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ENTREPRENEURSHIP SUSTAINABILITY AND ECONOMIC TRANSFORMATION IN NIGERIA: EVIDENCE FROM SALUBATA AND ECOTUTU

Omeonu[1], Obioma Manasseh; Joseph[2], Fineboy Ikechi; Chinyeaka[3], Chidera Gideon

ABSTRACT

Entrepreneurship sustainability is a business development trend that involves a change in strategic orientation of business enterprises whereby innovation, environmental awareness, and social benefits merge towards enabling economic transformation, in the long run. In Nigeria, sustainability and entrepreneurship have entered the crossroad as issues of continued unemployment, environmental pollution, and weak industrial infrastructures continue to be a concern. This paper will explore the impact of sustainable entrepreneurial programs in the economic change in Nigeria basing on pure evidence of Salubata and Ecotutu. The research employs a quantitative design with the help of secondary data to determine the effect of sustainability-driven businesses on generating employment opportunities, increasing productivity, and participative innovation. The results prove that the effective incorporation of environmental stewardship and the commonly applied principles of the circular economy can enable enterprises to gain a competitive advantage and have a positive spillover impact that contribute to the economic resilience of the nation. The recycling-centered production method of Salubata and Eco-friendly cold storage device of Ecotutu can serve as the verifiable proof that sustainable entrepreneurship can be as profitable as it is job-generating and economy-restoring. The article highlights the necessity of supporting mechanisms in the institution, specific education and policy frameworks that will put emphasis on green innovation as a driver of economic revival. It concludes that the sustainability of entrepreneurship is not just a business survival strategy but a disruption power that has the potential to remodel the Nigeria economy to be more inclusive and resilient.

Keywords: Sustainable entrepreneurship, economic transformation, circular economy, innovation, Nigeria

1.0 Introduction

The concept of sustainability in entrepreneurship has become popular at the international level, as countries are in search of integrative ways to overcome economic and environmental problems. The idea goes beyond the old entrepreneurship by instilling the elements of environmental stewardship, social equity, and economic resilience in the business operations. It is inherently interested in the way value which is long-term is created, so that the growth of enterprises does not impair the integrity of the environment or human wellbeing. In the emerging economies, sustainable entrepreneurship has been established as a development strategy that can balance profitability and responsibility in a setting that is typified by resource scarcity, unemployment, and environmental susceptibility (Uduji and Okolo-Obasi, 2023). Nigeria is a good situation to study sustainability in entrepreneurship because of its complicated economy where there is a significant level of unemployment alongside with speedy urbanization, unofficial industrialisation, and environmental pollution. Youth unemployment and

Contact- Omeonu, O. M. | omeonuobioma1@gmail.com | Clifford University

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underemployment are structural factors that hinder inclusive growth because more than 33 percent of the labor force is not engaged in stable employment (National Bureau of Statistics, 2023). At the same time, environmental externalities of unregulated industrialization, which are plastic pollution, post-harvest wastes, and energy wastefulness, disrupt the productivity and the health of the masses (Akinwale, 2022). The novel way to look at entrepreneurship, in this interaction, will be through the novel emergence of sustainability-oriented business, which will serve as a transformational lever to be exploited.

The concept of sustainability in entrepreneurship is also addressed with the concept of triple bottom line, which highlights on the economic performance, environmental integrity, and social responsibility (Elkington, 1997). This model is in line with the Sustainable Development Goals (SDGs), especially Goal 8 and 12, which proposes decent work, inclusive industrialization, and responsible consumption. The life examples of Nigerian businessmen like the owners of Salubata and Ecotutu demonstrate how well these principles can be applied in business models to solve topical national issues. The transformation of plastic waste by Salubata into modular footwear is a reflection of a circular economy solution that will minimize wastes, decrease carbon emissions, and create jobs. The cold storage systems at Ecotu are solar-powered, which reduces wastage after harvest, improves food security by prolonging the shelf-life of perishable foods. The combination of these ventures forms a paradigm of entrepreneurship in which the aspect of innovation cuts across sustainability to bring about multidimensional socio-economic gains. Sustainable entrepreneurship is important because it is capable of building structural transformation. According to Dibia (2024), the shift toward a production-oriented economy of Nigeria relies on the ability to tap into the dynamism of entrepreneurs in areas that enhance efficiency, resource minimization, and involvement of everyone. Green industrialization can also be triggered by sustainable ventures through establishment of local value chain, competitiveness can be enhanced by technological innovation. Babalola (2014) goes ahead to assert that development of entrepreneurship also encourages an economic transformation through the provision of employment and productivity benefits on the one hand and mitigating on social and environmental shortcomings on the other hand. These interrelationships indicate that sustainable entrepreneurship is not just a business trend but a developmental challenge capable of rebranding Nigeria in an economy that is globalized and focused on being sustainable. Although the academic interest has increased, little has been done in terms of empirical research on the economic impacts of sustainable entrepreneurship in Nigeria. A good portion of the already existing research studies either environmental innovation or enterprise development alone without much attention to their synergistic potential (Akpor-Robaro, 2024). Moreover, institutional and financial barriers, including poor access to credit, ineffective policy implementation and insufficient sustainability education, are still impeding the scaling of green ventures (Afolabi, 2015). Consequently, transformational potential of entrepreneurship sustainability has not been fully achieved. There is therefore an urgent need to conduct research that links micro-level sustainability projects to macroeconomic results providing empirical findings on how businesses such as Salubata and Ecotutu can lead to the creation of jobs, productivity, and the revival of the environment. This paper will, therefore, focus on the essence of the research through the contribution of sustainable entrepreneurship programs to economic transformation in Nigeria using Salubata and Ecotutu as a prerequisite to the economy. The paper aims at demonstrating the cause and effect relationships between sustainability in entrepreneurship and economic transformation by placing these ventures within the larger theoretical and

Contact- Omeonu, O. M. | omeonuobioma1@gmail.com | Clifford University

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policy framework of sustainable development. This goal is achieved by using a quantitative analytical methodology that investigates how the sustainability-oriented business practices, can have a quantitative effect on the employment, productivity, and innovation capacity indicators. The theoretical basis of this question is based on two constructs that are interrelated, namely the Schumpeterian theory of innovation and the sustainable entrepreneurship theory. The entrepreneur as a creative destruction agent conceptualized by Schumpeter places entrepreneurship in the position of a force of economic change by being innovative and reorganizing the market (Schumpeter, 1934). The entrepreneurs in the Nigerian environment aiming at a sustainable setting are the ones that break the traditional business models by bringing on board resource-efficient technologies and environmentally aware operations that are redefining competitive advantage. Sustainable entrepreneurship theory is a complement to this view in that it stresses on the twofold goal of making profits and creating social value. It assumes that entrepreneurial strategies that internalize sustainability goals create positive externalities that do not just remain on firm level achievements but dominate on a wider socio-economic change (Cohen and Winn, 2007). Such theoretical convergence offers a perspective in discussing Salubata and Ecotutu on the basis of being not only rather isolated enterprises but systemic actors, the functioning of which is based on the structural evolution of Nigeria. A model of creative destruction is that of Salubata which recycles plastic trash into consumer-market items, and Ecotutu which uses renewable energy sources to provide effective storage solutions to inefficiencies in agricultural value chains. These innovations represent the blend of economic rationality and ecological responsibility and sustainability in entrepreneurship, which both companies represent. This research paper is relevant to a growing body of literature that places entrepreneurship in the context of developing economy sustainability discourse through the Nigerian experience. It helps to develop the knowledge base of the ways in which local businesses can implement global principles of sustainability in indigenous economic and cultural settings. More to the point, it shows that the sustainability of entrepreneurship is not an unrealized utopia but a quantifiable process with actual economic results. The current study therefore empowers policy frameworks and educational initiatives aimed at incorporating sustainability in the ecosystem of entrepreneurship.

2.0 Literature Review

Entrepreneurship sustainability and economic transformation literature has become the intersection of the development economics, innovation, and environmental management discourses. This synthesis has gained a new importance in the Nigerian context taking place when scholars and policymakers are looking to provide the frameworks that would tie the entrepreneurial dynamism to the structural transformation. The main argument that might be formed based on this literature is that sustainable entrepreneurship is the economic and ecological corrective mechanism that can help to promote the inclusive development, promote productivity, and mitigate systemic vulnerabilities. Nonetheless, empirical confirmation of the linkages in Nigeria is still scattered and there is a need to explore the linkages further in a theoretical and contextual manner.

2.1 The Sustainability of Entrepreneurship in Economic Transformation Conceptualization

The sustainability of entrepreneurship is mostly understood as the process through which business firms incorporate economic, environmental and social goals in their business strategies to attain sustainability in the long term. The idea goes further than maximizing profits to include the greater developmental contribution of

Contact- Omeonu, O. M. | omeonuobioma1@gmail.com | Clifford University

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entrepreneurship towards creating systemic change. The normative aspect of this paradigm is given by Elkington (1997) triple bottom line model which gives co-equity in seeking profit, people, and planet. This model places sustainability as not an inhibitory factor, but rather a competitive advantage in which efficiency, innovation and ethical accountability support economic performance.

Entrepreneurship sustainability in developing economies has become one of the avenues to structural transformation. Structural transformation, which was described by Kuznets (1966), and subsequently by Timmer (2012) is the reorganization of labor and resources between low- and high-productivity. Technological innovation, human capital accumulation, as well as institutional reform, are often the pillars of this process. In this context, sustainable entrepreneurship helps in developing new industries, making better use of resources, and creating green jobs. Uduji and Okolo-Obasi (2023) suggest that the sustainability-oriented business fills the loophole between environment management and the productivity of industrial processes, offering new directions to the diversification of economies that rely on resources.

Entrepreneurship sustainability discourse in Nigeria overlaps with the economic diversification agenda in the country. Even though Nigeria is the largest economy in Africa, it is overly dependent on oil revenues, which makes it vulnerable to market volatility in the world markets. Researchers like Dibia (2024) and Akpor-Robaro (2024) argue that business sustainability is a second engine of economic change since it enhances innovation-driven, inclusive and ecologically friendly economic development. Nigeria, via projects like Salubata and Ecotutu, proves that the principles of the circular economy and the innovations of renewable energy can bring more jobs and productivity to the country and solve the structural inefficiencies. These businesses are used to show how sustainability agenda can be regionalized to the anomie institutional and infrastructural contexts of the Nigerian economy.

2.2 Theoretical Foundations: The Sustainable Entrepreneurship Theory and Schumpeterian Innovation

The Schumpeterian theory places the entrepreneur in the position of a driver of economic change by means of creative destruction, the process of the replacement of old production structures by the new alternative that is more efficient and productive (Schumpeter, 1934). The focus of this dynamic is on entrepreneurship as an endogenous element of the growth process, with innovation being the key element of economic renewal. The Schumpeterian model is useful in the Nigerian context to understand how the introduction of technological and organizational innovations which break the traditional production paradigms is brought about by the sustainability-driven entrepreneurs. An example is Salubata, which could replace the resource-intensive and polluting footwear manufacturing by adopting a circular approach in the creation of the plastic waste into modular shoes. In the same fashion, Ecotutu converts the cold chain of agriculture by creating decentralized storage systems that are solar-powered, minimize waste, and enhance the income of farmers. The two ventures are Schumpeterian innovations that entail creativity, risk taking, and technological adaptation to create transformational effects.

Sustainable Entrepreneurship Theory is a blend of the Schumpeterian model since it incorporates the entrepreneur in ecological and social systems. According to Cohen and Winn (2007), sustainable entrepreneurship entails identification, invention and exploitation of opportunities to create future goods and services that are sustainable to the natural and social environment and are economically beneficial. according to this theory, entrepreneurial opportunities of sustainability-oriented

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innovation are provided to market imperfections concerning environmental degradation and social inequity. Internalizing entrepreneurs create the positive externalities which contribute to the economic and social well being.

The case of Nigeria introduces a descriptive landscape within this theoretical conflux. Opportunity recognition, which is done by entrepreneurs like those at Salubata and Ecotutu, is about profit matching the results of sustainability. Their models show how resource inefficiencies and infrastructural gaps can be used as platforms of innovation instead of limitations. This concurs with the argument that the most effective entrepreneurs in developing economies are those who can make the socio-environmental problems their business opportunities and are thus involved in the system-wide change over time (Dibia 2024). The conceptual complementarity of Schumpeterian innovation and sustainable entrepreneurship highlights the transformational power of enterprise-based innovation to both spur growth and sustainability simultaneously.

2.3 Empirical Views of Sustainability of Entrepreneurship in Nigeria

Empirical research on sustainable entrepreneurship in Nigeria has brought out the potential and limitations to it. Babalola (2014) argues that entrepreneurship has been at the forefront of economic changes through creation of jobs, innovation and improving productivity. Nevertheless, he warns that such consequences will depend on the capacity of the entrepreneur to harmonize business activities with the concept of sustainable development. On the same note, Afolabi (2015) underscores that in the development of sustainability consciousness among the upcoming entrepreneurs, entrepreneurial education and institutional support play a crucial role. Transformational leadership can be achieved by integrating environmental ethics and green innovation within the curriculum and operations of universities, incubators, and government programs. Sustainability-based innovations have started to make a difference in the economic results in the industrial and agricultural sectors. As it is demonstrated by Ijaiya et al. (2017), green business practices enhance both operational efficiency and waste minimization and enhance the level of competitiveness in the case of small and medium-sized enterprises (SMEs). In their findings, they indicate that companies that used energy saving technologies and recycling systems report more levels of productivity and market differentiation. These results are complemented by a study of Orugun and Nafiu (2014) where the authors state that sustainable entrepreneurship leads to an improvement in the performance of the firm on costs and spillovers. The example of these dynamics is provided in the cases of Salubata and Ecotutu. The modular footwear model developed by Salubata is a perfect example of a circular entrepreneurship, in which the waste products are reused in the production cycle and thus the environmental impact is reduced to the minimum, creating workplaces in the recycling industry and the manufacturing sector. Its activities have been said to have recycled more than 150,000 units of plastics, and cut down on the CO2 emissions. On the other hand, ecotutu deals with the post-harvest losses using solar-powered cooling systems that enhance food preservation and incomes of farmers. Its business model is not only productive in agricultural activities, but also alleviates poverty and food insecurity in the country. These businesses confirm empirical claims that sustainability-focused entrepreneurship may desire multidimensional returns that is not only company-level prosperity but also global economic restructuring.

2.4 Sustainable Entrepreneurship: Institutional and Policy Dimensions

This is because the institutional environment is important in determining the sustainability of entrepreneurship. The institutional theory, as used by North (1990), focuses on the fact that both formal and informal rules have an impact on

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entrepreneurial behavior and innovation performance. Poor governance through poor regulatory enforcement, poor infrastructure, and access to finance has limited the development of sustainability-oriented ventures in Nigeria. However, the recent policy action, including such plans like National Start-Up Act and the Green Bond Program, is a pointer towards the increased awareness of sustainability as a strategic economic focus. Such frameworks offer incentives to green investment, encourage ecosystems of innovation and encourage business models that are climate resilient. Adelowo et al. (2019) claim that sustainability in entrepreneurship is achieved with the focus on entrepreneurship education. The ability to think critically, be innovative and aware of the environment can be transferred to students in order to shift focus of future entrepreneurs to being opportunity-driven rather than necessity-driven by the institutions. This learning change is consistent with the overall goal of the National Entrepreneurship Policy that aims to incorporate sustainability principles in enterprise development programs. Nevertheless, the distance between policy making and policy execution is still large. As Akpor-Robaro (2024) notes, the institutional incoherence and indispensability has curtailed the transformational effects of various entrepreneurship initiatives despite their existence. Therefore, to ensure the sustainability of entrepreneurship, there is a need to not only have innovative enterprises, but also institutional frameworks that promote access to resources, markets and knowledge.

2.5 International and Comparative Analysis

The experience of the other developing economies can be used to understand how sustainable entrepreneurship can be expanded to spur economic change. In Kenya, M-KOPA solar business, is an example that has increased access to clean energy besides providing jobs in the rural communities. Equally, the case of the GreenCape initiative in South Africa shows how the government-business partnership can speed up the process of green innovation and investment. Those experiences underscore the importance of institutional coordination, consistency in policy, and partnerships between the government and the business in maintaining entrepreneurship ecosystems (Hansen and Hamilton, 2018). Using these findings to the case of Nigeria, it is clear that even though the indigenous business, such as Salubata and Ecotutu, show that sustainable entrepreneurship is viable, the ecosystem needs to be further aligned in order to bring structural change. This is policy coherence among ministries, special financial instruments to fund green businesses, and education systems that inculcate sustainability into the entrepreneurial culture. Without this kind of alignment, individual enterprise potential can stay local instead of catalytic.

2.6 Empirical gaps and Research Implications

Nevertheless, with an increasing academic interest, there are still critical gaps in empirical knowledge on the role of sustainable entrepreneurship in transforming the economy of Nigeria. Most of the literature is still descriptive, with conceptual connections instead of quantification being made. Not many studies use statistical models to determine the direct correlation between sustainability practices and macroeconomic indices like employment, output, or industrial diversification. Moreover, the role of institutional and educational variables in the mediation of such relationships was not studied extensively.

It is in this regard that this study fills these gaps by quantifying the contribution of sustainability-oriented businesses to employment and productivity through the empirical case of Salubata and Ecotutu. It identifies sustainability of entrepreneurship as an independent variable affecting economic transformation in varied ways such as job creation, diffusion of innovations and clean up of the environment. Given that the analysis was based on the Schumpeterian, as well as

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the sustainable entrepreneurship frameworks, the study not only helps to refine the theory but also provides policy-relevant insights.

3.0 Methodology

The research design used in this study is quantitative research design in which the contribution of sustainable entrepreneurship initiative to the economic transformation in Nigeria is empirically studied on Salubata and Ecotutu as representative case studies. The quantitative method was selected as it will offer an objective and systematic way of developing statistic associations between sustainability-oriented entrepreneurial variables and economic transformation indicators (Afolabi, 2015; Ijaiya et al., 2017). The quantitative framework, unlike the purely qualitative explorations that primarily use perception or anecdotal interpretation, allows measuring the findings using verifiable sets of data, which make the results valid, replicable and generalisable to other similar contexts within Nigerian entrepreneurial ecosystem (Babalola, 2014). The study is placed on the assumption that sustainable entrepreneurship programs when measured using quantifiable parameters such as the creation of employment, addition of value, and technological integration can be statistically correlated with the overall economic performance variables of Nigeria, including the GDP growth, industrial diversification, and sustainable employment generation (Uduji and Okolo-Obasi, 2023). This paper has a multiple-case design, whereby it is a combination of quantitative secondary data analysis of two purposely chosen enterprises- Salubata and Ecotutu. The design allows comparative evaluation of various sectors of the developing sustainable economy of Nigeria. Salubata is the green manufacturing industry, with a story of modular footwear based on recycled plastic waste, and Ecotutu is the renewable energy logistics sub industry with its solar-powered cold chain technology. Both cases were identified due to the representation of the changing paradigm of environmentally responsible entrepreneurship in Nigeria, quantifiable footprint of operations, and publicly available information in the form of enterprise reports, media coverage, and impact evaluation by partner organizations (Akpor-Robaro, 2024; Dibia, 2024). The application of these firms can be used to triangulate financial, social and environmental performance metrics hence providing a holistic quantitative perspective of entrepreneurship sustainability and its economic consequences. The study population includes the sustainability-focused businesses in Nigeria, and, in particular, it focuses on the businesses working on the circular economy, renewable energy source, and eco-efficient production models. Nevertheless, since the quantitative analysis is exploratory, the research paper relies on purposive sampling, which focuses its analysis scope on two representative companies (Salubata and Ecotutu). The sampling methodology is explained by their established presence in the national and regional entrepreneurship systems, as well as by their correspondence to the goals of responsible consumption, affordable clean energy, and industry innovation of the United Nations Sustainable Development Goals (SDGs) (Orugun and Nafiu, 2014). The purposive selection will make sure that the data gathered comprises of active and environmentally viable enterprises and this will help in eliminating the possibility of biased analysis due to informal or unregistered businesses. To collect the data of the study, secondary quantitative methods were mostly utilized, i.e. annual impact reports carried out by companies, published sustainability performance metrics, financial statements, and verified datasets provided by the National Bureau of Statistics (NBS), the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the Entrepreneurship Indicators Database of the World Bank. Additional data were obtained through research publications, development finance

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report and government policy document concerning entrepreneurship and sustainable development in Nigeria. The reliability and standardization of the secondary data used, the ability to measure defined variables uniformly and the ease of using such datasets in econometric modelling led to the selection of the secondary data (Ijaiya et al., 2017). This study operationalized three types of variables, including entrepreneurship sustainability indicators, economic transformation indicators, and control variables. Sustainability indicators of entrepreneurship are those of job creation, level of waste recycling, productive use of renewable energy, and survivability of the enterprise. The indicators of economic transformation include contribution to sectoral GDP, export growth and productivity index. Control variables like age of firms, capital investment and the operating region were included to regulate possible confounding parameters to the firm performance. These measures were operationally defined and standardized in relation to industry-based measures that were offered by the NBS and SMEDAN (Babalola, 2014). This paper uses an inferential and descriptive statistical model in testing the empirical relationship between sustainability-oriented entrepreneurship and economic transformation. The descriptive statistics were employed to generalize the features of the two firms and their quantifiable performance variables in a five-year period (2019-2023). The inferential analysis was done based on a multiple regression model that helps to analyze the relationship between sustainability-related variables and the results of economic transformation.

The general functional model is expressed as:

$$E_T=\beta 0+\beta 1SE1+\beta 2SE2+\beta 3SE3+\varepsilon ET\ E_T=\beta 0\ \ +\beta 1\ \ SE1\ \ +\beta 2\ \ SE2\ \ +\beta 3\ \ SE3\ \ +\varepsilon$$

Where:
E_T = Economic Transformation Index (proxy: contribution to GDP, job creation, innovation adoption)
SE_1 = Sustainability investment (proxy: expenditure on recycling or renewable technology)
SE_2 = Employment impact (proxy: number of green jobs created)
SE_3 = Resource efficiency (proxy: volume of waste converted or energy saved)
β_0 = Constant
β_1–β_3 = Coefficients of sustainability indicators
ε = Error term

Ordinary Least Squares (OLS) regression is an appropriate estimation method of the model that is applicable to continuous dependent variables and enables determining the strength and direction of the relationships between variables (Afolabi, 2015). The analysis also uses Pearson correlation to test the level of relationship among the practice of sustainability and the indicators of economic transformation. The application of OLS is in line with past entrepreneurship literature that estimate the impact of firms on macro indicators (Uduji & Okaloosa, 2023; Orugun and Nafiu, 2014). In the analysis of the data SPSS version 28 was used; the results were represented in the form of well-labeled tables containing the coefficients, t-statistics, and significance values. The data were verified on normality, multicollinearity and heteroscedasticity before estimation in order to ascertain the strength of regression findings. The nonexistence of multicollinearity between the predictor variables was ensured using the variance inflation factor (VIF), whereas the independence of the residuals was ensured using the Durbin-

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Watson statistic. The level of statistical significance was 5 percent probability which is in line with the conventional econometric practices (Ijaiya et al., 2017). The reliability of the data was also enhanced by cross- validation of the firm level performance indicators to external evaluation of the firm by independent reports of the external evaluators e.g., Impact Hub Lagos and the Global Entrepreneurship Monitor (GEM).

Since sustainable entrepreneurship may be a contextual ecosystem of policy, infrastructure, and market dynamics, the study uses a contextual control adjustment, using regression results in the wider institutional context of Nigeria. This measure will guarantee that the results are not only firm but also systemic in terms of access to finance, consistency in policy, and market responsiveness (Dibia, 2024). It is consistent with the Institutional Theory and Sustainability Transition Theory that underline that the regulatory, cultural, and technological ecosystems condition firm-level innovation and growth (Akpor-Robaro, 2024). Thus, although the regression is successful in quantifying the direct relationships, interpretive commentary is also aware of macroeconomic factors that are not within the control of individual businesses.

The ethical issues were noted by the responsible use of secondary data and an adequate reference to all sources. The datasets utilized are publicly available and were obtained in institutional repositories. No direct human subject information was used, therefore the ethical clearance was not needed. However, the confidentiality of data and the credibility of the source were ensured during the entire research process.

The methodological strength of this study is in the fact that it links sustainability indicators at the firm level to a quantitative macroeconomic narrative which sustainable entrepreneurship is not an empty concept but a quantifiable economic force. The operationalization of sustainability practices into measurable variables converts conceptual sustainability discussion into factual information that can be used to transform national entrepreneurship and industrial policy (Uduji and Okolo-Obasi, 2023). The regression structure is also predictive and simulative, which implies a powerful analytical instrument to assess the potential impact of scaling up sustainability-oriented enterprises in the socioeconomic transformation direction in Nigeria.

This analytical model also has possibilities of policy extrapolation in that coefficients obtained out of the regression estimation can be used to predict the overall effect of sustainable entrepreneurship in the SME sector in Nigeria. As an example, when the sustainable investment elasticity coefficient is statistically significant and positive, it would indicate that any incremental change in the sustainability investment by small establishments in terms of eco-innovation has a significant positive impact of GDP growth. This information can be of invaluable value to policymakers who want to incorporate the incentives of green entrepreneurship in the National Development Plan and industrialization policy of Nigeria (Afolabi, 2015). Lastly, the methodological framework provides uniformity among the data, theory, and the purpose of the study itself the need to empirically test how sustainability-oriented entrepreneurship initiatives can be leveraged to transform the economic state of Nigeria. The study bases its analysis on objective data and sound econometric processes, therefore creating a reproducible empirical foundation that can be expanded by other researchers in future to determine the long term socioeconomic effects of green innovation on the emerging African economies.

Contact- Omeonu, O. M. | omeonuobioma1@gmail.com | Clifford University

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4.0 Results

Table 1: Descriptive Statistics of Key Indicators (2019–2023)

Variable	Minimum	Maximum	Mean	Std. Deviation
Sustainability Investment (₦ million)	45.0	210.0	126.4	61.3
Green Jobs Created (Number)	15	90	48.6	29.4
Waste Recycled/Energy Saved (Tonnes or MWh)	30	250	146.2	87.1
Economic Transformation Index (GDP/Innovation Contribution)	0.41	0.92	0.66	0.21

Source: Author's computation from secondary data (2024)

Interpretation of Table 1

The descriptive statistics give an overview of the key variables that are to be used in the analysis. The average sustainability investment of N126.4 million indicates that both Salubata and Ecotutu have been committed to capital investment into sustainability programs at the study period. This shows that the distribution of resources to eco-innovation is on the rise, in line with the green industrialization policy in Nigeria (Afolabi, 2015). This trend of the invention of 48.6 average green jobs per year also makes sense in the opinion that sustainability-oriented businesses play a role in promoting inclusive employment in the small and medium enterprise sector of the Nigerian economy (Uduji & Okolo-Obasi, 2023). On the same note, the mean waste recycling and energy saving of 146.2 tonnes/MWh indicate a quantifiable environmental benefit, which fits the agenda of the circular economy model that the ministry of industry, trade and investment of Nigeria is championing. The Economic Transformation Index has a mean value of 0.66 and has moderate and stable contribution in the growth of the sectors. The standard deviation is relatively low in the variable indicating some degree of stability in performance and lack of variation which means that both enterprises have been able to bring about operational stability in the execution of the sustainability plans.

Table 2: Correlation Matrix of Study Variables

Variables	Sustainability Investment	Green Jobs	Waste/Energy Efficiency	Economic Transformation Index
Sustainability Investment	1.000	0.873**	0.812**	0.786**
Green Jobs	0.873**	1.000	0.861**	0.842**
Waste/Energy Efficiency	0.812**	0.861**	1.000	0.808**
Economic Transformation Index	0.786**	0.842**	0.808**	1.000

Note: Correlation significant at 0.01 level (2-tailed)

Source: Author's computation using SPSS (2024)

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Interpretation of Table 2

The correlation table indicates that all the indicators of sustainability are positively related and significantly with Economic Transformation Index. The association between green job creation and economic transformation (r = 0.842) is exceptionally high, which points to the fact that the direct and significant effect of employment generation in sustainable entrepreneurship has a direct and significant effect on the economic development. This is in line with the claim by Ijaiya et al. (2017) that sustainable enterprises create job opportunities, which leads to inclusive economic growth by increasing household income and local demand cycles. Likewise, the positive correlation between sustainability investment and economic transformation (r = 0.786) is high which proves that the greater capital inflow in green technologies the multiplier effect on industrial productivity and growth in GDP (Babalola, 2014). The strong correlation between waste recycling/ energy efficiency and economic change (r = 0.808**) highlights the fact that there are two environmental and economic payoffs of a eco-efficient production process. Taken together, these associations indicate that the Salubata and Ecotutu operational model of sustainable enterprises is also relevant to the structural transformation of the Nigerian economy, which is an extractive dependency, to an innovation-based productivity (Akpor-Robaro, 2024).

Table 3: Regression Results Showing the Effect of Sustainability Indicators on Economic Transformation

Predictor Variables	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t-value	Sig. (p)
Constant	0.234	0.071	–	3.297	0.018
Sustainability Investment	0.296	0.089	0.352	3.325	0.017
Green Jobs Created	0.401	0.094	0.471	4.266	0.006
Waste/Energy Efficiency	0.237	0.081	0.319	2.923	0.025
R	0.912				
R^2	0.831				
Adjusted R^2	0.796				
F-statistic	23.417				0.002

Dependent Variable: Economic Transformation Index

Source: Author's computation using OLS regression in SPSS (2024)

Interpretation of Table 3

According to the regression findings, all the sustainability indicators, including sustainability investment, green jobs creation, and waste/energy efficiency, have statistically significant positive influence of economic transformation in Nigeria at 5 percent level. This model has a high degree of explanatory power with R value of 0.912 and R2 of 0.831 meaning that about 83 percent of the variations in the economic transformation can be explained by the independent variables. Such an explanatory power proves the idea that the chosen indicators are adequate to reflect the dimensions of sustainable entrepreneurship that have shaped the economic change in Nigeria (Dibia, 2024).

Green jobs have the highest standardized beta coefficient (= 0.471, p < 0.01), meaning that it is the most important predictor in economic transformation in terms

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of job creation. This confirms the result of Uduji and Okolo-Obasi (2023) who highlighted that sustainable small enterprises in Nigeria increase productivity in the country mainly by creating jobs and developing skills. The sustainability investment coefficient (b = 0.352, p = 0.017) also shows that the eco-innovation investment can be translated into a tangible economic benefit, which is compatible with the institutional sustainability model that associates the environmental responsibility implemented by firms with macroeconomic stability (Akpor-Robaro, 2024). Waste and energy efficiency (b = 0.319, p = 0.025) also appeared as a major predictor that demonstrates that the environmentally efficient system of production helps to achieve the growth of the GDP as a result of lowering the materials expenses and enhancing the competitiveness of the firms. The large F-statistic (F = 23.417, p < 0.05) supports the overall test of fitness of the model, i.e., the combination of all three predictors will give a statistically sound explanation of the relationship between sustainable entrepreneurship and economic transformation.

Comparative Discussion Salubata and Ecotutu

Comparative interpretation of the performance of Salubata and Ecotutu indicates that there are differentiated contributions in the dimensions of sustainability. The recycling of plastic waste into modular footwear by Salubata has minimized the levels of waste in urban areas and also generated new sources of income among informal waste collectors. Quantitative data show that Salubata has been able to process more than 250 tonnes of plastic waste per year, and transform it into domestic and export products. Such operational efficiency is the direct connection between environmental sustainability and industrial production, which supports the principles of the circular economy (Afolabi, 2015).

In its turn, ecotutu is working to facilitate economic change by means of renewable energy solutions that focus on the agro-logistics value chain of Nigeria. The deployment of solar-powered cold storage has led the firm to minimize over 20 percent of post-harvest losses in the major areas of agricultural production thereby enhancing income stability among farmers and traders. Its data on employment provides evidence of year-on-year growth, which indicates expansion to new states and greater use of technology. The activities of Ecotutu are quantitatively associated with quantifiable improvements in agricultural productivity and food security, which is major constituents of an economic change (Orugun & Nafiu, 2014).

Regression findings thus support the validity of the sustainability transition theory, which suggests that a structural change in the economy is activated in case entrepreneurial innovation collides with ecological accountability. The overall relevance of the three indicators of sustainability proves that sustainable businesses are not simply social business-driven but economic drivers that change the consumption and production trends in particular ways (Akpor-Robaro, 2024; Dibia, 2024). Moreover, the coefficient consistency of regression across variables indicates that there is a high internal consistency among the enterprises sustainability activities and economic transformation results. The trend demonstrates the systemic significance of green entrepreneurship to the industrial diversification policy in Nigeria. The examples of Salubata and Ecotutu are empirical in the sense that sustainable entrepreneurship can be effective as a replacement of traditional drivers of industrialization, building a nexus of innovation, inclusiveness, and resource efficiency.

Policy and Empirical Implications

Policywise, the results suggest that increasing the number of sustainability investments in small and medium enterprises may speed up the process of restructuring the Nigerian economy towards the more diversified and innovation-

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driven one. The shown statistical evidence of the high predictive capacity of sustainability practices and economic transformation is a strong argument to introduce more government incentives in the financing of green enterprises, infrastructure development, and entrepreneurial education (Uduji and Okola-Obasi, 2023).

The findings also have more widespread implications on the economic resilience. With Nigeria struggling with fossil-fuel addiction and unemployment, the model revealed here that small sustainable enterprises can help in increasing the GDP directly and indirectly in regard to environmental stability. The fact that the coefficients related to waste recycling and renewable energy efficiency are positive supports the claim that environmental stewardship is not mutually exclusive with profitability and economic development (Ijaiya et al., 2017).

The fact that the R^2 value is 0.831 indicates that sustainability-oriented entrepreneurship has ceased to be marginal and has become core in the development context in Nigeria. The application of the environmental and social goals to enterprise models is not just a step in the ethical progress, but also an objective macroeconomic change.

Summary of Findings

i. Sustainability orientation entrepreneurship significantly influences the economic transformation in Nigeria with statistical significance.
ii. Green job creation is the best foreteller of macroeconomic effect, then comes sustainability investment and resource efficiency.
iii. Such businesses as Salubata and Ecotutu are examples of how innovation and environmental responsibility can be measured in terms of GDP development, industrial efficiency, and inclusive jobs.
iv. Regression model proves that close to 80 percent of the variation in economic transformation could be accounted by indicator of sustainability-driven entrepreneurship, which implies that there is a strong causation relationship.

Conclusion

This paper has discussed how sustainable entrepreneurship projects contribute to transforming the economy of Nigeria based on empirical evidence of two emerging successful businesses Salubata and Ecotutu. A quantitative framework based on assessing the impact of sustainability investment, the creation of green jobs, and resource efficiency on an economic transformation indicator was used to guide the analysis. The findings showed that there is a statistically significant correlation between sustainability-oriented entrepreneurship and macroeconomic development which validates the theoretical assumption that environmentally oriented innovation could be a source of sustainable economic development. The results demonstrate that sustainable entrepreneurship is beyond the traditional business, particularly the profitability, as it meets with the environmental and social responsibility. The plastic-to-footwear model of Salubata and the cold chain solutions of Solar-powered run on sustainable technologies by Ecotutu can be seen as examples of how the ideas of the circular economy and clean technology can create jobs, increase efficiency, and make the critical industries more resilient. The high predictive power of the creation of green jobs in the regression model is an indication of the labour-intensive nature of sustainable businesses and their ability to accommodate the increasing number of workers in Nigeria. With new business models, these companies have been able to realize that environmental responsibility and economic competitiveness are complementary goals and not conflicting ones. The regression model explained more than 80 percent of the economic transformation, which is a strong indicator that sustainability practices

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play an important role in determining the industrial environment in Nigeria. The positive coefficients in all the variables support the fact that the investment in eco-innovation and energy efficiency has quantifiable macroeconomic returns. These findings complement the previous results reported by Akpor-Robaro (2024) and Uduji and Okolo-Obasi (2023) which hold the view that sustainability-oriented businesses not only lead to structural diversification but also job creation in developing economies. Moreover, the identified correlation between waste minimization and economic transformation affirms the transition theory, which points out that the sustainable innovation on the level of the enterprise can be the one that initiates the systemic change at the national level. These findings have far-reaching implications on policy, education and enterprise development. It suggests fostering institutional support of green entrepreneurship by providing fiscal incentives, financial resources of research and positive business climates. Colleges and universities ought to incorporate the concept of sustainability in the entrepreneurship programs to develop the future generation of environmentally-friendly entrepreneurs. These insights can also be used by financial institutions and investors to come up with specific funding instruments that can enhance sustainability of small and medium enterprises.

Practically, expanding the businesses like Salubata and Ecotutu would have a more comprehensive economic change impact by facilitating efficiency of resources, rural jobs, and technology dissemination. Sustainable entrepreneurship is a promising path to the development that is inclusive and environmentally friendly as Nigeria tries to diversify, not relying on extractive industries. The research evidence employed in this paper confirms that where the environmental stewardship, innovation and social empowerment interact in business models, the outcome is a robust economy that can address challenges in the modern times. Finally, sustainability of entrepreneurship in Nigeria is not only an environmental issue but also a strategic economic tool. By developing ecological innovation into their operations, through businesses, Nigeria can progress into the path of transformations economic development that is responsible and sustainable, which makes the results of development fair, long-lasting, and ecologically friendly.

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