Blue Economy and Entrepreneurship Outcomes of Some Selected Coastal Communities in Niger Delta Area: Does Strategic Alliance for Sustainable Development Matter?

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ABSTRACT
This study examined the relationship between blue economy and entrepreneurship outcomes among some selected coastal communities in Niger Delta Area: a mediating role of strategic alliance for sustainable development. Based on Resource-Based View (RBV) theory, cross-sectional survey was adopted for data gathering from the respondents. The study population was 246 entrepreneurs engaged in fishing business in the three coastal states of Niger Delta region, Nigeria. A PLS-SEM approach was used with aid of Smart PLS 4.1 to analyse the data. The result revealed that economic contribution has a strong positive and significant relationship with entrepreneurial outcomes, whereas sustainable resource use shows a negative and insignificant relationship with entrepreneurial outcomes. The result also revealed that strategic alliance for sustainable development is marginally positive and significant relationship with entrepreneurial outcomes. However, for the indirect relationship, the result shows that the mediating role of strategic alliance for sustainable development between economic contribution and entrepreneurial outcomes is positive and statistically significant while the mediating role of strategic alliance for sustainable development between sustainable resource use and entrepreneurial outcomes is positive and statistically significant. This study thereforerecommends that governments should foster collaborations between private investors, NGOs, and local businesses to boost investment in Blue Economy sector while financial institutions should develop special credit schemes for coastal entrepreneurs engaged in fisheries, aquaculture, and eco-tourism with a view to promoting local cooperatives and facilitating access to broader markets for coastal entrepreneurs.

Keywords: Blue Economy; Entrepreneurial Outcomes; Economic Contribution;Sustainable Resource Use; Strategic Alliance for Sustainable Development.

1. INTRODUCTION

It is a common knowledge that entrepreneurship serves as a driver for innovation and economic growth within the Blue Economy. Entrepreneurs provide novel technologies, business strategies, and solutions to address difficulties in the marine industry (Mukhopadhya et al., 2020). For example, ventures specialising in renewable ocean energy, eco-friendly fishing nets, and improvements in aquaculture illustrate the potential for stimulating economic development while supporting environmental sustainability. However, entrepreneurship in the blue economy often faces barriers, including high capital requirements, regulatory complexities, and limited access to markets and resources (Mukhopadhya et al., 2020). Entrepreneurs contribute innovative solutions for sustainable resource management, such as developing technologies for sustainable fishing and aquaculture. Entrepreneurs often work at the local level to empower coastal communities through capacity building programs and economic opportunities while carbon sequestration solutions, like seaweed farming for biofuels (Silver et al., 2015).

A survey conducted by United Nation, UN, (2023) revealed that European Union (EU) blue economy employs about 3.6 million people, marking a 17% increase compared to 2020 with Greece approximately 9.5% of its workforce while Cyprus and Croatia have about 8% of their workforce engaged in Blue Economy sectors in their countries. Similarly, another survey by Organization for Economic Cooperation and Development, OECD, (2023) found Malta and Estonia 7.1% and 3.3% of their workforces employed in the Blue Economy with Belgium grew 4.5% of GDP in 2018 to 5.2% in 2021, with port activities playing a significant role in this growth. Additionally, African Development Bank, ADB, (2022) report shows that Nigeria's fisheries sector produces about 1 million metric tons of fish annually, meeting roughly 50% of domestic fish demand with 3%-4% growth to the country's gross domestic products (GDP). This emphasized the importance of blue economy to a nation.

The blue economy is a sustainable development paradigm that focuses on the economic potential of oceans and coastal areas while preserving their ecological integrity (Guerreiro, 2021; Silver et al., 2015). Entrepreneurship in this sector can drive innovation, economic growth, and job creation. However, achieving sustainable development requires strategic partnerships between businesses, governments, NGOs, and academia. The blue economy offers a fertile ground for entrepreneurship by combining the growing demand for marine resources with a global push for

sustainability. Entrepreneurs who align their ventures with sustainable practices can become key players in shaping the future of the blue economy (Guerreiro, 2021).

Despite the potential benefits of the blue economy for entrepreneurs, several challenges hinder Nigerian entrepreneurs from fully capitalizing on opportunities in the sector. These challenges include limited access to funding and investment, as marine-based ventures like offshore wind energy or aquaculture require substantial initial capital, and entrepreneurs face difficulties in securing loans or grants for such projects. Environmental degradation, such as the depletion of fish stocks, marine pollution, and ecosystem destruction, further diminishes the viability of fisheries and marine tourism ventures. Additionally, many entrepreneurs lack the necessary technical expertise in marine sciences, sustainable practices, and advanced technologies, limiting their ability to succeed in these sectors. It is against this background that this study is investigating howthe blue economy and entrepreneurship contribute to sustainable development.

The blue economy holds significant promise for driving sustainable economic growth, protecting the environment, and reducing poverty, particularly in coastal and marine-dependent areas. Entrepreneurship within this sector serves as a catalyst for innovation and resource optimization, fostering job creation, economic diversification, and sustainable development (World Bank. 2017; OECD, 2020). The sector's full potential remains underutilized due to uncoordinated efforts, limited access to resources, weak institutional support, and insufficient strategic partnerships (Eikeset et all. 2018; Boer et ll. 2018). Although some literature addresses specific aspects of the blue economy and its entrepreneurial outcomes, such as GDP contributions from marine sectors or coastal livelihood dependence, there remains a significant gap in empirical studies directly examining the relationship between the blue economy and entrepreneurship outcomes (Okafor & Onuoha, 2021; UNECA, 2020). A significant number of researchers consistently focus on similar scopes in their studies, often using sustainable development as the dependent variable and concentrating on developed countries rather than developing nations like Nigeria (Umar, et al., 2022; Nwosu, 2023). As a result, the findings may lack contextual relevance for their own country, as local factors such as culture, policies, and infrastructure can differ significantly across regions. This oversight leaves local challenges and unique opportunities unaddressed, limiting practical applications and solutions, thereby creating a literature gap that this study aims to fill.

Despite the issues identified in the study, previous findings suggest that the positive relationship between the blue economy and entrepreneurial outcomes is stronger in more industrialized countries with lower human capital quality (Wang et al., 2022). While numerous studies have highlighted the potential positive impacts of the blue economy, these outcomes are not guaranteed, and access to precise and reliable knowledge about the blue economy remains limited (Zhou et al., 2022). Therefore, introducing a mediating role between the blue economy and entrepreneurial outcomes is essential to achieve more accurate and reliable results.

The broad question of this research is to determine to what extent does economic contribution and sustainable resource use influence entrepreneurial outcomes of coastal communities in the Niger Delta region;to investigate the extent to which strategic alliance for sustainable development mediates the relationship between economic contribution and sustainable resource use, and entrepreneurial outcomes of coastal communities in the Niger Delta region. Does strategic alliance for sustainable development mediate the relationship between economic contribution and sustainable resource use, and entrepreneurial outcomes of coastal communities in the Niger Delta region?

This research aims to contribute to the study on blue economy by addressing the lack of empirical studies directly examining the relationship between the blue economy and entrepreneurial outcomes, especially in the context of developing countries like Nigeria while expanding the understanding of the blue economy by linking it directly to entrepreneurial outcomes--- an area with limited empirical evidence.(as well as provides) This will provide a theoretical foundation for studying the blue economy in developing countries, addressing contextual differences often overlooked in existing literature, most ofwhich focusedlargely on developed nations.

2. LITERATURE REVIEW

2.1 Concept of Entrepreneurship Outcomes

Governments in both developed and developing countries are increasingly focused on promoting entrepreneurial activity within their economies (Guerrero et al., 2021). Notably, policymakers are beginning to differentiate between fostering entrepreneurship specifically and supporting small and medium-sized enterprises (SMEs) in a broader sense. In recent years, many countries

have shifted toward defining entrepreneurial firms distinctly from SMEs. They adopt definitions of entrepreneurship that emphasize "innovative human action aimed at creating value through the initiation or expansion of economic activity, achieved by identifying and exploiting new products, processes, or markets". And they note that while such activity may occur in SMEs, many SMEs are not growth oriented and demonstrate little truly entrepreneurial activity (Aljuwaiber, 2021). Thus the challenge for public policy makers is to find means of support that are effective in promoting and fostering entrepreneurial outcomes and that do not merely sustain low-performing SMEs.

According to this study, entrepreneurship outcomes are defined as measurable results or impacts of entrepreneurial activities. These outcomes can take various forms, spanning economic, social, and environmental dimensions. They demonstrate how entrepreneurial activities impact individuals, organizations, industries, and society as a whole. These outcomes are particularly crucial for the blue economy as they foster innovation, drive economic growth, and promote sustainability in ocean-based industries and coastal communities (Rawhouser et al., 019). Entrepreneurs contribute by developing advanced technologies for sustainable fishing, marine biodiversity preservation, waste management, and ocean monitoring. Additionally, they boost local economies by generating employment opportunities and increasing income in coastal areas, especially in sectors such as tourism, shipping, and aquaculture (Guerrero et al., 2021).

2.2 Concept of Blue Economy

Since the early 21st century, the concept of the "Blue Economy" has gained significant traction. The global community recognizes that the blue economy encompasses three main economic models: 1 addressing the global water crisis, 2 fostering innovative economic development, and 3 advancing the marine economy (Smith-Godfrey, 2016). In academic research, literature on the blue economy generally focuses on several key areas. Khan and Emon (2024) suggest that the goal of blue economy models is to shift resources from scarcity to abundance while addressing the root causes of environmental challenges. Parashakti et al. (2024) propose using an ecosystem service framework as a management tool to promote coastal blue growth. Narwal et al. (2024) emphasize achieving long-term sustainable blue growth through collaboration, inclusion, and trust within the marine sector, while focusing on the spatial boundaries of marine industry growth as part of blue growth (Smith-Godfrey, 2016).

For this study, the blue economy isa responsible utilization of ocean resources to drive economic growth, enhance livelihoods, and create jobs while safeguarding the well-being of ocean ecosystems. It includes various activities and sectors connected to oceans, seas, and coastal regions, emphasizing the need to balance economic progress with environmental sustainability (Renaldo et al., 2024). Entrepreneurs have the capacity to leverage untapped marine resources in areas such as sustainable fisheries, aquaculture, renewable energy like offshore wind, tidal, and wave energy, and marine biotechnology, leading to innovative business ventures. The Blue Economy promotes environmentally sustainable practices, encouraging entrepreneurs to adopt green technologies, eco-friendly products, and services that align with global sustainability goals (Renaldo et al., 2024).

2.3 Strategic Alliance for Sustainable Development

A strategic alliance is a form of collaboration aimed at achieving shared objectives, such as partnerships between different entities to foster mutual learning (Wang et al., 2021). Globally, numerous examples highlight alliances formed to promote sustainable development. For instance, the Central American Council for Sustainable Development has implemented alliance agreements to advance sustainable development initiatives at national and regional levels within Central America (Wang et al., 2022). Similarly, in Italy, alliance strategies have been utilized to emphasize the significance of the Sustainable Development Agenda among Italian society and economic stakeholders. Engaging in such alliances enables participants to actively work toward achieving the United Nations' Sustainable Development Goals.

The study operationalized strategic alliance for sustainable development as a collaborative partnership among organizations, governments, businesses, or other entities aimed at achieving shared objectives tied to sustainable development. These partnerships harness the strengths, resources, and expertise of the participants to tackle intricate environmental, social, and economic challenges while advancing goals such as fostering sustainability, driving innovation, and promoting inclusive growth (Eweje et al., 2021). This is critical to the success of the blue economy and entrepreneurial outcomes, as it fosters collaboration, resource sharing, and innovation to tackle challenges and seize opportunities in marine and coastal sectors. These alliances also bring together diverse resources, including financial investments, technical

expertise, and infrastructure, which are essential for launching and scaling entrepreneurial ventures in the Blue Economy (Eweje et al., 2021).

2.3.0 Dimensions of Blue Economy

2.3.1 Economic contribution

Economic contributions of blue economy involve the creation of products goods, services, and works that supply the domestic market of a country. This, in turn, enhances market availability by improving the quantity, quality, and variety of products, giving consumers greater choices and better opportunities to meet their needs. In this context, entrepreneurship plays a vital role in coordinating demand and supply, stabilizing prices, maintaining market equilibrium, and expanding the ability to address existing and emerging needs comprehensively (Toxirovna, 2024). Additionally, entrepreneurship is crucial for fostering and advancing competition within a market economy. It drives improvements in product quality and competitiveness, reduces production costs and prices, and boosts operational efficiency (Apostu et al., 2022)

Economic contribution refers to the positive impact that an entity, activity, or sector has on the economy of a region or country. It encompasses the generation of goods, services, jobs, income, and wealth that drive economic growth and improve living standards. The economic contribution of the blue economy is immensely significant due to its capacity to foster sustainable growth and development, strengthen market dynamics, and promote environmental conservation (Apostu et al., 2022). It also plays a pivotal role in supporting entrepreneurship and innovation within ocean-based industries. Additionally, it generates employment opportunities in sectors such as fishing, aquaculture, marine tourism, shipping, and renewable energy, thereby helping to reduce unemployment and enhance the livelihoods of coastal communities comprehensively (Toxirovna, 2024)..

2.3.2 Sustainable resource use

The term "sustainability" has become a widely recognized global concept, often viewed as a solution to various international, regional, and local challenges confronting society today (Rosário&Raimundo, 2024). While developing nations grapple with issues such as overpopulation, disease, and political instability, developed countries face their own difficulties,

including deteriorating infrastructure, environmental pollution, and the strain of unrestrained urban growth on limited resources. The United Nations World Commission on Environment and Development (WCED) provided one of the most widely cited definitions of sustainable development, describing it as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987).

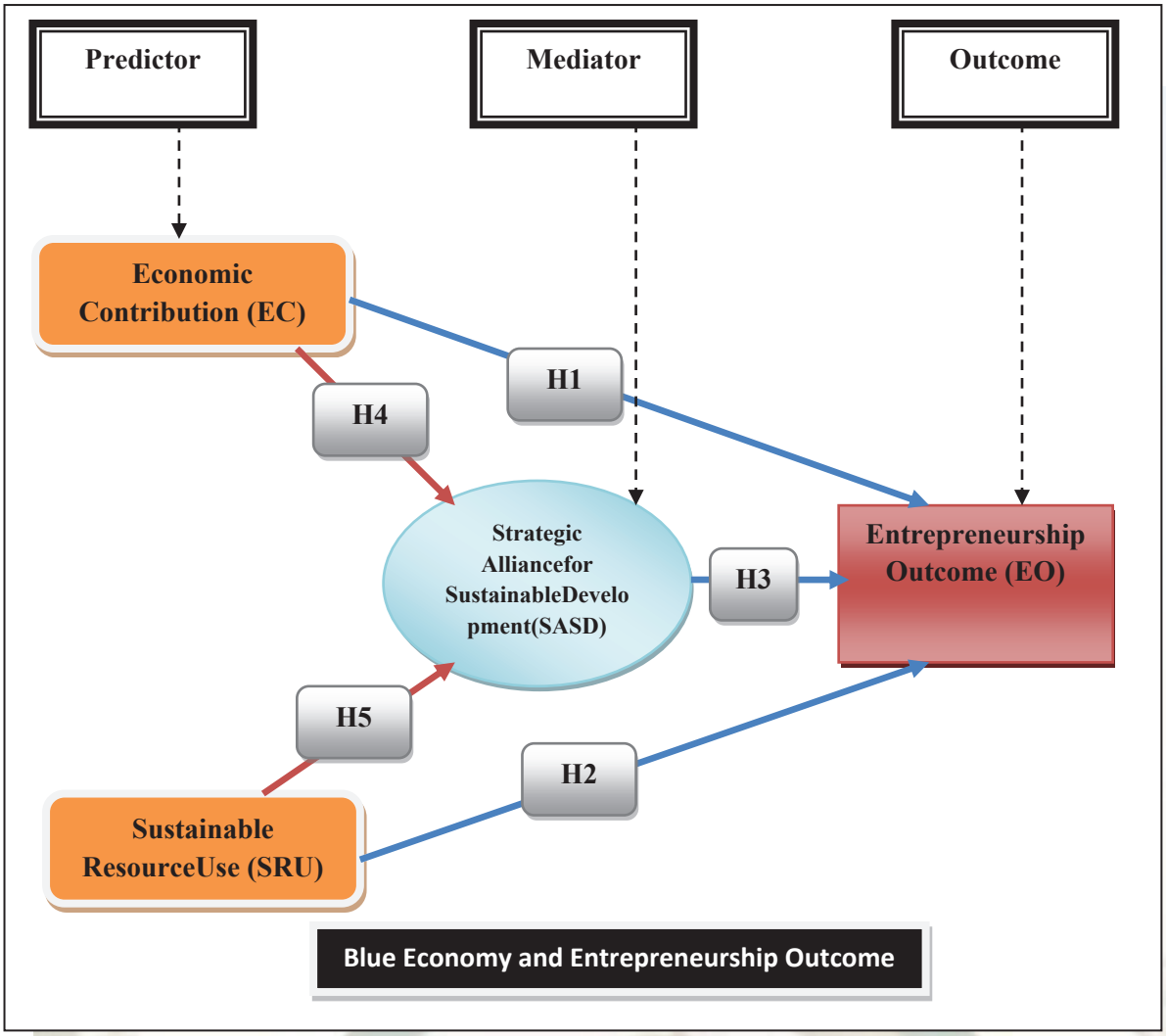
Sustainable resource use is the responsible management and utilization of natural resources in ways that meet current human needs without depleting or permanently damaging those resources, ensuring their availability for future generations. It involves practices like conservation, minimizing waste, protecting ecosystems, and promoting renewable resource use to maintain the ecological balance. Sustainable practices ensure that activities like fishing or resource extraction do not deplete fish stocks, coral reefs, or other marine biodiversity, securing their availability for future use. It provides the foundation for a thriving blue economy by balancing economic growth with environmental stewardship and social well-being (Qian et al., 2024).

2.4 Conceptual Framework

The diagram in figure 1 illustrates how the predictor variable (Blue economy and entrepreneurship outcome), mediator (SASD), and Outcome variables (EO) are connected by study's independent, dependent, and mediating variables are outlined in a conceptual. The predictor variables consist of factors like economic contribution (EC) and sustainable resource use (SRU) while the outcome variable is considered as a single integrated idea.

Figure 1

The conceptual framework of how the mediator influences the relationship between the dependent and independent variables.



(Source: Self-Made, 2025)

Figure 1; is the conceptual framework for this study. The independent variable is blue economy proxy by economic contribution, and sustainable resource use. The dependent variable is entrepreneurial outcome, while the mediating variable is strategic alliance for sustainable development where the blue economy is directly connected to strategic alliance for sustainable development and mediating variable linking up to the direction of entrepreneurship, indicating mediation relationship in the study.

2.5 Theoretical Framework

The study was grounded in the Resource-Based View (RBV) theory, initially developed by Jay Barney in 1991. However, its foundations were earlier established by scholars such as Edith Penrose (1959) and Birger Wernerfelt (1984) in their respective works. This theory is particularly suitable for the study as it effectively addresses and explains all the variables under investigation. The Resource-Based View (RBV) posits that a firm's competitive advantage and performance stem from its unique internal resources and capabilities. According to RBV, firms can achieve sustained competitive advantage if their resources are effectively managed and utilized within the firm. Although some scholars, such as Priem and Butler (2001), criticized the RBV for lacking a clear methodology to identify and measure valuable, rare, and inimitable resources making it difficult to test empirically and for focusing predominantly on internal resources while often overlooking external factors like market dynamics, industry conditions, and competition, the theory remains highly applicable to this study. In terms of economic contribution, the RBV emphasizes how firms can leverage unique resources and capabilities to boost productivity, drive innovation, and foster economic growth. Additionally, it advocates for investments in renewable and sustainable resources to achieve long-term advantages and provides insights into how startups and small businesses can compete with larger firms by capitalizing on distinctive, hard-to-replicate assets such as creativity, agility, and innovative processes.

2.6 Review of Empirical Studies

2.6.1 Economic contribution and entrepreneurship Outcomes

Hegde et al. (2022) examined economic contribution of the US catfish industry with data obtained from 68 farms (hatcheries and food-fish combined), four feed mills, and eight processing plants in the tristate region. The findings revealed that catfish industry spending created an indirect economic effect of $552 million in other secondary sectors that supplied production inputs and services. The induced economic effect generated from household spending amounted to $254 million. Some of the key sectors influenced by the catfish industry were grain farming, banking and financial institutions, truck transportation services, electricity generation, equipment, and machinery manufacturing. The industry also generated $78 million in local, state,

and federal taxes. Shamsuzzaman et al. (2020) investigated the economic contribution of fish and fish trade in Bangladesh with data obtained from the Ministry of Fisheries and Livestock (MoFL), Department of Fisheries (DOF), Bangladesh Bureau of Statistics (BBS). The results showed that fish production has increased in Bangladesh during the last two decades, starting from 17.81 lakh metric tons in 2000–01 and reaching up to 41.34 lakh metric tons in 2016–17. Due to the gradual decline in capture fishery, a significant percentage of total production comes from aquaculture. Bostock et al. (2016) conducted an assessment of the economic contribution of EU aquaculture production and the influence of policies for its sustainable development. The study result revealed that EU aquaculture production was 1.34 million tonnes in 2012 with a first sale value of €4.76 billion. Shellfish comprised 45 % by volume and 28 % by value; marine fish 30 % by volume and 53 % by value; and freshwater fish 25 % by volume and 19 % by value. The total production volume has actually fallen slightly from 1.4 million tonnes in 2000, whilst the value has increased significantly from 2.79 billion in 2000, mainly due to a growth in Atlantic salmon production.

2.6.2 Sustainable resource use and entrepreneurship

Domene et al. (2005) examined urbanization and sustainable resource use: The case of garden watering in the metropolitan region of Barcelona. The results indicate that, generally, higher income households prefer and can afford more water-consuming Atlantic gardens whereas lower income households have to resort to more climate-adapted species. These differences produce in turn different urban natures based on who can and who cannot afford water costs. The results suggest that policy instruments aimed at raising eco-efficiency on the micro level can be conducive to economic growth. To limit rebound effects on the macro level, these instruments must, however, be accompanied by other policies influencing the prices of energy and materials. With regard to global resource use trends, the baseline scenario forecasts a significant growth of resource extraction, particularly in developing countries, reflecting the growing demand for natural resources of emerging economies such as China and India. Wondirad and Ewnetu (2019) in their study accessed community participation in tourism development as a tool to foster sustainable land and resource use practices in a national park milieu The research findings unfold that in Dinsho, the extant community participation corresponds to non-participation continuum where citizens are simply deceived by pseudo and tokenistic participation which led to

inequitable benefit-sharing. Based on study findings, the researchers challenge that communities' engagement in tourism development highly relies on gatekeepers' nature and communities' economic background and argue that in a venue where economically weak community and manipulative gatekeepers exist, ensuring community participation is more challenging.

2.6.3 Strategic Alliance for Sustainable Development and entrepreneurship Outcomes

Wang et al. (2022) conducted researchon strategic alliances for sustainable development: An application of dea and grey theory models in the coal mining sector. The results show that the collaborations between Cao Son coal mine and CocSau coal mine; between Nui Beo coal mine and VangDanh coal mine brings the best improvement for sustainable development. The study suggests detailed strategies in action that enterprises and policymakers can refer to apply in practice. Wang et al. (2020) in their study strategic alliance for Vietnam domestic real estate companies using a hybrid approach combining GM with super SBM DEA. The experimental results show that only some of the scenarios are beneficial. Thus, prudence is a necessity when using strategic alliance.

3. METHODOLOGY

3.1 Research Design

The study adopted a cross-sectional design, which is descriptive in nature. This design was selected because it is well-suited for capturing the status of a phenomenon, relationship, or variable at a specific point in time. Additionally, it enables the researcher to efficiently access the target population and collect data required for the analysis.

3.2 Population

The target population of the study comprises some coastal community entrepreneurs that specialised in the aquatic fishing industry in the three Nigeria Delta regions "kwaibom", "Bayelsa", and "Rivers States". The decision to focus on coastal community entrepreneurs stems from their central role in blue economy activities such as fishing, aquaculture, marine tourism, and the sustainable use of marine resources. These entrepreneurs are directly involved in the key sectors that define the blue economy, making them an ideal focus for the study. However, the precise population size is unknown due to the Niger Delta region's vulnerability to

environmental challenges like flooding, erosion, and oil spills, which often result in displacement and fluctuating community populations. Consequently, the study treats the population as infinite.

3.3 Sample Size

The researcher obtained a sample size of 246 entrepreneurs' from the 3 coastal communities in Niger Delta for the study. Using the Cochran (1977) statistical formula, an adequate sample size from the study population is given below:

$$N=\frac{Z^2 * P * (1-P)}{e^2}$$

To calculate the sample size using Krejcie and Morgan's infinite formula with P=0.8P = 0.8P=0.8, here's how:

***Formula*:**

Where:

Z=1.96 (for 95% confidence level)

P=0.8P = 0.8P=0.8 (proportion of the population)

e=0.05e = 0.05e=0.05 (margin of error)

$$(0.05)2(1.96)2\cdot 0.8\cdot(1-0.8)$$

$$\frac{(1.96)^2\cdot 0.8 *(1-0.8)}{(0.05)2}$$

$$\frac{8416\cdot 0.16}{0.00253}$$

$$\frac{0.614656}{0.0025}$$

=245.86

=246

3.4 Sampling Technique

The study utilized purposive sampling techniques to effectively gather relevant data. These approaches enable us to select participants with specific characteristics relevant to the study's objectives, strike a balance between obtaining focused insights and addressing practical constraints, enabling efficient data collection while acknowledging potential limitations in generalizability.

3.5 Method of Data Collection

The study gathered primary sources of data using structured questionnaires distributed to entrepreneurs of some selected fishermen in coastal communities of the Niger Delta Region. To ensure relevance, a self-designed questionnaire was developed, focusing on key aspects such as economic contribution, sustainable resources use, entrepreneurial outcomes, and strategic alliance for sustainable development metrics specific to the fishing industries. The questionnaire was divided into two sections: Section A collected respondents' demographic details, while Section B focused on the research topic. Responses were measured using a five-point Likert scale.

3.6 Techniques of Data Analysis

The study analysed quantitative data using Smart PLS 4.00, while qualitative data was examined thematically to identify key patterns and insights. Descriptive statistics and Partial Least Squares Structural Equation Model (PLS – SEM) were applied to interpret the collected data. A cut-off mean was utilized to evaluate the research questions, and multiple regression analysis was conducted to determine the relationship between blue economy (BE) and entrepreneurship outcomes (EO).

3.7 Model Specification

Based on the dependent and independent variables, the independent variable Blue Economy (BE) is measured by Economic Contribution (EC) and Sustainable resource use (SRU). Dependent variable is Entrepreneurial Outcomes (EO) and Strategic Alliance for Sustainable Development (SASD) serves as a mediator. Hence, the model is expressed using the standard SEM below:

1. Direct effect model

$$\mathbf{EO = \beta_0 + \beta_1 EC + \beta_2 SRU + \mu t}$$

This is to test the direct influence of EC and SRU on EO

2. Mediation model

   $$\mathbf{SASD = \beta_0 + \beta_1 EC + \beta_2 SRU + \mu t}$$

   Here, SASD serves as a mediator between EC/SRU and EO

Where:

EO = Entrepreneurial Outcomes

EC = Economic Contribution

SRU = Sustainable resource use

SASD = Strategic Alliance for Sustainable Development

$\boldsymbol{\beta_1 - \beta_2 - \beta_3}$ = Coefficient

$\boldsymbol{\beta_0}$ = Intercept

$\boldsymbol{\mu t}$ = Error of Term

Therefore, SASD measurements act as a bridge between Blue Economy and Entrepreneurial outcome. In statistical jargon, an interaction occurs when the mediating variable influences the direction of the relationship between the dependent and independent variables. In regression analysis, a mediating effect is defined as the interaction between a targeted independent variable and another factor that determines the conditions in which it can be effective (Baron & Kenny, 1986). In this work, the SASD mediator was found by using interaction (product) terms in regression, such as BE and interaction term. SASD*BE was created by multiplying SASD and Blue Economy observations. According to the study, the statistics of the interaction term, such as the slope coefficient and p-value, are utilized to evaluate the mediating effect. The beta

coefficient "beta" indicates how much mediator is present in the interaction term, and the p-value allows researchers to generalize their findings.

4. RESULTS AND DISCUSSION

The structural model analysis, developed using Smart PLS 4, is presented below to summarize the findings and assess the study hypotheses, ranging from H0:1 to H0:5 the (PLS – SEM) algorithm was employed to analyze the magnitude of the path coefficients and the influence of independent variables on the dependent variables. Furthermore, the significance of these effects was evaluated using a bootstrapping approach with 5,000 resample's, following Hair et al. (2020). Consequently, the primary focus of Model 4.1 was to examine the direct effects of the independent variables on the dependent variable.

Table 4.1 Measurement Model Assessment

Table 4.1 ***Testing convergent validity and composite reliability***

	Cronbach's Alpha	Composite Reliability (rho-a)	Composite Reliability (rho-c)	Average Variance Extracted (AVE)
EC	0.894	0.896	0.919	**0.655**
SRU	0.872	0.877	0.904	**0.611**
EO	0.872	0.876	0.903	**0.609**
SASD	0.860	0.863	0.896	**0.588**

Note: ***BE, Entrepreneurial Outcomes: Economic Contribution, Sustainable Resource Use, and 3 Strategic Alliance for Sustainable Development.***

Evaluating the quality of the study's construct is highly dependent on the assessment of the measurement model. This process includes examining factor loadings, reliability, and validity of the study constructs, as presented in Table 4.1 and Figure 4.1.

Based on the study data in Table 4.1, the factor loading criterion of 0.40, as suggested by Tabachnick and Fidell (2019), is considered acceptable in Confirmatory Factor Analysis (CFA). However, Hair et al. (2020) recommend a threshold greater than 0.708, indicating that the constructs explain more than half of the variance in the indicators. This signifies an adequate level of item reliability. Cronbach's alpha is a measure of internal consistency reliability, with values typically ranging from 0 to 1. For all the constructs (EC, SRU, EO, SASD), the Cronbach's alpha values fall between 0.860 and 0.894. These values are considered acceptable,

as they exceed the commonly recommended threshold of 0.70, demonstrating strong internal consistency reliability. Composite Reliability (rho-a and rho-c) is another indicator of internal consistency reliability, measuring the degree of interrelation among items within a construct. As shown in Table 4.1, the composite reliability values (rho-a and rho-c) for all constructs range from 0.863 to 0.919. These values exceed the recommended 0.70 threshold, signifying strong internal consistency reliability. The Average Variance Extracted (AVE) which measures the variance captured by the construct relative to the variance due to measurement error. Higher values indicate greater convergent validity. The AVE values range from 0.588to 0.655for all constructs. While these values are slightly below the commonly recommended threshold of 0.70, they still indicate acceptable convergent validity

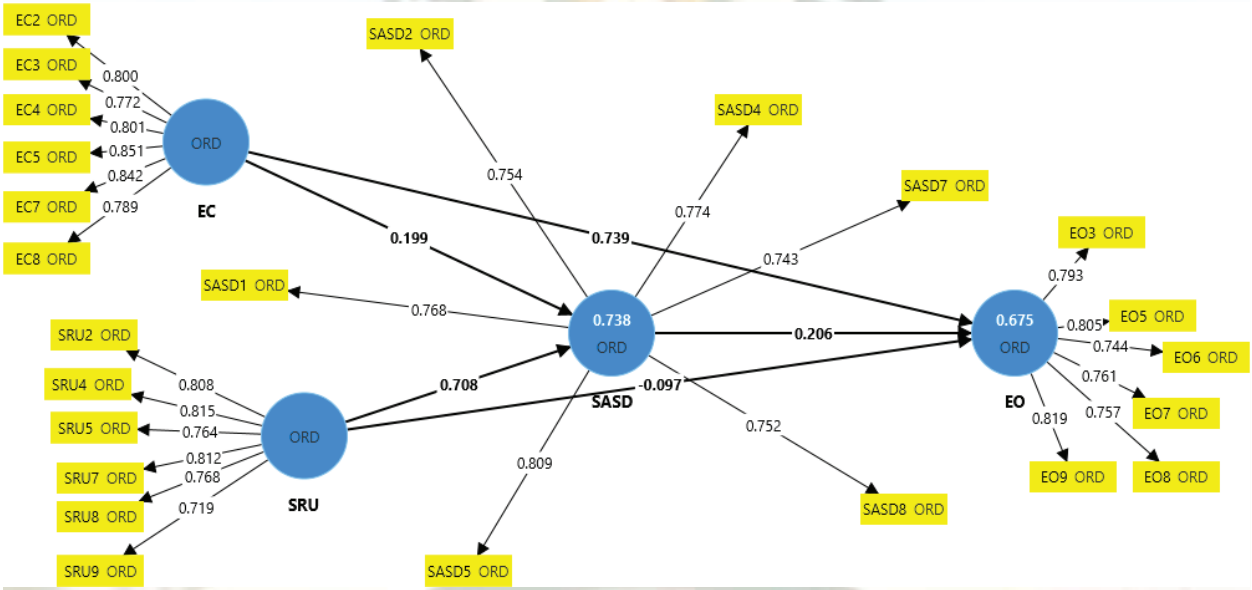


Figure 4.1 Measurement Model

4.2 Structural Assessment Model

After assessing the measurement model and analyzing the structural path, it is essential to evaluate the relationships among the study constructs and their statistical significance. The structural model is examined using key indicators, including coefficient of determination (R^2), predictive relevance (Q^2), path coefficient magnitude and significance, as well as effect sizes (f^2 and q^2),as outlined byHair et al. (2020).The study empirically investigates the impact of the direct association between the independent factors (EC and SRU) and the dependent variable

(Entrepreneurial Outcomes); also, the mediating effect of SASD is established on the link between the independent variables and the dependent variable

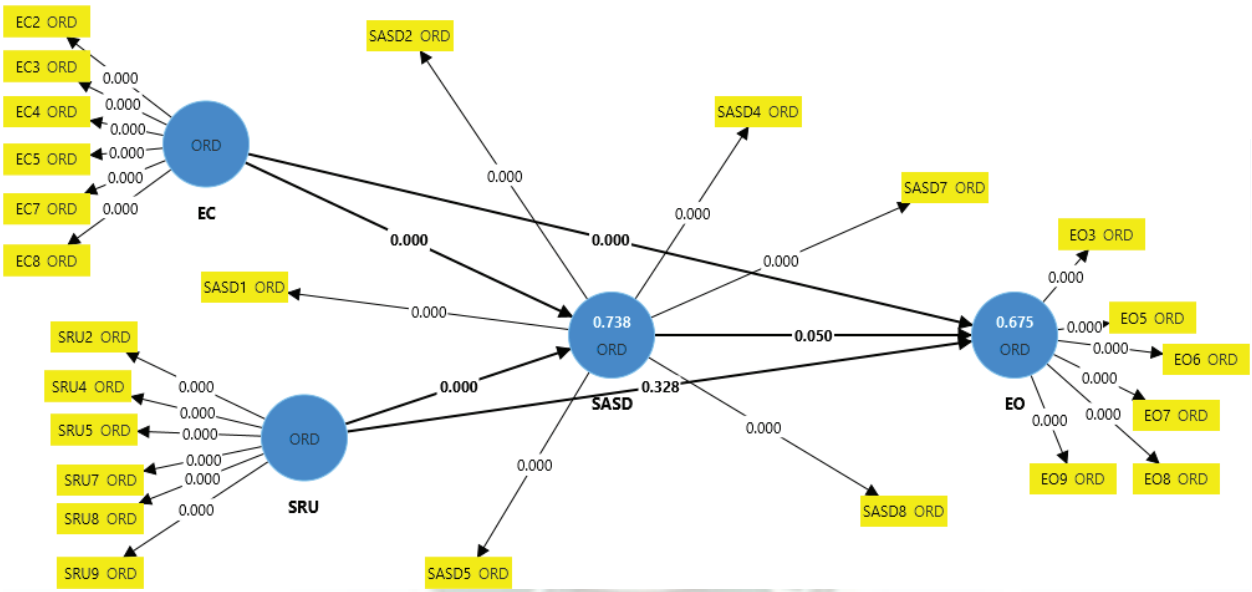


Figure 4.2 indicates the results of the structural model of the direct and indirect relationship of the dependent, mediating and independent variables.

4.2 Coefficient of Determination (R2)

	R-square	**R-square adjusted**
EO	**0.675**	**0.671**
SASD	**0.738**	**0.736**

4.3 Path coefficients, Mean, STDEV, T values, P value

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Remarks
EC -> EO	0.739	0.746	0.070	10.501	0.000	Rejected
EC -> SASD	0.199	0.200	0.049	4.049	0.000	Rejected
SASD -> EO	0.206	0.196	0.105	1.960	0.050	Rejected
SRU -> EO	-0.097	-0.092	0.099	0.978	0.328	Accepted
SRU -> SASD	0.708	0.709	0.050	14.038	0.000	Rejected

4.4 Discussion of the Findings

The findings of this study are mostly concerned with developed research questions in chapter one and also, the discussion of the findings is in line with previous researches results and underpinning theories that anchor this study.

Direct Relationship between Blue Economy Dimensions and Entrepreneurial Outcomes

Before conducting the study, the researcher assumed that economic contribution and sustainable resource use would not significantly impact entrepreneurial outcomes. It was also not expected that a strategic alliance for sustainable development would mediate the relationship between economic contribution, sustainable resource use, and entrepreneurial outcomes. However, data analysis revealed that some of these initial assumptions were incorrect.

4.4.1 Hypothesis 1

H_{01}: There is no significant relationship between economic contribution and entrepreneurial outcomes from some selected coastal communities in Niger Delta Area

The first hypothesis for the direct relationship H01, economic contribution (EC) has no relationship on entrepreneurial outcomes (EO). The results of the data analysis show that economic contribution has a strong positive and significant impact on entrepreneurial outcomes (EO) Based on the statistics ($\beta = 0.739$, $t = 10.501$, p-value = $0.000<0.05$) which is below the 0.05 threshold, indicating strong statistical significance between EC and EO. Hence, the hypothesis that EC significantly influence EO is accepted. The current study is considered consistent with previous research of Domene et al. (2005) who find out that economic contribution positively and significantly influence the entrepreneurial outcomes

4.4.2 Hypothesis 2

H_{02}: There is no significant relationship between sustainable resource use and entrepreneurial outcomes from some selected coastal communities in Niger Delta Area

The second hypothesis for the direct relationship H02, sustainable resource use (SRU) has no relationship on entrepreneurial outcomes (EO).The results of the data analysis shows week negative and insignificant relationship between SRU and EO. Based on the statistics ($\beta = -0.097$,

t = 0.978, p-value = 0.328 > 0.05), which is greater than the 0.05 threshold, I statistically indicating insignificant relationship between SRU and EO. Therefore, the hypothesis that SRU significantly influence EO is rejected. The current research is consistent with Wondirad and Ewnetu (2019) founding who revealed that sustainable resource use has no positive relationship with entrepreneurial outcomes in the area of tourism development.

4.4.3 Hypothesis 3

H03: There is no significant relationship between strategic alliance for sustainable development and entrepreneurial outcomes from some selected coastal communities in Niger Delta Area

The third hypothesis for the direct relationship H03, strategic alliance for sustainable development (SASD) has no relationship on entrepreneurial outcomes (EO).The result of the data analysis revealed that SASD and EO is marginally positive and significant, with a $\beta = 0.206$, t-statistic of 1.960 and a p-value exactly at 0.05. This suggests that while strategic alliances for sustainable development may contribute to entrepreneurial outcomes, the effect is relatively weak. Given that the p-value meets the significance threshold, the hypothesis that SASD influence EO is rejected with caution due to the lower effect size. The finding of this study is inconsistent with previous studies.

Indirect Relationship between Blue Economy Dimensions and Entrepreneurial Outcomes

Mediating effect of strategic alliance for sustainable development in the relationship between economic contribution, sustainable resource use and entrepreneurial outcomes from some selected coastal communities in Niger-Delta Area

This section discusses the mediating results of the study. There are two (2) hypotheses (HO4 and HO5 that were tested.

4.4.4 Hypothesis 4

H0:4 Strategic alliances for sustainable development do not significantly mediate between economic contributions and entrepreneurial outcomes from some selected coastal communities in Niger Delta Area.

The fourth hypothesis of this indirect study is to examine the mediating effect of SASD in the relationship between economic contributions (EC) and entrepreneurial outcomes (EO).Based on the data analysis, the result show that the mediating role between EC and EO is positive and statistically significant with a $\beta = 0.199$, p-value = $0.000 < 0.05$ and a t-statistics = 4.049 which is above the 1.96 threshold. This suggests that economic contributions facilitate strategic alliances for sustainable development and entrepreneurial outcomes. Thus, the hypothesis that EC significantly influence SASD is rejected. The finding of this study is inconsistent with previous studies.

4.4.5 Hypothesis 5

H0:5 Strategic alliances for sustainable development do not significantly mediate between Sustainable resource use and entrepreneurial outcomes from some selected coastal communities in Niger Delta Area.

The fifth hypothesis of the indirect study is to examine the mediating effect of SASD in the relationship between Sustainable resource use (SRU) and entrepreneurial outcomes (EO). Based on the data analysis, the result show that the mediating role between SRU and EO is strongly positive and statistically significant with path coefficient of 0.708, p-value = $0.000 < 0.05$ and a t-statistics = 14.038, which is above the 1.96 threshold. This suggests that sustainable resource use strongly drives the formation of strategic alliances for sustainable development. Therefore, the hypothesis that SRU significantly influence SASD is rejected. The finding of this study is inconsistent with previous studies.

This study concludes that the results indicate a positive impact of both EC and SASD on entrepreneurial outcomes, whereas SRU has a negative effect. These findings offer important insights into the potential of BE to enhance entrepreneurial outcomes in coastal communities within the region, carrying significant implications for policy and practice.

5. CONCLUSION AND RECOMMENDATIONS

Focusing on the mediating role of strategic alliance for sustainable development (SASD), the study examined the relationship of blue economy and entrepreneurial outcome among selected coastal communities in Niger Delta region of Nigeria. The study was grounded in the Resource-Based View (RBV) theory, cross sectional design was adopted and utilized Partial Least Square modelling to analyze data from 246 entrepreneurs engaged in eco-friendly fishing activities.

The study findings revealed that EC has (exerts) exerted a robust positive and statistically significant influence on EC, suggesting that entrepreneurs who utilized sustainable inputs through innovative investments, smart job creation experienced improved business performance. The study further revealed EC significantly influences SASD, demonstrating that economic strength fosters partnerships and collaborations that promote sustainability within the blue economy sector.

Similarly, Sustainable Resource Use(SRU) exhibited a negative yet insignificant direct relationship with EO, signifying that even though environmental sustainability is essential aspect that drives blue economy success, it does not directly translate into entrepreneurial success among coastal entrepreneurs. Nevertheless, SRU significantly influenced SASD, indicating that entrepreneurs who prioritize sustainable practices inclined in strategic collaborations. Moreover, SASD was found to have a slightly positive and considerable influence on EO, and it significantly mediatedthe relationships between EC and EO, in addition between SRU and EO.

Basically, the study concludes that strategic alliances play a significant role in linking blue economy activities to entrepreneurial successes. Thus, economic and environmental benefits can be maximized through effective collaboration and partnership among stakeholders, ensuring the sustainable development of coastal enterprises in Nigeria. The study further recommends:

i. Governments should foster collaborations between private investors, NGOs, and local businesses to boost investment in Blue Economy sector while financial institutions should develop special credit schemes for coastal entrepreneurs engaged in fisheries, aquaculture, and eco-tourism with a view to promoting local cooperatives and facilitating access to broader markets for coastal entrepreneurs.

ii. Governments should encourage local governance models where fisher-folk, policymakers, and conservationists collaborate to regulate marine resource use, while introducing sustainable fishing technologies, eco-friendly aquaculture, and marine renewable energy to reduce environmental degradation.

iii. There is need for the government to establish training centers and mentorship programs focusing on marine-based entrepreneurship, digital marketing, and financial literacy for capacity building & skills development whileoffering tax breaks, reduced, and simplified business registration for Blue Economy entrepreneurs.

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