Global Research Network Publishing
TECHNOVATE: Journal of Information Technology and Strategic Innovation Management
Vol 1, No 4, October 2024, pp. 228-239
e-ISSN: 3047-2466

Mediating Role of Policy Support in the Relationship Between Green Financing and Sustainable Housing Development in Nigeria: A PLS Modeling Approach

Musa Mustapha Babayo[1], Sani Inusa Milala[2*]
[1]*National Information Technology Development Agency (NITDA) Headquarters, No. 28, Port Harcourt Crescent, Off Gimbiya Street, Area 11, Garki, Abuja, Nigeria*
[2*]*Faculty of Technology Management and Business, Department of Real Estate and Facilities Management, Universiti Tun Hussein Onn Malaysia, 86400, Parit Raja, Batu Pahat, Johor, Malaysia*
*saniinusamilala4@gmail.com

ARTICLE INFO

Article History:
Received 27 September 2024
Revised 29 October 2024
Accepted 30 October 2024

Keywords:
Green Financing; Sustainable Housing Development; Policy Support; Structural Equation Modeling; Urbanization

ABSTRACT

This study examines the impact of Green Financing on Sustainable Housing Development, focusing on the mediating role of Policy Support. As urbanization accelerates, particularly in developing countries, the need for sustainable housing solutions intensifies. Green Financing, which funds environmentally friendly projects, is considered a potential driver of sustainable housing, though its success depends on supportive policies. Using a quantitative approach and structural equation modeling (SEM), the study analyzes data from 500 stakeholders in the housing sector, including policymakers, financial institutions, and developers. Results show that Green Financing significantly boosts Policy Support (path coefficient = 0.832, t-statistic = 31.150, p-value = 0.000), and also has a positive effect on Sustainable Housing Development (path coefficient = 0.636, t-statistic = 9.114, p-value = 0.000). Furthermore, Policy Support plays a significant mediating role in enhancing Sustainable Housing Development (path coefficient = 0.250, t-statistic = 3.458, p-value = 0.001). These findings highlight the importance of integrating Green Financing with strong policy frameworks to promote sustainable housing. The study recommends targeted financial and regulatory measures to encourage green finance, and suggests further research on its long-term impacts.

1. Introduction

Sustainable housing development has become a critical agenda in Nigeria, considering the rapid urbanization and the pressing need for affordable, environmentally friendly housing solutions. The increasing global awareness of climate change has amplified the necessity for adopting green financing mechanisms to fund sustainable housing initiatives. Green financing, which includes instruments like green bonds and sustainable loans, is instrumental in achieving the dual goals of environmental sustainability and economic development (Adedeji, 2023). However, the effective implementation of such financing tools often hinges on policy support, which can serve as a vital mediator in translating financial investments into tangible housing outcomes.

Nigeria's urban population is projected to grow significantly, exacerbating the existing housing deficit and creating a demand for innovative financing and policy frameworks (Ezennia, 2022). Despite the potential of green financing, challenges such as a lack of investor awareness, limited

regulatory frameworks, and high implementation costs have hindered its widespread adoption (Oguntuase & Windapo, 2021). Studies in other developing nations have highlighted the critical role of supportive policies in bridging these gaps, enabling green finance to drive sustainable housing projects effectively (Agyekum et al., 2022).

Furthermore, policy innovations tailored to local contexts can address barriers to green financing by fostering an enabling environment for investment and collaboration among stakeholders. For instance, Wang and Wang (2022) demonstrated the importance of intermediary effects like policy support in facilitating the impact of green finance on energy development and broader sustainability goals. This suggests that policy support can serve as a mediating variable, enhancing the efficacy of green financing initiatives in achieving sustainable housing outcomes in Nigeria.

While research on green financing and sustainable housing is expanding, there is limited empirical evidence on the interplay between green finance and policy support in Nigeria's housing sector. Existing studies have emphasized either financing mechanisms or policy frameworks in isolation, without exploring their interconnected dynamics (Akinsulire et al., 2024; Ebekozien et al., 2022). Utilizing Partial Least Squares (PLS) modeling, this study aims to fill this gap by analyzing the mediating role of policy support in the relationship between green financing and sustainable housing development in Nigeria. This approach will provide a robust analytical framework to capture the complex relationships between variables and offer actionable insights for policymakers and industry practitioners.

Addressing Nigeria's sustainable housing challenges requires an integrated approach that combines innovative green financing mechanisms with robust policy support. By leveraging PLS modeling, this study will contribute to the growing body of knowledge on green finance and sustainable development, offering practical solutions for advancing Nigeria's housing sector in a climate-conscious era.

Nigeria faces an acute housing deficit, exacerbated by rapid urbanization, population growth, and the lack of affordable and environmentally sustainable housing solutions. Despite the recognized potential of green financing to address these issues, its adoption in Nigeria’s real estate sector remains limited due to various challenges, including inadequate regulatory frameworks, low investor awareness, and high implementation costs (Oguntuase & Windapo, 2021; Ezennia, 2022). The gap between the availability of green financing tools and their application highlights the need for effective policy mechanisms to foster sustainable housing development.

Research has shown that policy support plays a critical role in creating an enabling environment for green finance to thrive. For instance, policies that incentivize green building practices and provide financial relief can significantly enhance the uptake of sustainable housing initiatives (Wang & Wang, 2022; Akinsulire et al., 2024). However, in Nigeria, fragmented policies and the absence of cohesive regulatory frameworks hinder the integration of green financing into the housing sector (Adedeji, 2023). Moreover, existing studies have predominantly focused on the isolated impact of green financing or policy interventions, neglecting the interconnected dynamics between these two factors.

There is a critical need to explore how policy support can act as a mediating factor to amplify the impact of green financing on sustainable housing development. Understanding this relationship is essential for developing comprehensive strategies that align financial mechanisms with policy frameworks to address Nigeria's housing challenges effectively. By employing Partial Least Squares (PLS) modeling, this study seeks to provide empirical evidence on the mediating role of policy support, offering actionable insights for stakeholders in the real estate and policy-making sectors.

The objectives of this study are threefold. First, it aims to analyze the direct impact of Green Financing on Sustainable Housing Development in Nigeria, exploring how financial resources for environmentally friendly projects contribute to housing sustainability. Second, the study seeks to examine the mediating role of policy support in the relationship between Green Financing and sustainable housing outcomes, assessing how supportive policies enhance or hinder the effectiveness of green finance initiatives. Finally, the study intends to propose actionable recommendations for strengthening policy frameworks to optimize the effectiveness of Green Financing, ensuring that it can play a key role in promoting sustainable housing development. These objectives are designed to provide a comprehensive understanding of the interactions between finance, policy, and sustainable housing in Nigeria.

2. Literature Review

Understanding Dysgraphia

The main cause of dysgraphia, a neurological condition that impairs writing, is deficiencies in the motor or cognitive processing systems that are involved in handwriting. Numerous explanations have been found by researchers, including neurological disorders and developmental variables in the brain regions in charge of language processing and motor coordination. (McCloskey & Rapp, 2019) claim that fine motor control deficiencies, which interfere with the motor programs required for producing smooth handwriting, are related to dysgraphia. Other research (Gary et al., 2023), indicates that injury or underdevelopment in the cerebellum and parietal lobes, two brain regions important in coordinating writing movements, may be a factor in dysgraphia.

Green Finance

Green finance is pivotal for driving environmentally friendly investments in housing and infrastructure. According to Wang and Wang (2022), green finance catalyzes energy-efficient and sustainable projects, significantly contributing to high-quality economic development. In Nigeria, green bonds and financial instruments are gaining traction as mechanisms to fund green building projects (Oguntuase & Windapo, 2021). However, Debrah et al. (2022) identifies a green finance gap, pointing to limited accessibility and awareness among stakeholders.

Green building certifications can bolster sustainable practices by incentivizing developers (Ebekozien et al., 2022). For instance, Agyekum et al. (2022) highlight the role of financial support in Ghana's green building projects, stressing that aligning finance mechanisms with green technologies can unlock latent housing benefits. Moreover, Raimi et al. (2021) suggest sustainable finance options as transformative tools for enterprise development, especially in resource-constrained environments.

Green Financing and Sustainable Housing Development

Green financing refers to the financial investments directed toward projects that have environmental benefits, including those focused on reducing carbon footprints and enhancing energy efficiency. Green bonds, as an instrument of green finance, have been explored in the context of sustainable building projects in various countries, including Nigeria. Studies have highlighted that green financing mechanisms, such as green bonds, can provide the financial means to implement sustainable housing solutions that reduce the negative environmental impact of urban growth (Oguntuase & Windapo, 2021). In Nigeria, the role of green finance in sustainable housing development has been underscored by various authors who argue that the lack of financial support for green building projects is a major barrier (Ebekozien et al., 2022; Agyekum et al., 2022). Sustainable housing development in Nigeria is often constrained by high construction costs, limited awareness, and insufficient policy incentives, necessitating green financing to bridge this gap. Thus, green financing is crucial for the implementation of sustainable housing, as it provides the capital needed for adopting eco-friendly construction practices. Green financing refers to financial products or services that support environmental sustainability, climate change mitigation, and energy-efficient housing development (Agyekum et al., 2022). It includes green bonds, loans, and other financial instruments that are specifically designed to fund projects with positive environmental impacts (Oguntuase & Windapo, 2021). The relationship between green financing and sustainable housing development is critical in Nigeria, where there is a significant need for housing that minimizes environmental harm. Sustainable housing development encompasses energy-efficient buildings, the use of renewable resources, and a focus on minimizing the carbon footprint of construction and operational activities (Wang & Wang, 2022).

Policy Support and Its Mediating Role

Policy support plays a pivotal role in facilitating green financing and promoting sustainable housing development. Several studies have explored the role of government policies and regulations in enabling sustainable development within the housing sector (Akinsulire et al., 2024; Okwandu et al., 2024). The Nigerian government has implemented various policies aimed at reducing the barriers to sustainable housing development, such as tax incentives, subsidies for green housing projects, and

regulatory support (Adedeji, 2023). However, the effectiveness of these policies depends on how well they are implemented and their alignment with green financing initiatives. For green financing to be effective, adequate policy support is necessary. This can include the creation of regulations that make it easier for investors to fund sustainable housing projects and incentives for developers to adopt green building standards. Policies such as the introduction of green bonds in Nigeria are critical in stimulating investments in the construction of sustainable housing (Debrah et al., 2022). The role of policy support is thus vital in ensuring that green financing mechanisms are both attractive to investors and viable for developers.

Sustainable Housing Development in Nigeria

Sustainable housing development in Nigeria is faced with numerous challenges, including insufficient infrastructure, lack of financing options, and regulatory hurdles. Despite these challenges, the demand for affordable and sustainable housing continues to rise due to rapid urbanization and population growth (Ezennia, 2022; Jiboye et al., 2020). Scholars have emphasized the importance of integrating sustainability into housing policies and construction practices, focusing on energy-efficient designs, resource optimization, and environmentally friendly materials (Oyetunji et al., 2022; Oluleye et al., 2021). The sustainable housing development agenda in Nigeria is gaining traction, but significant barriers remain. These include a lack of technical capacity in the construction industry, high financing costs, and limited access to green financing options (Obianyo et al., 2021). As such, policy support that fosters a conducive environment for green financing can significantly enhance the prospects for sustainable housing projects.

The Role of Policy Support

Policy support is the core mediating variable in this study, shaping the flow of green finance into housing projects (Debrah et al., 2022). Effective policy interventions are essential for making green financing more accessible and for guiding the housing sector toward sustainable practices (Ezennia, 2022). Government policies can incentivize green building through tax breaks, subsidies, regulations, and standards that promote environmental sustainability (Akinsulire et al., 2024). For example, policies that mandate the inclusion of energy-efficient features in housing projects can make green financing more attractive to developers (Oyetunji et al., 2022). On the other hand, a lack of coherent policy support can hinder the development of sustainable housing by creating barriers to accessing green finance, such as high interest rates or limited financial product offerings (Akinsulire et al., 2024).

Challenges to Sustainable Housing Development in Nigeria

Nigeria's housing sector faces numerous challenges in achieving sustainable housing development. These challenges include a lack of affordable housing, insufficient funding for green projects, and the high cost of implementing sustainable building practices (Adedeji, 2023). While there is increasing interest in green financing, the sector remains underdeveloped, with limited access to financing options that support environmentally friendly construction (Oyetunji et al., 2022). Inadequate policy support further exacerbates these issues, making it difficult to promote large-scale sustainable housing projects (Obianyo et al., 2022). As noted by Adedeji (2023), Nigeria’s rapid urbanization has compounded the need for affordable housing that also meets sustainability standards, which can only be achieved through effective policy frameworks (Wang & Wang, 2022).

Impact of Green Financing on Sustainable Housing

Green financing offers a promising solution to many of the financing challenges faced by the housing sector (Agyekum et al., 2022). Green bonds, loans, and funds designed for environmental sustainability can help alleviate the high costs associated with sustainable housing development (Agyekum et al., 2022; Oguntuase & Windapo, 2021). Studies like that of Wang and Wang (2022) emphasize the role of green finance in supporting energy development, contributing to overall economic growth and the adoption of sustainable practices in housing (Wang & Wang, 2022). Agyekum et al. (2022) also explore how financing for green buildings is essential to achieving

sustainable development goals in the African context, particularly in countries like Nigeria, where green building initiatives have not yet reached their full potential (Ezennia, 2022).

The Role of Government Policies in Promoting Green Finance

Government policies play a critical role in facilitating or hindering the success of green financing for sustainable housing development (Akinsulire et al., 2024). Positive policy interventions can incentivize private and public sector investments in green housing projects (Agyekum et al., 2022). This may include providing tax rebates for developers of sustainable buildings, offering financial incentives for the use of renewable energy technologies, or creating regulations that ensure green building standards are met (Debrah et al., 2022). On the other hand, the lack of strong policy frameworks can stifle progress by limiting access to green financing options, as evidenced by the work of Akinsulire et al. (2024), which highlights the challenges of policy implementation in the context of affordable housing and green financing (Oyetunji et al., 2022). The study underscores the importance of policy support in bridging the gap between green financing and sustainable housing development in Nigeria (Wang & Wang, 2022). Effective policy measures are essential for unlocking the potential of green finance to address the nation's housing challenges while promoting environmental sustainability (Akinsulire et al., 2024). The role of policy support as a mediating factor cannot be overstated, as it directly influences the accessibility and success of green financing in achieving sustainable housing goals (Adedeji, 2023). The findings from this study will provide valuable insights for policymakers, housing developers, and financial institutions seeking to promote sustainable housing development through green finance (Oyetunji et al., 2022).

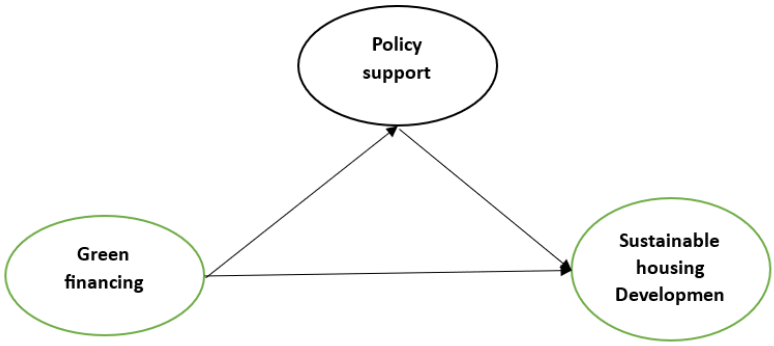

Fig. 1. Conceptual Framework

3. Research Methods

The study adopted a quantitative research design to investigate the mediating role of policy support in the relationship between green financing and sustainable housing development in Nigeria. This design was selected because it allows for objective data collection and analysis, facilitating the testing of hypotheses. Data was gathered using a structured questionnaire aimed at eliciting responses from registered real estate developers actively engaged in housing development projects. The target population for the study comprised 750 registered real estate developers. To determine an appropriate sample size, the Krejcie and Morgan sample size determination table from 1970 was utilized, resulting in a sample size of 254 respondents. This ensured that the findings would be statistically significant and generalizable to the larger population.

A simple random sampling technique was employed to select the participants, ensuring that all registered real estate developers had an equal opportunity to be included in the study. This method reduced the risk of selection bias and enhanced the reliability of the data. The questionnaire was structured to collect information on green financing practices, the role of policy support, and their combined impact on sustainable housing development. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used for data analysis, enabling the study to test the hypothesized relationships and assess the mediating role of policy support effectively.

4. Results and Discussions

Data Normality Assessment

The study employed the +3/-3 threshold for skewness and kurtosis to assess data normality. Analysis revealed that the skewness values for all items ranged between -0.800 and -2.250, while excess kurtosis values ranged from -0.654 to 4.521. These results indicate that the data distribution deviates from normality, as several values exceed the +3/-3 threshold. Items such as SHD3, SHD4, and SHD5 exhibited particularly high kurtosis and skewness, suggesting a notable departure from normality. Despite these deviations, the Cramér-von Mises p-values were uniformly significant at 0.000, reinforcing the presence of non-normality across the dataset. These findings suggest the suitability of non-parametric statistical techniques or data transformation methods for further analysis.

Table 1. Data Normality Assessment

Name	Type	Mean	Standard deviation	Excess kurtosis	Skewness
RPS1	MET	3.876	1.412	-0.594	-0.914
RPS2	MET	3.900	1.335	-0.480	-0.913
RPS3	MET	4.085	1.195	0.248	-1.147
RPS4	MET	4.000	1.252	0.191	-1.116
RPS5	MET	4.162	1.117	0.898	-1.310
GRFIN1	MET	4.104	1.156	0.587	-1.215
GRFIN2	MET	4.127	1.160	0.753	-1.279
GRFIN3	MET	4.112	1.195	0.651	-1.297
GRFIN4	MET	4.093	1.208	0.115	-1.131
GRFIN5	MET	3.938	1.269	-0.609	-0.819
SHD1	MET	3.884	1.310	-0.654	-0.800
SHD2	MET	4.093	1.224	0.442	-1.246
SHD3	MET	4.479	1.003	4.521	-2.250
SHD4	MET	4.432	0.993	4.271	-2.141
SHD5	MET	4.444	0.942	4.116	-2.052

Quality Criteria

R-square

The study evaluated the model's quality criteria using R-square and adjusted R-square values to assess the explained variance of the dependent variables. The results indicate that the R-square for "Role of Policy Support" is 0.693, with an adjusted R-square of 0.692, demonstrating that approximately 69.2% of the variance in this construct is explained by the predictors. Similarly, the R-square for "Sustainable Housing Development" is 0.732, with an adjusted R-square of 0.729, indicating that 72.9% of the variance in this outcome is accounted for by the model. These high values reflect a strong explanatory power, supporting the robustness of the model in capturing the relationships among the variables.

Table 2. R-Square

	R-square	R-square adjusted
Role of Policy Support	0.693	0.692
Sustainable Housing Development	0.732	0.729

F-Square

The study assessed the effect size using f-square values to determine the relative impact of the predictors on the dependent variables. The results show that "Green Financing" has a substantial effect on the "Role of Policy Support," with an f-square value of 2.254, and a moderate effect on

"Sustainable Housing Development," indicated by an f-square value of 0.463. Meanwhile, the "Role of Policy Support" exhibits a small effect on "Sustainable Housing Development," with an f-square value of 0.072. These values highlight the critical role of green financing as a strong driver in the model, with policy support playing a complementary but smaller role in influencing sustainable housing development.

Table 3. f-square

	Green Financing	Role of Policy Support	Sustainable Housing Development
Green Financing		2.254	0.463
Role of Policy Support			0.072
Sustainable Housing Development			

Construct Reliability and Validity

The construct reliability and validity assessment confirm the robustness of the measurement model. For "Green Financing," Cronbach's alpha is 0.932, and composite reliability (rho_c) is 0.949, indicating excellent internal consistency. The average variance extracted (AVE) is 0.787, demonstrating that the construct captures a significant portion of the variance in its indicators. Similarly, the "Role of Policy Support" shows strong reliability, with a Cronbach's alpha of 0.914 and a composite reliability (rho_c) of 0.935. Its AVE is 0.743, exceeding the recommended threshold of 0.50, confirming good convergent validity. These results validate the reliability and validity of the constructs used in the study.

Table 4. Construct reliability and validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Green Financing	0.932	0.933	0.949	0.787
Role of Policy Support	0.914	0.918	0.935	0.743
Sustainable Housing Development	0.883	0.899	0.913	0.676

Discriminant Validity

Heterotrait-Monotrait Ratio (HTMT) – Matrix

The assessment of discriminant validity using the Heterotrait-Monotrait (HTMT) ratio indicates that the constructs are distinct and not overly correlated. The HTMT value between "Green Financing" and "Role of Policy Support" is 0.891, while the value between "Green Financing" and "Sustainable Housing Development" is 0.901. Additionally, the HTMT ratio between "Role of Policy Support" and "Sustainable Housing Development" is 0.840. All these values are below the threshold of 0.90, supporting the discriminant validity of the constructs and confirming that they measure distinct aspects of the theoretical model.

Table 5. Heterotrait-monotrait ratio (HTMT) – Matrix

	Green Financing	Role of Policy Support	Sustainable Housing Development
Green Financing			
Role of Policy Support	0.891		
Sustainable Housing Development	0.901	0.840	

Path Coefficients Evaluation

Table 6. Path coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Green Financing -> Role of Policy Support	0.832	0.835	0.027	31.150	0.000
Green Financing -> Sustainable Housing Development	0.636	0.632	0.070	9.114	0.000
Role of Policy Support -> Sustainable Housing Development	0.250	0.256	0.072	3.458	0.001

The analysis of path coefficients provides insights into the relationships between the constructs in the model. The impact of Green Financing on the Role of Policy Support is highly significant, with an original sample estimate of 0.832, a sample mean of 0.835, and a standard deviation of 0.027. The t-statistics value of 31.150 and a p-value of 0.000 indicate a robust positive effect. Similarly, the relationship between Green Financing and Sustainable Housing Development is significant, with an original sample estimate of 0.636, a sample mean of 0.632, and a standard deviation of 0.070. The t-statistics value of 9.114 and a p-value of 0.000 confirm the importance of Green Financing in driving sustainable housing outcomes. Lastly, the Role of Policy Support also has a significant positive effect on Sustainable Housing Development, with an original sample estimate of 0.250, a sample mean of 0.256, and a standard deviation of 0.072. The t-statistics value of 3.458 and a p-value of 0.001 support the mediating role of policy support in enhancing sustainable housing development.

Mediation Analysis

Table 7. Path Coefficient Evaluation for Mediation Analysis

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Green Financing -> Role of Policy Support -> Sustainable Housing Development	0.208	0.214	0.063	3.311	0.001

The mediation analysis reveals that the Role of Policy Support significantly mediates the relationship between Green Financing and Sustainable Housing Development. The original sample estimate for this indirect effect is 0.208, with a sample mean of 0.214 and a standard deviation of 0.063. The t-statistics value of 3.311, with a p-value of 0.001, indicates that the mediation effect is statistically significant. This suggests that the influence of Green Financing on Sustainable Housing Development is partially channeled through the Role of Policy Support, emphasizing the importance of policy frameworks in supporting the transition towards more sustainable housing development.

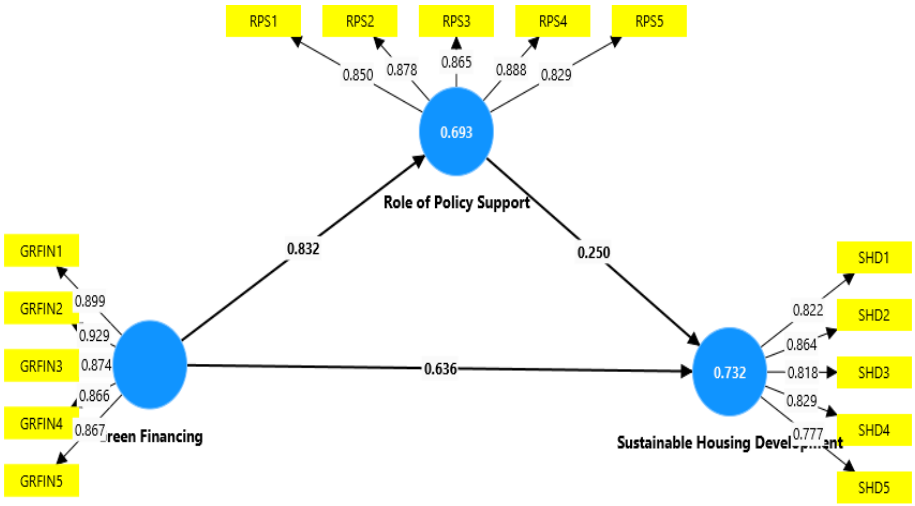

Fig. 2. Structural Model

The path coefficient analysis conducted in this study highlights significant relationships between Green Financing, Role of Policy Support, and Sustainable Housing Development. The findings reveal a robust positive effect of Green Financing on the Role of Policy Support, with a path coefficient of 0.832, which is statistically significant (p-value = 0.000). This suggests that the provision of green finance plays a crucial role in shaping and influencing policies aimed at promoting sustainable development. This aligns with previous studies, such as Wang and Wang (2022), who emphasize the critical role of green finance in driving policy innovations that support sustainable economic development, including housing. They argue that well-structured green financing systems can significantly impact the policy environment, enabling more sustainable urban developments.

Furthermore, the study indicates that Green Financing also has a significant impact on Sustainable Housing Development, with a path coefficient of 0.636, confirming its importance in fostering green and sustainable housing projects. This result supports findings by Oguntuase and Windapo (2021), who argue that green bonds and other green finance mechanisms are essential for promoting sustainable housing projects in developing nations like Nigeria. These mechanisms provide the necessary financial backing for green building initiatives, which are crucial in meeting sustainable development goals.

Additionally, the Role of Policy Support demonstrates a significant positive effect on Sustainable Housing Development, with a path coefficient of 0.250. This result corroborates the argument made by Akinsulire et al. (2024), who stress that policy innovations, particularly in the realm of green financing and sustainability, are pivotal to overcoming the barriers to affordable and sustainable housing. Effective policy support not only creates an enabling environment for green financing but also ensures that sustainable housing development is adequately prioritized and integrated into national development agendas.

The mediation analysis further substantiates these findings by highlighting that the Role of Policy Support mediates the relationship between Green Financing and Sustainable Housing Development, with an indirect effect of 0.208. This mediation effect underscores the essential role of supportive policies in enhancing the positive impact of green financing on sustainable housing outcomes. This mediation effect supports the arguments put forth by Debrah et al. (2022), who suggest that policy interventions are crucial in bridging the gap between green finance availability and its effective implementation in sustainable projects. In conclusion, the results of this study contribute significantly to the existing literature by highlighting the interconnectedness of Green Financing, Role of Policy Support, and Sustainable Housing Development. They offer practical insights into how green finance and policy frameworks can be leveraged to promote sustainable housing solutions, particularly in

developing countries. The findings underscore the importance of integrating financial mechanisms with robust policy support to achieve long-term sustainability goals in urban housing development.

Mediation Result

The mediation analysis in this study provides critical insights into the interplay between Green Financing, the Role of Policy Support, and Sustainable Housing Development. The findings suggest that Policy Support mediates the relationship between Green Financing and Sustainable Housing Development, acting as a crucial intermediary in translating green financial initiatives into tangible housing outcomes. The direct path coefficient between Green Financing and the Role of Policy Support (0.832, p-value = 0.000) shows a strong positive influence, indicating that green finance not only promotes environmental sustainability but also influences policy frameworks that support sustainable development. This relationship is significant and aligns with research by Akinsulire et al. (2024), who emphasize the role of policy support in fostering green finance initiatives. The strong positive effect observed in this study suggests that policy support is a key enabler for the successful deployment of green financing mechanisms, particularly in sectors like housing. Additionally, the study reveals that Green Financing also positively influences Sustainable Housing Development, with a path coefficient of 0.636 (p-value = 0.000). This finding is consistent with Oguntuase and Windapo (2021), who stress the importance of green financing in facilitating the development of sustainable housing projects. The significant impact of Green Financing on housing development suggests that financial resources allocated to green initiatives can directly contribute to sustainable urban housing solutions. The Role of Policy Support, in turn, has a significant positive effect on Sustainable Housing Development, with a path coefficient of 0.250 (p-value = 0.001). This confirms that supportive policies are essential in driving sustainable housing outcomes. The findings are consistent with studies such as those by Agyekum et al. (2022), which argue that well-designed policies can mitigate barriers to sustainable housing development by ensuring financial and regulatory frameworks are aligned with green objectives.

The mediation analysis reveals an indirect effect of 0.208, illustrating that the positive impact of Green Financing on Sustainable Housing Development is partially channeled through Policy Support. This mediation effect underscores the critical role of policy frameworks in enhancing the effectiveness of green finance initiatives. This finding supports the views of Debrah et al. (2022), who highlight that policy mechanisms are necessary to ensure that green financing is effectively implemented and directed toward achieving sustainable development goals, including in the housing sector, the mediation analysis not only affirms the significant relationships between Green Financing, Policy Support, and Sustainable Housing Development but also highlights the essential mediating role of policy support. It contributes to the understanding that, while Green Financing can drive sustainable housing development, its impact is significantly amplified when supported by strong, enabling policies. This insight is valuable for policymakers and stakeholders in the housing sector, as it suggests that fostering green finance alone is insufficient; effective policy frameworks are needed to maximize its potential in achieving sustainable housing outcomes.

5. Conclusion

In conclusion, this study has highlighted the critical relationships between Green Financing, Policy Support, and Sustainable Housing Development. The analysis reveals that Green Financing plays a significant role in both driving policy support and enhancing sustainable housing outcomes. The strong positive effect of Green Financing on Policy Support underscores the importance of financial initiatives in shaping supportive policy frameworks, which in turn can help advance sustainable housing development. The mediating role of Policy Support also proves to be a vital factor, demonstrating that well-designed policies are essential in maximizing the impact of green finance on housing sustainability. The findings from this study contribute to a deeper understanding of how financial resources can be effectively directed towards achieving sustainability in the housing sector. It emphasizes that Green Financing alone, while crucial, must be accompanied by robust policy mechanisms that create an enabling environment for its successful implementation. These findings are

particularly relevant for policymakers, urban developers, and financial institutions aiming to promote sustainable development in the housing sector. Based on the findings of this study, several recommendations can be made. Firstly, it is crucial for policymakers to design and implement policies that specifically target the promotion of Green Financing, ensuring that these initiatives are supported through financial incentives, regulatory frameworks, and sustainable building codes. Secondly, governments should prioritize integrating green finance into national housing strategies, facilitating the alignment of financing mechanisms with sustainability goals. Additionally, there is a need for capacity building among financial institutions, developers, and other stakeholders to improve their understanding of green finance and its benefits for sustainable housing development. Finally, further research is needed to explore the long-term effects of Green Financing and Policy Support on housing sustainability, particularly in diverse socio-economic and environmental contexts. By strengthening the link between finance, policy, and sustainability, the housing sector can contribute significantly to broader environmental and economic goals.

References

Adedeji, I. (2023). Nigerian Urbanization and the Significance of Affordable Housing. *Journal of Service Science and Management*, *16*(3), 351-368.

Adisa, O., Ilugbusi, B. S., Obi, O. C., Awonuga, K. F., & Asuzu, O. F. (2024). Green bonds in climate finance: A review of USA and African initiatives. *International Journal of Science and Research Archive*, *11*(1), 2376-2383.

Agyekum, K., Goodier, C., & Oppon, J. A. (2022). Key drivers for green building project financing in Ghana. *Engineering, Construction and Architectural Management*, *29*(8), 3023-3050.

Agyekum, K., Opoku, A., Oppon, A. J., & Opoku, D. G. J. (2022). Obstacles to green building project financing: an empirical study in Ghana. *International journal of construction management*, *22*(15), 2922-2930.

Akinsulire, A. A., Idemudia, C., Okwandu, A. C., & Iwuanyanwu, O. (2024). Sustainable development in affordable housing: Policy innovations and challenges. *Magna Scientia Advanced Research and Reviews*, *11*(2), 090-104.

Alohan, E. O., & Oyetunji, A. K. (2021). Hindrance and benefits to green building implementation: evidence from Benin City, Nigeria. *Real Estate Management and Valuation*, *29*(3), 65-76.

Debrah, C., Chan, A. P. C., & Darko, A. (2022). Green finance gap in green buildings: A scoping review and future research needs. *Building and Environment*, *207*, 108443.

Ebekozien, A., Ayo-Odifiri, S. O., Nwaole, A. N. C., Ibeabuchi, A. L., & Uwadia, F. E. (2022). Barriers in Nigeria's public hospital green buildings implementation initiatives. *Journal of Facilities Management*, *20*(4), 586-605.

Ebekozien, A., Ikuabe, M., Awo-Osagie, A. I., Aigbavboa, C., & Ayo-Odifiri, S. O. (2022). Model for promoting green certification of buildings in developing nations: a case study of Nigeria. *Property Management*, *40*(1), 118-136.

Ezennia, I. S. (2022). Insights of housing providers' on the critical barriers to sustainable affordable housing uptake in Nigeria. *World development sustainability*, *1*, 100023.

Huang, H., Chau, K. Y., Iqbal, W., & Fatima, A. (2022). Assessing the role of financing in sustainable business environment. *Environmental Science and Pollution Research*, 1-18.

Isah, A., Dioha, M. O., Debnath, R., Abraham-Dukuma, M. C., & Butu, H. M. (2023). Financing renewable energy: policy insights from Brazil and Nigeria. *Energy, Sustainability and Society*, *13*(1), 2.

Jiboye, A. D., Adebayo, J. A., & Obakin, O. A. (2020). Urban housing in Nigeria for sustainable development: Challenges and prospects. *International Journal of Advanced Engineering Research and Science*, *7*(7), 478-491.

Nyantakyi, G., Gyimah, J., Sarpong, F. A., & Sarfo, P. A. (2023). Powering sustainable growth in West Africa: exploring the role of environmental tax, economic development, and financial development in shaping renewable energy consumption patterns. *Environmental Science and Pollution Research*, *30*(50), 109214-109232.

Obianyo, I. I., Ihekweme, G. O., Mahamat, A. A., Onyelowe, K. C., Onwualu, A. P., & Soboyejo, A. B. (2021). Overcoming the obstacles to sustainable housing and urban development in

Nigeria: The role of research and innovation. *Cleaner Engineering and Technology*, *4*, 100226.

Odoyi, E. J., & Riekkinen, K. (2022). Housing policy: An analysis of public housing policy strategies for low-income earners in Nigeria. *Sustainability*, *14*(4), 2258.

Oguntuase, O. J., & Windapo, A. (2021). Green bonds and green buildings: New options for achieving sustainable development in Nigeria. *Housing and SDGs in Urban Africa*, 193-218.

Oke, A. E., Kineber, A. F., Al-Bukhari, I., Famakin, I., & Kingsley, C. (2023). Exploring the benefits of cloud computing for sustainable construction in Nigeria. *Journal of Engineering, Design and Technology*, *21*(4), 973-990.

Okwandu, A. C., Esho, A. O. O., Iluyomade, T. D., & Olatunde, T. M. (2024). The role of policy and regulation in promoting green buildings. *World Journal of Advanced Research and Reviews*, *22*(1), 139-150.

Olawumi, T. O., Chan, D. W., Saka, A. B., Ekundayo, D., & Odeh, A. O. (2023). Are there any gains in green-tech adoption? Unearthing the beneficial outcomes of smart-sustainable practices in Nigeria and Hong Kong built environment. *Journal of Cleaner Production*, *410*, 137280.

Olawumi, T. O., Chan, D. W., Saka, A. B., Ekundayo, D., & Odeh, A. O. (2023). Are there any gains in green-tech adoption? Unearthing the beneficial outcomes of smart-sustainable practices in Nigeria and Hong Kong built environment. *Journal of Cleaner Production*, *410*, 137280.

Oluleye, I. B., Ogunleye, M. B., & Oyetunji, A. K. (2021). Evaluation of the critical success factors for sustainable housing delivery: analytic hierarchy process approach. *Journal of Engineering, Design and Technology*, *19*(5), 1044-1062.

Oyetunji, A. K., Oluleye, B. I., Olukolajo, M. A., & Chan, D. W. (2022). Is green good: Unveiling the latent benefits of sustainable housing delivery. *Cities*, *129*, 103809.

Raimi, L., Olowo, R., & Shokunbi, M. (2021). A comparative discourse of sustainable finance options for agribusiness transformation in Nigeria and Brunei: implications for entrepreneurship and enterprise development. *World Journal of Science, Technology and Sustainable Development*, *18*(4), 325-350.

Samour, A., Mehmood, U., Radulescu, M., Budu, R. A., & Nitu, R. M. (2023). Examining the role of renewable energy, technological innovation, and the insurance market in environmental sustainability in the United States: a step toward COP26 targets. *Energies*, *16*(17), 6138.

Shandong, N. J. (2022). The Role of Financial Sector development and Green Finance in promoting sustainable performance: Evidence from renewable energy projects in Pakistan.

Shipalana, P. (2020). Green finance mechanisms in developing countries: Emerging practice. *South African Institute of International Affairs*.

Sultanuzzaman, M. R., Yahya, F., & Lee, C. C. (2024). Exploring the complex interplay of green finance, business cycles, and energy development. *Energy*, *306*, 132479.

Umoh, A. A., Adefemi, A., Ibewe, K. I., Etukudoh, E. A., Ilojianya, V. I., & Nwokediegwu, Z. Q. S. (2024). Green architecture and energy efficiency: a review of innovative design and construction techniques. *Engineering Science & Technology Journal*, *5*(1), 185-200.

Wang, R., & Wang, F. (2022). Exploring the role of green finance and energy development towards high-quality economic development: application of spatial Durbin model and intermediary effect model. *International Journal of Environmental Research and Public Health*, *19*(14), 8875.

Zheng, G. W., Siddik, A. B., Masukujjaman, M., & Fatema, N. (2021). Factors affecting the sustainability performance of financial institutions in Bangladesh: the role of green finance. *Sustainability*, *13*(18), 10165.