Effect of Government Incentives on Execution of Solar Power Projects in Southwest, Nigeria

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ABSTRACT

Successful renewable energy projects are crucial to maintaining a cleaner and sustainable environment. Thus. it becomes critical for the government to intervene and provide incentives due to limited financial constraints by solar power developers, which ultimately impact on their ability to achieve their renewable energy goals. Therefore, this paper examined the effect of government incentives on execution of solar power projects (ESPP) in southwest, Nigeria. The study adopted a research survey design and a census population of 158 firms. The study retrieved and used 109 valid questionnaire collected from the top managers, representing about 69 percent. The data were collected using a digital questionnaire created with CSPro (Census and Survey Processing System). The study adopted inferential statistics of structural equation modelling (SEM). The SEM analyses showed that the variable of government incentive ($\beta = 0.001$; $P > 0.05$) was insignificant at 95 percent level. The insignificance of government incentives could be due to the fact that government incentives in Nigeria are too general or blanket in nature, failing to account for the unique needs and circumstances of individual solar power companies. Sustainability as control variable displayed significant negative relationship with execution of solar power projects in the southwest, which might be due to the high initial investment, lack of sufficient expertise in specific technical matters, inadequate stakeholders' engagements, and environmental conditions in the region. The study recommended that government budget should support renewable energy fund and regular assessment of incentive programmes in order to boast investors' confidence and participation in solar power industry. Governments and regulatory bodies should offer incentives for project developers that prioritise sustainability, aligning incentives with unique circumstances of the region. The findings have implications for policymakers, solar power developers, and investors seeking to promote the growth of the solar power industry in the region.

Keywords: Government incentives, execution of solar power projects, technology, sustainability

INTRODUCTION

Government policy should be viewed as both a declaration of goals and a negotiated outcome resulting from the execution process (Galli, 2015). In order to increase the competitiveness and promote the development of renewable energy, incentive policies such as Research and Development funding, tax breaks, subsidies, quota system, tradable green certificates are developed and implemented from supply-side and demand-side in developed countries, including US, EU, Japan and others (Liu & Zeng, 2017).

Successful renewable energy projects are crucial to maintaining a cleaner and sustainable environment. Owing to this, world's countries and policymakers are trying hard to double the current share of renewable energy consumption (18.3%) by 2030, which has been resulting in the construction of multiple renewable energy projects (Maqbool, 2018). The energy situation in Nigeria could be improved by the provision of adequate energy policy options designed to augment existing energy policies (Nneamaka & Kyung-Jin, 2015).

Ji and Zhang (2019) found that effective policies are needed for upgrading energy structures to cope with climate change. Their empirical results on China show that the financial sector is critically important for developing renewable energy in the country. In Nigeria, the government, among others, offers tax incentives such as tax holidays to encourage investment, and reduced import duties on solar equipment, and tax breaks for solar companies (Agu & Onasoga, 2024).

Therefore, the specific objective of this paper was to assess the effect of government incentives on execution of solar power projects (ESPP) in the region. The study would provide valuable insights for energy stakeholders, supporting the development of enabling environment for solar power execution. The study would assist government agencies in establishing certain renewable energy projects. Finally, study would assist the government in formulating accommodating policies to promote the growth of solar power industry in the country.

LITERATURE REVIEW

Theoretical Review

Project Execution Theory

The Theory of Project Execution (PET) can be traced back to Emerson (1917). The theory is similar to the concept of job dispatching in manufacturing where it provides the interface between plan and work. Fondahl (1980) recommends the following procedure for execution based on the implementation of a critical path network. This consists of two elements: decision (for selecting task for a project from those predefined tasks that are ready for execution), and communicating the assignment (or authorisation) to the project team.

The theory outlines the critical steps required to successfully execute a project, including solar power projects (Kerzner, 2017). The theory emphasises the importance of careful planning, effective execution, and ongoing monitoring and control to ensure project success. In the context of financing options and execution of solar power projects, project execution theory is highly relevant. Solar power projects require significant upfront capital investments, and securing financing is often a major challenge (IRENA, 2020). Effective project execution is critical to ensuring that solar power projects are completed on time, within budget, and to the required quality standards. This, in turn, affects the project's ability to generate revenue and repay loans or provide returns on investment. It follows that for successful execution of any project, there are ten core processes: scope planning, scope definition, activity definition, resource planning, activity sequencing, activity duration estimating, cost estimating, schedule development, cost budgeting, and project plan development (Koskela & Howell, 2002). The output from these processes, make up an input to the executing processes. Thus, a successful solar energy execution involves the integration of project management processes, quality management, human resource management, communication management, procurement management and environmental management. By applying project execution theory, solar power project companies and other stakeholders can ensure that projects are executed successfully and provide a strong return on investment.

Stakeholder Theory

The Stakeholder Theory posited by Freeman (1984) states that management should recognise groups who are stakeholders in an organization. For instance, groups in the Nigerian electricity sector, can be categorised into two: Decision-making stakeholders such as regulatory agencies and utility companies with government interests (Hirmer et al., 2021), and non-decision making stakeholders such as energy consumers, renewable energy technology industry (Rountree & Baldwin, 2018).

The concept "stakeholder" was first used in 1963 in an internal memorandum at the Stanford Research Institute. In applying Stakeholder theory to PPPs on infrastructural development in Nigeria, it provides a robust approach by the government to involve the private sector on targeted investment on infrastructure for economic diversification and growth using PPPs strategy **(**Itu & Kenigua, 2021**)**. The decision-making dynamics in the electricity sector is characterised by a network of different groups with individual interest, business interests and legal structures which proves difficult to change. While most utility companies make the effort to fulfil their obligations to serve their customers, they have very little economic or market incentives to share their decision-making powers with any stakeholder group (Rountree & Baldwin, 2018).

Lack of sufficient expertise by some stakeholder groups in specific technical matters lead some decision makers

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to ignore (or even exclude) the inputs and contributions of certain groups from future planning efforts. Indeed, the need to raise public awareness and trust in electricity infrastructure development requires a certain degree of stakeholder engagement. Stakeholder management helps to address issues of legitimacy in decision making. This requires participation and involvement by building relationships that help each party to achieve a common goal.

Empirical Review

Execution of Solar Power Projects

Electricity is the basic tool that drives industrialization, technological advancement, engineering transformation and economic growth all over the world (Akuru, 2017). Solar power, as a source of renewable energy, is being used to replace fossil dominated electricity generation especially in the sub-Saharan African countries (Mas'ud, et al., 2016). Rural communities in developing countries are now having access to affordable, reliable, and sustainable forms of energy, which are essential factors for improving living conditions. Renewable energy has a prominent role in promoting energy access and addressing environmental concerns with energy use in Nigeria (Oniemola, 2015). Renewable energy has become the fundamental direction and core content of the global energy transformation. Renewable energy sources such as biomass, geothermal, hydropower, solar and wind, energy sources are by their nature infinite and environmentally friendly when compared to conventional energy sources such as coal, oil and natural gas (Ajayi & Ajayi, 2013). Renewable energy technologies can bring about both environmental and socio-economic benefits. They generally entail fewer emissions, use local resources – including labour, foster basic electrification in developing countries, including Nigeria and increase energy security. Investment in renewable electricity would be desirable for increasing energy security, mitigating climate change and promoting economic development (Bjørnebye, 2010).

Financing organisations, private developers and investors also see business opportunities in putting their resources into renewable projects (Oyedepo et al., 2018). The low-level diversification of electricity production in the country has led to the necessity of deploying sustainable energy resources, particularly renewables, into its generation mix so as to meet Nigeria's ever-increasing power need. However, renewable energy projects do have high initial costs, which affects the overall cost of energy produced per kWh (Oyedepo et al., 2018).

Government Incentives and the Execution of Solar Power Projects

Grants, tax reliefs and subsidies are usually provided by governments and public agencies for projects that are commercially marginal (Kalamova et al., 2011). The development of renewable energy systems is a capital-intensive process that most developing countries cannot undertake without financial support from development partners (Rambo, 2013). Governments of low-income countries face significant budget constraints for the capital-intensive infrastructure required to reach the hundreds of millions of households and businesses without grid electricity (Falchetta et al., 2022). In Nigeria, the government has offered several tax incentives and exemptions, including tax holidays, lower import taxes on solar equipment, and tax breaks, to entice private sector participation in the solar sector (Gupta, 2023).

Edward et al. (2021) assessed the renewable energy (RE) and energy-efficient (E.E.) investment potential as well as policy barriers in Sub-Saharan Africa (SSA). Analysing five investment indicators, using secondary sources of information, and conducting interviews with key stakeholders, RE and E.E. investment potential, investment gap, and policy barriers in 14 countries from West, Central, Southern, and East Africa were quantified. The result of the study indicates a promising yet very susceptible future for the implementation of RE and E.E. in SSA. They concluded that there was a need to address the institutional knowledge gaps and policy gaps that were key to helping in unlocking the financing potential of RE and E.E. in the continent of Africa.

In a study comparing Kenya and Ghana, Pueyo (2018) identified the constraints to renewable energy investment in Sub-Saharan Africa. The study presented a methodology to support policymakers to better target policies for the promotion of commercial-scale renewable energy investment. Using ''Green Investment Diagnostics'' methodology, the author draws upon the Growth Diagnostics framework extensively used in the field of

Development Economics to identify the binding constraints to economic growth.

Oyedepo et al. (2018) examined the potential of renewable energy (RE) resources in Nigeria that can be harnessed for continuous energy supply and the government's efforts to ensure RE's sustainability. According to their qualitative study, there was an imbalance in energy supply and demand in the country. Over the period from 2000 to 2014, there was an average of about 2.35 billion kWh of energy gap between energy production and energy consumption. This makes Nigeria one of the countries with the lowest electricity consumption on a per capita basis in the world.

Using the case studies of Germany and China, Zhang (2018) examined how governments spur renewable energy deployment by examining the availability, costs, and modes of financing. It compared the major financiers, their interactions, and government policy instruments, around renewable financing in both countries. The study concluded that a well-designed fiscal subsidy policy together with a national development bank aiming to level the playing field is the key to open the door for the participation of decentralised actors in Germany.

Avik et al. (2023), appraising difficulties confronting USA in attaining the objectives of Sustainable Development Goal of Affordable and Clean Energy, observed a policy lacuna prevailing in terms of financialising the renewable energy generation projects. While the policy documents are suggesting solutions to address this issue, the hidden moderations arising out of the socio-economic and political settings are largely ignored.

Liu and Zeng (2017) conducted a study on renewable energy investment risk evaluation model based on system dynamics. Three main risks in renewable energy investment, policy risk, technical risk and market risk were discussed, after which a causal loop diagram of investment risk and risk assessment model have been established using a system dynamics method. The result of the numerical example indicated that policy risk was the main factor affecting the investment in the early development stage, while policy risk and technology risk decline gradually, market risk has gradually become the main uncertainty affecting the investment in the mature development stage.

Ogechi (2019) in her research work on Renewable Energy as an Alternative to Fossil Fuel Use, postulated that small-scale renewable electricity is no longer merely an option for Nigeria, but a necessity in order to achieve the desired energy transition. She opined that the Nigerian electricity sector can be reformed through three mechanisms namely: decentralisation, deregulation and a low carbon footprint. Legal and institutional reforms were proposed to cure the intermittent availability problems inherent in renewable energy sources. Drawing comparative lesson from the Ontarian and South Australian electricity models, Ogechi (2019) adopts a historical, analytical and interdisciplinary approach to conclude that there is need for a mandatory restructured platform which substitutes the national approach to electricity matters for a state-based approach solely based on injecting the prominent renewable energy sources in Nigeria (solar, wind and hydro) into the grid.

METHODOLOGY

The study employed survey research design. The aim was to accurately describe the current state of affairs as it exists and thereafter explore the relationships among the variables. The research was conducted in Southwest, Nigeria, comprising Ekiti, Lagos, Ogun, Ondo, Osun and Oyo States. The choice of this location was driven by the fact that it houses majority of the country's manufacturing industries and most residential and industrial users have few hours of electricity (Sasu, 2023). The study population comprised 158 active solar power companies operating in the southwest, Nigeria. It is important to note that Renewable Energy Industry is dominated by a limited number of companies due to a high-cost of investment. Due to the number, all the 158 companies (census sampling procedure) were involved in the survey for the administration of questionnaire.

The main data for this study were obtained through primary source. A structured questionnaire was developed to gather quantitative data from top management level of the solar power companies. The questionnaire was developed from past studies and checked through a thorough review. Digital version of the questionnaire was created using the CSPro (Census and Survey Processing System). Fieldwork was conducted through electronic messages to the emails of the identified solar power companies to facilitate real-time data collection, ensuring

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accuracy and efficiency.

The instrument was piloted in Delta State, with the distribution of the survey instrument to twelve (12) companies which was randomly selected from the solar power companies in State. The purpose of the pilot study was to adjust the questionnaire so that respondents have no problems in answering the questions.

The project supervisors and experienced senior scholars in the field of study made inputs to validate the contents of the research instruments. Questionnaire validity ensured that the instrument was adequate for the collection of data to achieve the objectives. It also helped to confirm whether the format used in designing the instrument was appropriate or not. The reliability of the instrument was tested with the use of Cronbach's Alpha coefficient value. Taber (2018) reported that Cronbach's alpha between 0.45–0.98 is acceptable. Table 1 showed Cronbach's Alpha (CA) coefficient for all the study variables were above 0.70, which suggested that the instrument used for evaluation was highly reliable.

Table 1: Construct Reliability

Construct	Number of Items	Cronbach's Alpha	Composite Reliability
Execution of Solar	6	0.932	0.946
Government Incentive	5	0.915	0.933
Awareness	6	0.917	0.938
Economic Status	5	0.903	0.928
Sustainability	5	0.894	0.922
Technology	5	0.932	0.949

Source: Researcher's Field Survey, 2024

Based on the objective of the study, a model was specified as follows:

$$ESPP_i = \beta_0 + \beta_1 GI + \beta_2 TEC_i + \beta_3 SUS_i + \beta_4 ECS_i + \beta_5 AW_i + \varepsilon_i \quad (1)$$

where:

ESPP - Execution of solar power projects
GI - Government incentives
TEC - Technology
SUS - Sustainability of power project
ECS - Economic status of the people in community
AW - Awareness about the usefulness of solar power.
β_0 is the constant, β_1- β_5 are the parameters of the regression and ε denotes the error term.

The data collected were analysed using SmartPLS, a specialized software for Partial Least Squares Structural Equation Modeling (PLS-SEM). It is an alternative method to the historically more commonly used covariance-based SEM (CB-SEM) when analyzing the data using structural equation modeling (SEM) (Hair & Alomer, 2022).

RESULTS AND DISCUSSION

Government Incentives and Execution of Solar Power Projects

The study investigated the relationship between government incentives and execution of solar power projects. Furthermore, to achieve the aim of this study, the constructs of government incentives were measured as (GI1, GI2, GI3, GI4 and GI5) and execution of solar power projects was captured with (ESPP1, ESPP2, ESPP3, ESPP4, ESPP5 and ESPP6). Figure1 displayed the outcomes of the bootstrapping procedure, illustrating the obtained results and their implications for the structural model analysis for relationship between government incentives and execution of solar power projects.

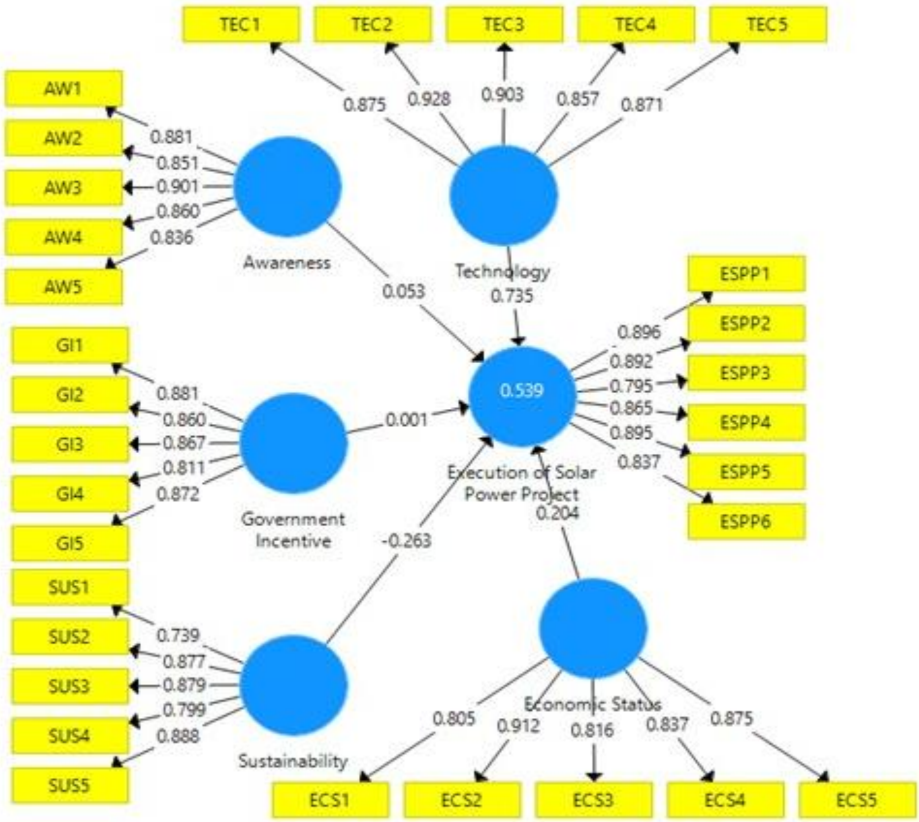

Figure 1: Bootstrapping Outcome for Government Incentive and Execution of Solar Power Projects

The results of the structural equation modelling analysis showed that every route of the estimation has positive value except the sustainability effect on the execution of solar power energy systems. This indicated that there were positive correlations between the variables along each path except for sustainability effect. The study presented the Outer Model with their respective p-values of the construct. This showed the significance of each latent construct to each variable.

Results from Table 2 indicated that execution of solar power projects was analysed using ESPP1, ESPP2, ESPP3, ESPP4, ESPP5 and ESPP6. Evidence from the latent construct analysis revealed that ESPP1 (0.896; CR= 27.304; P-value<0.01), ESPP2 (0.892; CR=23.886; P-value < 0.01), ESPP3 (0.795; CR= 14.026; P-value<0.01), ESPP4 (0.865; CR= 16.676 P-value<0.01), ESPP5 (0.895; CR= 24.938; P-value < 0.01) and ESPP6 (0.837; CR= 17.85; P-value < 0.01). This implied that the ESPP1, ESPP2, ESPP3, ESPP4, ESPP5 and ESPP6 significantly predicted the execution of solar power projects construct and the indicators were used to proxy execution of solar power project.

Table 2 further showed that government incentives option was analysed using GI1, GI 2, GI 3, GI 4 and GI5. Evidence from the latent construct analysis revealed that GI1 (0.881; CR= 6.767; P-value<0.01), GI2 (0.86; CR= 7.837; P-value < 0.01), GI3 (0.867; CR= 4.767; P-value<0.01), GI4 (0.811; CR= 4.623; P-value<0.01) and GI5 (0.872; CR= 5.292; P-value < 0.01). This implied that the GI1, GI 2, GI 3, GI 4 and GI5 significantly predicted the government incentives construct. Thus, the study used the indicators as measurement of government incentives.

It was explicit that the awareness about solar power construct indicator was analysed with AW1, AW2, AW3, AW4 and AW5. From Table 2, the result of the latent construct analysis showed that AW1 (0.881; CR= 11.118; P-value<0.01), AW2 (0.851; CR= 7.534; P-value < 0.01), AW3 (0.901; CR= 13.687; P-value<0.01), AW4 (0.86; CR= 10.824; P-value<0.01) and AW5 (0.836; CR= 14.832; P-value < 0.01). This implies that the AW1, AW2,

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AW3, AW4 and AW5 significantly predicted the awareness about solar power construct and these indicators were used to measure the awareness of solar power project.

The result also showed that the economic status of a community construct indicators was analysed with ECS1, ECS2, ECS3, ECS4 and ECS5. The result of the latent construct analysis showed that ECS1 (0.805; CR= 10.973; P-value<0.01), ECS2 (0.912; CR= 31.709; P-value < 0.01), ECS3 (0.816; CR= 14.583; P-value<0.01), ECS4 (0.837; CR= 16.844; P-value<0.01) and ECS51 (0.875; CR= 23.24; P-value < 0.01). This implied that the ECS1, ECS2, ECS3, ECS4 and ECS5 significantly predicted the economic status of a community construct and these indicators were used to capture the economic status in the study.

Table 2: Latent Construct Analysis

Latent Construct	**Estimates**	**Standard Error**	**CR**	**P-Values**
ESPP1 <- Execution of Solar Power Projects	0.896	0.033	27.304	0
ESPP2 <- Execution of Solar Power Projects	0.892	0.037	23.886	0
ESPP3 <- Execution of Solar Power Projects	0.795	0.057	14.026	0
ESPP4 <- Execution of Solar Power Projects	0.865	0.052	16.676	0
ESPP5 <- Execution of Solar Power Projects	0.895	0.036	24.938	0
ESPP6 <- Execution of Solar Power Projects	0.837	0.047	17.850	0
GI1 <- Government Incentive	0.881	0.130	6.767	0
GI2 <- Government Incentive	0.860	0.110	7.837	0
GI3 <- Government Incentive	0.867	0.150	5.767	0
GI4 <- Government Incentive	0.811	0.175	4.623	0
GI5 <- Government Incentive	0.872	0.165	5.292	0
AW1 <- Awareness	0.881	0.079	11.118	0
AW2 <- Awareness	0.851	0.113	7.534	0
AW3 <- Awareness	0.901	0.066	13.687	0
AW4 <- Awareness	0.860	0.079	10.824	0
AW5 <- Awareness	0.836	0.056	14.832	0
ECS1 <- Economic Status	0.805	0.073	10.973	0
ECS2 <- Economic Status	0.912	0.029	31.709	0
ECS3 <- Economic Status	0.816	0.056	14.583	0
ECS4 <- Economic Status	0.837	0.050	16.844	0
ECS5 <- Economic Status	0.875	0.038	23.240	0
SUS1 <- Sustainability	0.739	0.095	7.818	0
SUS2 <- Sustainability	0.877	0.065	13.572	0
SUS3 <- Sustainability	0.879	0.059	14.846	0
SUS4 <- Sustainability	0.799	0.102	7.8290	0

SUS5 <- Sustainability	0.888	0.030	29.672	0
TEC1 <- Technology	0.875	0.041	21.169	0
TEC2 <- Technology	0.928	0.027	34.354	0
TEC3 <- Technology	0.903	0.038	23.884	0
TEC4 <- Technology	0.857	0.081	10.587	0
TEC5 <- Technology	0.871	0.072	12.021	0

Source: Researcher's Field Survey, 2024

Evidence from Table 2 showed that the sustainability effect construct indicator was analysed with SUS1, SUS2, SUS3, SUS4 and SUS5. The result of the latent construct analysis showed that SUS1 (0.739; CR= 7.818; P-value<0.01), SUS2 (0.877; CR= 13.572; P-value < 0.01), SUS3 (0.879; CR= 14.846; P-value<0.01), SUS4 (0.799; CR= 7.829; P-value<0.01) and SUS5 (0.888; CR= 29.672; P-value < 0.01). This implied that the SUS1, SUS2, SUS3, SUS4 and SUS5 significantly predicted the sustainability effect of solar power construct.

For the effect of technology, the construct indicator was analysed with TEC1, TEC2, TEC3, TEC4 and TEC5. The result of the latent construct analysis showed that TEC1 (0.875; CR= 21.169; P-value<0.01), TEC2 (0.928; CR= 34.354; P-value < 0.01), TEC3 (0.903; CR= 23.884; P-value<0.01), TEC4 (0.857; CR=10.6587; P-value<0.01) and TEC5 (0.871; CR= 12.021 P-value < 0.01). This implied that the TEC1, TEC2, TEC3, TEC4 and TEC5 significantly predicted the technology construct. The study employed these indicators as measurement of technology.

Table 3 presents the path coefficient of structural equation estimates for the effect of government incentives on the execution of solar power projects in Southwest, Nigeria. The result indicated that government incentives ($\beta = 0.001$, $t = 0.017$, $p = 0.987$) has no significant effect on execution of solar power projects in Southwest, Nigeria. This finding is surprising, given the widespread assumption that government incentives play a crucial role in shaping business outcomes. However, the results could be justified on three grounds. First, the insignificance of government incentives could be due to the fact that government incentives in Nigeria are too general or blanket in nature, failing to account for the unique needs and circumstances of individual businesses. Second, government incentives could have been overwhelmed by other factors, such as market competition, technological change, or internal organisational dynamics, which rendered them less effective. Finally, the study's sample might have consisted of businesses that had already reached a level of maturity or stability, making government incentives less relevant or impactful.

Table 3: Path Construct Analysis

Path	Beta	Standard Error	T Statistics	P Values
Government Incentives -> Execution of Solar Power Projects	0.001	0.09	0.017	0.987
Awareness -> Execution of Solar Power Projects	0.053	0.082	0.61	0.542
Economic Status -> Execution of Solar Power Projects	0.204	0.088	2.328	0.02
Sustainability -> Execution of Solar Power Projects	-0.263	0.097	2.682	0.008
Technology -> Execution of Solar Power Projects	0.735	0.128	5.725	0.000
R-Squared	0.539			0.000
Adj-R-Squared	0.516			0.000
SRMR	0.067			

Source: Researcher's Field Survey, 2024

However, previous studies have shown that government incentives have varied impacts on business outcomes, depending on factors like industry, firm size, and management quality. For instance, the work of Avik et al (2023) argued that a policy lacuna prevailing in in a country reduces the effect government policies on project execution. Also, Morisset and Pirnia (2000) concluded that tax exemptions could influence some of the investors, some of the time, but were generally only marginal factors. Furthermore, Biggs (2007) indicated that fiscal incentives could have only a limited impact on firms in some cases. The study by Mayende (2024) revealed that since the introduction of tax incentives in Uganda, their effect on performance of firms in terms of gross output (sales) and value added was not known, and therefore called the government to streamline the provision of incentives for better firm performance.

Furthermore, the results revealed that economic status of a community ($\beta = 0.204$, $t = 2.328$, $p = 0.02$) and technology ($\beta = 0.735$, $t = 5.725$, $p = 0.000$) have positive and significant effects on execution of solar power projects in the Southwest, Nigeria. However, sustainability effect ($\beta = -0.263$, $t = 2.682$, $p = 0.008$) has a negative but significant effect on execution of solar power projects in the Southwest, Nigeria. This finding is in line with the study by Opoku et al. (2019) who find that barriers to environmental sustainability included perceived initial costs, lack of knowledge on environmental sustainability, technological difficulties, external pressures in adopting environmental sustainability and environmental conditions in developing countries. The results implied that economic status of a community, technology and sustainability are significant predictor of execution of solar power projects in the Southwest, Nigeria. Evidence from the study revealed that a unit change in awareness of solar, economic status of a community, government incentive, sustainability effect and technology respectively will lead to 0.053, 0.204, 0.001, -0.263 and 0.735 unit changes in execution of solar power projects in the Southwest, Nigeria.

The coefficient of determination (R^2) has a value of 0.539 and this implied that government incentives, awareness, economic status, sustainability and technology accounted for 53.9% variation in execution of solar power projects. This indicated a moderate predictive power and in line with the classification by Hussain et al. (2018) who documented that an R^2 value of 0.75 is considered substantial, 0.50 is moderate, and 0.26 is weak. More so, the study showed that the model was fit since the value of standardized root mean square residual (SRMR) fell between 0 and 0.08.

CONCLUSION AND RECOMMENDATIONS

The paper addressed an important and relevant issue—government incentives and their impact on the execution of solar power projects in Southwest, Nigeria. The use of a robust methodology, including the sample size of 109 valid responses, adds credibility to the findings. The application of structural equation modelling (SEM) was appropriate for the analysis, offering in-depth insights into the relationships between government incentives and project execution. The paper highlighted key factors such as technological capability and sustainability in solar power projects, which are often overlooked in similar studies.

The insignificance of government incentives in this study has important implications for policymakers and business practitioners. The study, therefore recommended that government incentives should be more targeted, tailored, and nuanced to address the specific needs and challenges of solar power industry. The study further recommended that the government should support renewable energy sector with sufficient budgetary provisions and provide regular assessment of incentives in order to boast investors' confidence and participation in solar power industry. Governments and regulatory bodies should design appropriate incentives and regulations to promote the execution of solar power projects in Nigeria. Also, the negative relationship between sustainability and execution of solar power projects in the Southwest highlighted the need for region-specific sustainability strategies that account for their unique challenges and priorities. Thus, policymakers and industry stakeholders should consider these factors when developing and implementing policies relating to execution of solar power projects.

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