tests using LISREL 9.1 (see Table 2). The reliability results showed that Cronbach's alpha coefficients for all constructs were above the recommended 0.70

threshold (Cronbach 1951), confirming strong internal consistency. The overall CFA model displayed a satisfactory fit between the proposed measurement structure and the observed data (χ^2/df = 2.53; RMSEA = 0.04; NNFI = 0.90; TLI = 0.91; CFI = 0.92).

Evidence of convergent validity was established, as composite reliability (CR) values exceeded 0.60 (Bagozzi and Yi 2012), and all standardized factor loadings were greater than 0.70 (Fornell and Larcker 1981). To confirm discriminant validity, we compared our hypothesized three-factor model with alternative configurations. The three-factor model produced the best fit, confirming that the constructs are empirically distinct. Additionally, the square roots of the average variance extracted (AVE) for each construct were higher than the interconstruct correlations, further validating discriminant validity. Overall, these results affirm that our measurement model demonstrates high levels of reliability, convergent validity, and discriminant validity, ensuring the robustness of the constructs employed in this study.

4.3 | Structural Model Estimation

We employed structural equation modeling (SEM) using the maximum likelihood estimation method in LISREL 8.87 to assess a sequence of nested structural models. To streamline the analysis, we computed mean scores for the independent and moderating variables by averaging their multi-item measures, thus creating composite indicators. However, for the dependent variables (i.e., responsible entrepreneurship and entrepreneurial performance), we retained the full-information approach, incorporating individual measurement items rather than aggregated means during estimation. This dual approach, combining both averaged and item-level data, ensured that the model retained sufficient information while minimizing issues of underidentification (Hair et al. 2017).

Following established recommendations (Cortina et al. 2001), we applied moderated structural equation modeling (MSEM) to test the hypothesized moderation effects. To examine the moderation, we created an interaction term between responsible entrepreneurship and BoP orientation. Before constructing the interaction term, all variables were mean-centered to reduce multicollinearity concerns. The estimation process involved five models. Model 1 assessed the influence of sustainability orientation on responsible entrepreneurship, while Model 2 examined the direct effect of sustainability orientation on entrepreneurial performance. Model 3 included both responsible entrepreneurship and BoP orientation to test their individual effects on entrepreneurial performance, and Model 4 introduced the interaction term (responsible entrepreneurship × BoP orientation) to capture moderation. Model 5, the final structural model, simultaneously estimated relationships among sustainability orientation, responsible entrepreneurship, and entrepreneurial performance, allowing for both mediation and moderation analysis (Adomako and Nguyen 2024). Throughout the estimation process, we reported key model fit indices and variations in squared multiple correlations (R^2) to evaluate the explanatory strength of each model.

4.4 | Hypothesis Testing

Table 3 reports the means, standard deviations, and correlations among all study variables, while Table 4 presents the results of hypothesis testing. Hypothesis 1 predicted that sustainability orientation would be positively associated with responsible entrepreneurship. The results support this hypothesis ($\beta = 0.24$; $t = 3.41$; $p < 0.01$), indicating that firms engaging in sustainability-oriented practices are more likely to pursue responsible entrepreneurial practices.

Hypothesis 2 proposed that responsible entrepreneurship mediates the relationship between sustainability orientation and entrepreneurial performance. The results in Table 4 demonstrate that sustainability orientation positively influences both entrepreneurial performance ($\beta = 0.20$; $t = 3.09$; $p < 0.01$) and responsible entrepreneurship ($\beta = 0.24$; $t = 3.41$; $p < 0.01$).

Moreover, responsible entrepreneurship exerts a positive effect on entrepreneurial performance ($\beta = 0.20$; $t = 3.13$; $p < 0.01$). These findings collectively suggest that responsible entrepreneurship acts as a mediating mechanism through which sustainability orientation enhances performance outcomes.

TABLE 3 | Descriptive statistics and correlations.

No.	Constructs	M	SD	1	2	3	4	5	6	7
1	Responsible entrepreneurship	4.86	1.69							
2	Sustainability orientation	5.19	1.29	0.22**						
3	BoP orientation	4.88	1.37	0.19**	−0.11					
4	Entrepreneurial performance	0.02	1.68	0.22**	0.20**	−0.27**				
5	Environmental dynamism	4.64	1.36	0.19**	0.10	0.15*	0.26**			
6	Firm size	76.29	55.75	−0.07	−0.08	0.12	0.13	−0.06		
7	Industry [A]	—	—	0.04	−0.09	0.06	−0.12	−0.04	0.03	
8	Firm age	9.45	2.74	−0.09	−0.11	0.07	−0.11	−0.02	0.07	−0.06

Abbreviations: A = dummy variable, M = mean and SD = standard deviation.
*$p < 0.05$.
**$p < 0.01$.

TABLE 4 | Results of structural model estimation.

	Independent variables				Dependent variables	
	Responsible entrepreneurship	Entrepreneurial performance			Responsible entrepreneurship	Entrepreneurial performance
	Model 1	Model 2	Model 3	Model 4	Model 5	
Control paths						
Firm size	−0.08 (−0.68)	0.14 (2.74) *	0.13 (2.67) *	0.12 (1.51)	−0.09 (−1.67)	0.11 (1.27)
Industry	−0.06 (−0.58)	−0.09 (−0.67)	−0.08 (−0.69)	−0.07 (−0.60)	−0.05 (−0.52)	−0.07 (−0.59)
Firm age	−0.11 (−0.90)	−0.10 (−0.88)	−0.10 (−1.50)	−0.09 (−1.49)	−0.10 (−0.89)	−0.09 (−0.90)
Environmental dynamism	0.07 (0.47)	0.17 (2.66) *	0.15 (2.42) *	0.15 (2.51) *	0.08 (0.49)	0.16 (3.73) *
Direct effect paths						
Sustainability orientation	0.24 (3.41) **	0.20 (3.09) **	0.19 (3.01) **	0.16 (2.89) *	0.22 (3.19) **	0.12 (1.59)
Responsible entrepreneurship (RE)			0.20 (3.13) **	0.17 (2.99) *		0.20 (3.09) **
BoP orientation (BoP)				−0.24 (−3.70) **		−0.22 (−3.29) **
Two-way interaction path						
RE × BoP				−0.29 (−3.97) **		−0.20 (−2.99) **
Goodness-of-fit indices						
R^2	0.20	0.16	0.18	0.23	0.26	
ΔR^2	—	—	0.02	0.05	0.03	
χ^2/df	1.54	1.42	1.46	1.45	1.60	
CFI	0.90	0.91	0.91	0.92	0.93	
NNFI	0.90	0.90	0.91	0.93	0.93	
RMSEA	0.05	0.04	0.05	0.04	0.04	

Note: Critical values of the *t* distribution for $\alpha = 0.05$ and $\alpha = 0.01$ (two-tailed test) are * = 1.96, and ** = 2.58, respectively (*T* values are reported in parentheses).

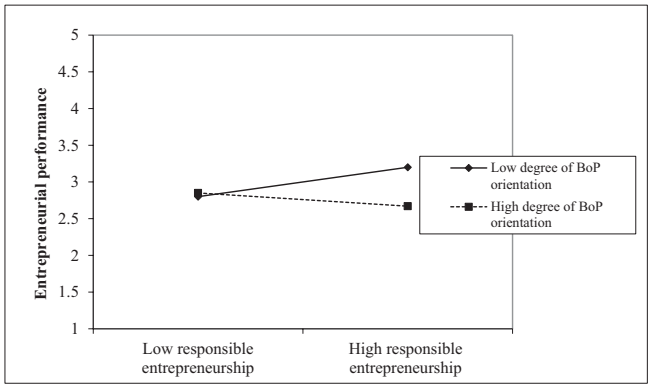

FIGURE 2 | The interaction effect of responsible entrepreneurship and BoP orientation on entrepreneurial performance.

TABLE 5 | Indirect effect and significance using the normal distribution.

	Value	SE	Lower 95% CI	Upper 95% CI	*p*
Indirect effect (bootstrap)	0.03	0.05	0.03	0.1	< 0.05
Index of moderated mediation	−0.02	0.01	−0.04	−0.01	< 0.05
Indirect effect at low BoP (−1 SD)	0.06	0.03	0.02	0.11	< 0.01
Indirect effect at mean BoP	0.04	0.03	0.01	0.08	< 0.05
Indirect effect at high BoP (+1 SD)	0.01	0.02	−0.02	0.05	n.s.

Note: $N = 283$. Bootstrap sample size = 10,000.
*$p < 0.05$.
**$p < 0.01$.

To further validate the mediation effect, we employed Hayes and Preacher's (2010) Process Macro, using both the Sobel test and bootstrapping. The Sobel test revealed that the indirect effect was significant ($z = 2.17$, $p = 0.05$). Consistent with this, the bootstrapping approach, based on 10,000 resamples, generated a 95% bias-corrected confidence interval (CI) ranging from 0.03 to 0.10, which excludes zero, thereby confirming the significance of the mediation (Shrout and Bolger 2002). These results substantiate Hypothesis 2 and affirm that responsible entrepreneurship mediates the link between sustainable entrepreneurship and entrepreneurial performance.

Finally, Hypothesis 3 posited that the degree of BoP orientation moderates the relationship between responsible entrepreneurship and entrepreneurial performance such that the relationship is attenuated. The findings in Table 4 confirm hypothesis 3 ($\beta = -0.29$; $t = -3.97$; $p < 0.01$), indicating that higher levels of BoP orientation weaken the positive relationship between responsible entrepreneurship and performance. To illustrate the interaction effect, we plotted simple slopes at one standard deviation above and below the mean of BoP orientation (see Figure 2). The results revealed a stronger negative slope for firms with high BoP orientation (simple slope = −0.33; $t = -3.66$; $p < 0.01$), confirming that firms deeply engaged with the BoP-oriented activities derive lesser performance benefits from responsible entrepreneurship. Therefore, Hypothesis 3 is supported.

Furthermore, the moderated mediation analysis provides further support for the contingent role of BoP orientation (Table 5). The index of moderated mediation is negative and statistically significant (index = −0.02, SE = 0.01, 95% CI [−0.04, −0.01]), indicating that the indirect effect of sustainability orientation on entrepreneurial performance via responsible entrepreneurship systematically weakens as BoP orientation increases. Consistent with this pattern, the conditional indirect effects are positive and statistically significant at low levels of BoP orientation (−1 SD; indirect effect = 0.06, SE = 0.03, 95% CI [0.02, 0.11]) and at the mean level of BoP orientation (indirect effect = 0.04, SE = 0.03, 95% CI [0.01, 0.08]). However, the indirect effect becomes weaker and statistically insignificant at high levels of BoP orientation (+1 SD; indirect effect = 0.01, SE = 0.02, 95% CI [−0.02, 0.05]). These findings confirm that while responsible entrepreneurship mediates the relationship between sustainability orientation and entrepreneurial performance, the strength of this indirect effect is contingent on firms' level of BoP orientation.

5 | Discussion and Implications

Our study draws insight from sustainable orientation literature and examines the effect of sustainability orientation on responsible entrepreneurship. We also investigated how responsible entrepreneurship mediates the nexus between sustainable orientation and entrepreneurial performance. Additionally, we propose that BoP orientation moderates the relationship between responsible entrepreneurship and entrepreneurial performance, such that the relationship is weakened. Our results indicate that sustainability orientation has a positive influence on responsible entrepreneurship, underscoring the previously underappreciated role of sustainability orientation in promoting responsible entrepreneurship among firms. In line with the recent studies (e.g., Adomako and Nguyen 2025; Jagani and Saboori-Deilami 2025) calling for sustainable orientation of firms, we contend that firms that develop a sustainability mindset could be a key driver for promoting ethical and responsible entrepreneurial activities, which would lead to broader positive impacts on society and the environment.

Our study also demonstrates that responsible entrepreneurship mediates the mechanism between sustainable orientation and entrepreneurial performance. This novel finding suggests that responsible entrepreneurship is a route through which sustainable orientation leads to firm performance. The finding highlights the importance of firms developing and supporting responsible entrepreneurial behaviors such as adopting eco-friendly processes or fair labor practices (Hägg et al. 2024;

Werner et al. 2025), which could improve entrepreneurial performance.

Lastly, our finding revealed that higher levels of BoP orientation weaken the positive relationship between responsible entrepreneurship and performance. Our profound finding suggests that firms operating in BoP, such as those in the study context, may face challenges, such as limited resources, lower purchasing power, and complex social demands, which can reduce the performance benefits typically gained from responsible entrepreneurial practices. Highlight the needs for firms to recognize the contextual limitations of responsible entrepreneurship in BoP settings. Our study's findings offer thoughtful implications for both theoretical and practical applications in the field of sustainability orientation and responsible entrepreneurship.

5.1 | Theoretical Implications

This study makes several important contributions to the sustainability orientation and entrepreneurship performance literatures (e.g., Du et al. 2016; Gao et al. 2018; Adomako and Nguyen 2025; Caliendo et al. 2023; Shi et al. 2025). By integrating sustainability orientation, responsible entrepreneurship, BoP orientation, and entrepreneurial performance into a single framework, our research advances a more process-oriented and context-sensitive understanding of sustainability-driven entrepreneurship.

First, we extend the sustainability orientation literature by demonstrating that sustainability orientation significantly influences responsible entrepreneurship. While prior studies have largely examined sustainability orientation as a driver of innovation outcomes or long-term competitiveness (e.g., Du et al. 2016; Jagani and Saboori-Deilami 2025; Adomako and Nguyen 2025), they have paid limited attention to how sustainability orientation shapes entrepreneurial behavior. Our findings enrich this stream by showing that sustainability orientation operates as a strategic antecedent that motivates entrepreneurs to engage in responsible entrepreneurial practices, thereby linking strategic intent to entrepreneurial action.

Second, this study contributes to the responsible entrepreneurship literature by identifying responsible entrepreneurship as a key mechanism through which sustainability orientation translates into entrepreneurial performance. Existing research has documented the direct effects of sustainability orientation or responsible entrepreneurship on firm outcomes, often yielding mixed or context-dependent results. However, prior work has rarely examined the mediating process through which sustainability orientation affects entrepreneurial performance. By explicitly modeling responsible entrepreneurship as a mediating mechanism, our study advances theoretical understanding of how sustainability-oriented strategies are enacted and converted into performance outcomes, particularly in resource-constrained entrepreneurial settings.

Third, we advance the BoP and entrepreneurship literature by demonstrating that the performance implications of responsible entrepreneurship are contingent on BoP orientation. Although prior studies have examined BoP strategies and inclusive innovation (e.g., Adomako, Ning, and Adu-Ameyaw 2021; Gold et al. 2020; Hall et al. 2012), limited attention has been given to BoP orientation as a boundary condition shaping the effectiveness of responsible entrepreneurial practices. Our findings show that while responsible entrepreneurship generally enhances entrepreneurial performance, this positive effect is weakened when firms exhibit a high BoP orientation. This insight suggests that the benefits of responsible entrepreneurship are not universal but depend on market conditions characterized by affordability pressures, thin margins, and institutional constraints. In doing so, we contribute a more nuanced, context-dependent perspective to sustainability-oriented entrepreneurship research.

Collectively, these contributions move the literature beyond direct-effect models by highlighting both the process mechanism (responsible entrepreneurship) and the contextual boundary condition (BoP orientation) through which sustainability orientation influences entrepreneurial performance.

5.2 | Practical Implications

In addition to its theoretical contributions, this study offers practical insights for entrepreneurs and managers operating in resource-constrained and BoP contexts. Importantly, the implications derived from this study are directly grounded in the empirical findings.

First, our results suggest that entrepreneurs and firms should view sustainability orientation as a strategic foundation rather than as a symbolic or compliance-driven initiative. The positive relationship between sustainability orientation and responsible entrepreneurship indicates that adopting a sustainability-focused mindset can shape how entrepreneurs recognize and pursue opportunities. By embedding environmental stewardship, social responsibility, and ethical considerations into strategic decision-making, firms can strengthen responsible entrepreneurial behavior, which in turn enhances legitimacy, stakeholder trust, and long-term viability.

Second, the finding that responsible entrepreneurship mediates the relationship between sustainability orientation and entrepreneurial performance highlights the importance of translating sustainability commitments into concrete entrepreneurial actions. Entrepreneurs cannot rely on sustainability orientation alone to improve performance. Instead, performance gains emerge when sustainability principles are enacted through responsible practices, such as ethical sourcing, community engagement, fair labor practices, and socially embedded innovation. Managers should therefore invest in organizational routines, leadership practices, and incentive systems that support responsible entrepreneurship as a pathway to improved entrepreneurial outcomes.

Third, the moderating effect of BoP orientation carries important managerial implications. Our findings indicate that firms with a strong focus on BoP markets may experience weaker performance benefits from responsible entrepreneurship due to affordability constraints, higher operating costs, and complex distribution challenges. This does not imply that BoP strategies are undesirable, but rather that entrepreneurs pursuing

inclusive market strategies must carefully balance social impact with financial sustainability. Managers may need to adopt innovative business models, partnerships, or cost-efficient delivery mechanisms to mitigate the performance trade-offs associated with high BoP orientation.

Overall, these findings suggest that sustainability-oriented entrepreneurship is most effective when entrepreneurs align strategic intent with responsible action while remaining attentive to contextual constraints. For policymakers and development practitioners, the results also underscore the importance of supportive institutional environments that can reduce the costs and risks faced by sustainability-oriented firms operating in BoP contexts.

6 | Limitations and Future Research

First, our study findings are derived from a sample in Ghana, which constrains their generalizability to other cultural or geographic contexts. Ghana's pronounced collectivistic culture, characterized by a strong emphasis on assertiveness and independence in responsible entrepreneurship (Adomako and Tran 2023), underscores the need for context-specific interpretations. The centrality of families and communities in shaping social behavior in Ghana suggests that the findings may not fully apply to societies with differing cultural values, such as those prioritizing individualism or other social structures. To enhance the applicability of these findings, future research should incorporate diverse cultural settings to understand better the role of responsible entrepreneurship across varied societal frameworks.

Second, our study's reliance on self-reported data to measure entrepreneurial performance introduces a potential for social desirability bias, which may skew results (Chung and Monroe 2003; Nederhof 1985). This limitation arises because respondents may present overly favorable accounts of their performance, influenced by social expectations. To mitigate this issue, future research could adopt triangulated methods, integrating objective indicators such as financial records, sales data, or third-party evaluations alongside self-reports. By combining subjective and objective measures, studies can enhance the validity and reliability of entrepreneurial performance assessments, providing a more comprehensive understanding of the phenomenon.

Third, the cross-sectional design of the study limits its ability to establish causal relationships. Although the hypotheses were grounded in established literature, a longitudinal approach that collects data across multiple time points would better support causal inferences by tracking changes and their impacts over time. Additionally, the focus on surviving firms introduces a potential survivorship bias, which may skew findings by excluding failed enterprises (Brown et al. 1992). While this bias is unlikely to significantly affect the results due to substantial variation between dependent and independent variables, it remains a limitation. Future research should employ longitudinal designs and include data from both surviving and nonsurviving firms to mitigate survivorship bias and strengthen causal claims.

Author Contributions

All authors contributed equally to this work.

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