

Internal Factors Influencing Joint Venture on Housing Projects Delivery in the Federal Capital Territory, Abuja

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ABSTRACT

The urgency of addressing the problem of inefficient housing development in urban regions has necessitated research into the drivers of housing project delivery in the construction industry. This study investigates the influence of internal factors on joint ventures in housing project delivery within a specific area. The study adopted an Ex Post Facto research design, a quasi-experimental approach. The study population included members of the Real Estate Developers Association of Nigeria and their stakeholders in the FCT, Abuja, which comprised developers, landowners, project professionals, government agencies, and financial institutions, with a focus on joint ventures from 2006 to 2021, selected based on accessibility, profit margin, and years of experience. Data was collected from a sample of 384 respondents using a multi-stage sampling procedure. Utilizing descriptive and inferential statistical analyses, the research examines variables such as intra-partner characteristics, inter-partner fit, partner selection, contracts, managerial characteristics, and gender parity. Descriptive statistics reveal the distribution of these variables among 38 respondents, while a structural path model illustrates their relationships with housing project delivery. Regression analysis further confirms the significance of intra-partner characteristics, inter-partner fit, managerial characteristics, and gender parity in influencing project outcomes. However, partner selection and contracts were found to have no significant impact. The findings highlight the importance of fostering strong intra- and inter-partner relationships, enhancing managerial skills, and promoting gender diversity to improve housing project delivery. Recommendations for future research include exploring additional variables and conducting longitudinal studies to understand the long-term effects of internal factors on project success.

Key words: joint ventures, Internal factors, real estate, housing projects delivery,

INTRODUCTION

The establishment of formal real estate development in Nigeria dates back to the 1960s, initially driven by government and parastatal agencies (Aliu, 2024). By the 1970s, private sector stakeholders became more involved, leading to the growth of various ownership and development structures (Ikejiofor, 2006; Akande et al. 2024). Joint ventures (JVs) emerged as a strategic response to increased development activity, stricter government control, and capital shortages (Akinmoladun & Oluwoye, 2007; Malik & Nurunnabi, 2024). In the Nigerian context, JVs in housing projects typically involve a private developer or a consortium agreeing to build a specific number of housing units of a defined quality within a stipulated period, complete with necessary services and facilities. These projects must meet regulatory requirements before the government transfers the property title to the developers (Egbu, et al., 2006).

Joint ventures are recognized as effective business strategies for achieving specific goals, such as

developing new housing projects (Seiso et al., 2023). They allow developers to mitigate individual risks associated with high-cost activities, which may arise from financial constraints, lack of experience, or limited administrative and organizational skills (Li et al., 2016). In the construction industry, particularly as projects become larger, more complex, and riskier, collaboration between diverse participants toward a common goal is increasingly important (Seiso, 2023). The housing sector is a critical component of the construction industry, reflecting the overall welfare of communities and nations (Oladapo, 2006). Urbanization drives the demand for housing, exacerbating issues such as environmental pollution and capacity challenges due to informal settlements (Omirin, 2002).

Properly planned, executed, and managed mass housing projects can significantly contribute to economic potential (Zhang et al., 2016). These projects involve coordinated efforts from government planning authorities, real estate developers, financial institutions, building contractors, and housing consumers to meet the growing need for residential accommodation (Ibem & Amole, 2010). The construction sector generates employment, wealth, and economic growth, symbolizing the economic health of a society through the development and use of man-made structures and infrastructures (Oyewobi et al., 2016). The current state of joint ventures in housing project delivery in Abuja is plagued by inefficiencies and underperformance. Despite the potential benefits, many JVs fail to meet their objectives due to internal factors such as intra-partner characteristics, inter-partner fits, the number of partners, contract terms, managerial characteristics, and gender dynamics (Ngong & Thaddeus, 2020; Lima et al., 2021; Perera et al., 2020; Li et al., 2020; Adebayo et al., 2021).

The inefficiencies in joint ventures particularly affect developers, landowners, project professionals, government agencies, and financial institutions (Olujimi, 2009). These stakeholders rely on the success of JVs to achieve their housing delivery goals. When JVs fail to perform, it leads to delays, cost overruns, and substandard housing, which in turn affects the housing supply and overall economic development of Abuja (Oladapo, 2006; Ibem & Amole, 2010). If these problems are not addressed, the consequences could be severe. The housing deficit will continue to grow, exacerbating urbanization challenges and negatively impacting the socio-economic growth of the region (Wells, 2007). It will also undermine investor confidence in the real estate sector, deterring future investments and collaborations essential for large-scale housing projects (Akinmoladun & Oluwoye, 2007; Oyewobi et al., 2016).

Research on housing development through Special Purpose Vehicles (SPVs) in Nigeria is limited, prompting the need to examine the internal factors influencing joint venture (JV) housing project delivery, particularly in Abuja. Despite the economic potential, Nigeria faces challenges such as unstable government policies, corruption, weak property rights, and political instability, which complicate financing for housing investments (Adebayo & Adesope, 2021). Financial motivations are often primary drivers for entering into JVs, as they facilitate the raising of capital through partnerships among property developers (Ahmed, 2020). The shared responsibility inherent in JVs is crucial for delivering quality housing, making the performance of SPVs a significant source of risk and uncertainty that can impact project outcomes (Owotemu et al., 2022). Internal factors, originating within the project organizations themselves, are critical to the success of joint ventures. In the light of the foregoing, this study in its general objective explored the influence of internal factors on joint ventures in housing project delivery and specifically examined the influencing project outcomes of intra-partner characteristics, inter-partner fit, managerial characteristics, and gender parity in the context of FCT, Abuja's housing projects.

LITERATURE REVIEW

Conceptual Review Joint Venture

JVs in real estate often take the form of consortia, which can range from large to small groups of companies. These arrangements are essential for pooling skills and resources that individual partners may lack (BIS,

2012). Licensing and franchising agreements are common JV forms, characterized by coordination, cooperation, resource combining, self-performance in construction, and risk-sharing (Peck, 1993). Such collaborations are particularly beneficial for clients lacking in-house expertise, enabling the completion of large or complex projects through collective effort (Siniak et al., 2020). JVs can be employed for both public and private sector projects, adapting approaches to suit specific needs and adhering to construction practice codes. They involve two or more parties jointly developing a project, sharing costs, operating it, managing risks, and dividing profits. This can be structured through various mechanisms, including buy-and-build models, service agreements with shared profits, or through SPVs (Lu et al., 2020).

According to the Royal Institution of Chartered Surveyors (RICS, 2010), a JV agreement involves two parties leveraging each other's resources for a common goal without establishing a new legal entity. These agreements can operate through franchises, limited liability companies, partnerships, or equity-based arrangements, focusing on resource sharing and profit returns (Ngoc et al., 2023). Recent studies provide insights into the dynamics of JVs in housing projects. Duyile and Ekiti (2020) emphasize the importance of aligning partner objectives and clarifying contract terms to enhance JV performance. Ngong and Thaddeus (2020) highlight the influence of managerial characteristics, suggesting the need to explore gender dynamics in JV management.

Empirical Review

Several recent studies have examined the dynamics of joint ventures in housing projects. Duyile and Ekiti (2020) studied the factors affecting JV performance in Nigeria, highlighting the need for better alignment of partner objectives and clearer contract terms. They recommend further research on the impact of partner selection criteria on JV success. Ngong and Thaddeus (2020) focused on managerial characteristics, finding that leadership skills significantly influence JV outcomes. They suggest exploring the role of gender dynamics in JV management. Lima et al. (2021) analyzed the financial constraints of JVs, advocating for more robust financial planning and risk management strategies. Further research on financing models for JVs was recommended. Perera et al. (2020) examined the role of government policies in JV success, identifying regulatory challenges that need to be addressed. They recommend studying the impact of policy changes on JV performance.

Li et al. (2020) investigated the importance of inter-partner fits, concluding that cultural and operational compatibility is crucial. They call for more research on mechanisms to enhance partner compatibility. Adebayo et al. (2021) studied the contractual aspects of JVs, highlighting issues with contract enforcement and dispute resolution. They suggest exploring alternative dispute resolution mechanisms for JVs. Despite these insights, there remains a gap in the literature regarding the specific internal factors influencing JV performance in housing projects in Abuja. This study aims to fill this gap by focusing on intra-partner characteristics, inter-partner fits, the number of partners, contract terms, managerial characteristics, and gender dynamics, thereby contributing to more effective JV management and successful housing project delivery.

Lima et al. (2021) advocate for robust financial planning and risk management to address financial constraints. Perera et al. (2020) identified regulatory challenges, recommending research on the impact of policy changes on JV success. Li et al. (2020) stressed the significance of cultural and operational compatibility between partners, calling for mechanisms to enhance compatibility. Adebayo et al. (2021) focus on contractual issues, suggesting alternative dispute resolution mechanisms for JVs. Despite these contributions, gaps remain in understanding the specific internal factors influencing JV performance in Abuja's housing projects. This study aims to fill these gaps by investigating intra-partner characteristics, inter-partner fits, the number of partners, contract terms, managerial characteristics, and gender dynamics, ultimately contributing to more effective JV management and successful housing project delivery.

METHODOLOGY

Research Design

This study employed a structured set of methods and procedures to collect and analyze measures of various components specified in the research, ensuring validity, objectivity, and accuracy. The study adopted an Ex Post Facto research design, a quasi-experimental approach that explored how independent variables influence dependent variables without manipulating the characteristics of participants and events, following the principles outlined by Salkind (2010).

The study focused on the Federal Capital Territory (F.C.T.), Abuja, Nigeria, chosen for its high concentration of housing projects. Abuja, with an estimated population of approximately 3,728,098, is bordered by Kaduna, Nassarawa, Kogi, and Niger states and is divided into six area councils: Abuja Municipal, Gwagwalada, Kuje, Abaji, Kwali, and Bwari. The city had experienced significant population growth and the emergence of satellite towns, making it a critical area for studying housing development. The study population included members of the Real Estate Developers Association of Nigeria and their stakeholders in the FCT, Abuja.

Population and Sample Size

This population comprised developers, landowners, project professionals, government agencies, and financial institutions, with a focus on joint ventures from 2006 to 2021, selected based on accessibility, profit margin, and years of experience. The sample size was determined using Cochran's Formula (1963) for an unknown population. Assuming maximum variability ($p = 0.5$), with a 95% confidence level and $\pm 5\%$ precision, the required sample size was calculated to be 384 respondents. Mathematically, the formula is given as:

$$n_0 = \frac{z^2 pq}{e^2}$$

Where,

n_0 = sample size,

z = the selected critical value of desired confidence level

p = the estimated proportion of an attribute that is present in the population,

$q = 1 - p$ and

e = the desired level of precision (probability of error)

To calculate the sample size of unknown population, assuming the maximum variability is equal to 50% ($p = 0.5$), and taking 95% confidence level with $\pm 5\%$ precision, the calculation for required sample size will be as follow:

$p = 0.5$ and hence $q = 1 - 0.5 = 0.5$; $e = 0.05$; $z = 1.96$ So,

$$n_0 = [(1.96)^2 (0.5) (0.5)] / (0.05)^2 = 384.16$$

A multi-stage sampling procedure was used, involving two types of questionnaires. The first questionnaire

targeted stakeholders, following three stages: purposive selection of seven local government areas, selection of three largest housing projects per area, and stratified sampling of 384 respondents from various categories as shown in Table 1.

Table 1: Method of data collection for Federal Capital Territory

S/N	LGA	PNPPL	PD	GA	FI	LO	CP	PCQPP	TSQ	TEQ
1	Abaji	5	3	3	3	2	2	15	65	65
2	Abuja	6	3	3	3	3	3	13	90	90
3	Bwari	4	4	3	3	3	3	16	64	64
4	Gwagwalada	4	3	3	3	3	3	15	60	60
5	Kuje	4	3	3	3	3	3	15	60	60
6	Kwuali	4	2	3	2	2	1	9	45	45
Total		28						128	384	384

Source: Researchers computation (2024)

The second questionnaire targeted end-users, following a similar multi-stage process. Primary data was collected using two structured questionnaires to gather information on JV activities and stakeholder perceptions of housing project delivery in Nigeria. This method ensured confidentiality and encouraged respondents to freely express their opinions. The reliability of the research instrument was measured using Cronbach’s alpha (α), with values close to +1.0 indicating high reliability. An acceptable threshold was at least 0.7, as suggested by Sarstedt, Hair, Cheah, Becker, and Ringle (2019).

Model Specification

The model for the study captured the relationship between JVs and internal factors influencing them, including intra-partner characteristics, inter-partner fits, number of partners, contract, managerial characteristics, and gender, following Adnan et al. (2012). The model was presented below:

$$JV_i = \alpha_0 + \alpha_1 INTRAC_i + \alpha_2 INTERF_{ii} + \alpha_3 NOPA_i + \alpha_4 CONTR_i + \alpha_5 MANGC_i + \alpha_6 GEND_i + \epsilon_i \dots (1)$$

where; JV stands for Joint Venture on Housing Project, INTRAC represents intra partner characteristics, INTERF stand for inter partner fit, NOPA represents number of partners, CONTR stands for contract, MANGC represents managerial characteristics, GEND stands for gender, ϵ represents error term.

The estimation technique for the analysis of data collected for the study was both descriptive and inferential analysis. Descriptive analysis was employed to provide information about the frequency of occurrence, percentage outcomes, and central tendencies such as mean, frequency distribution, and percentages. Descriptive statistics were also used to analyse the demographic characteristics of the respondents. Inferential statistical data analysis was conducted using smart Partial Least Square (PLS) 2.0 path modelling software. This tool was utilized for hypothesis testing through multivariate regression analysis to determine t-values, R-squared values, and p-values, thereby enabling adequate decisions regarding the significance of the independent variables.

Partial Least Square (PLS) is a second-generation multivariate analysis technique that combines features of first-generation methods, such as principal components and multiple regression analysis. The PLS technique appropriately functions with Structural Equation Models (SEMs) that have latent variables and cause-and-effect relationships, as highlighted by Hair, Hult, Ringle, and Sarstedt (2013). According to Ringle, Wende, and Will (2012), PLS-SEMs are regarded as an appropriate tool for building models and making predictions. The results obtained from PLS were more meaningful and valid, providing clearer conclusions compared to other analytical methods, which often require several separate methods of analysis.

Additionally, to understand the complex relationships associated with social science research, the use of PLS-SEM was necessary for applying more sophisticated multivariate data analysis due to its ability to simultaneously test several relationships (Hair et al., 2013; Akter & Hani, 2011). Thus, this study employed smart PLS path modelling to establish both the measurement and structural models. The measurement model provided an explanation of the assessment of the reliability and validity of the study's constructs, while the structural model was used to establish the correlation and relationship effects and the constructs of regression analysis.

A priori expectations were determined to predict the relationship or expected sign (positive or negative) between the dependent variable and independent variables as well as moderating variables. For the purpose of the study, these expected relationships were outlined accordingly.

Table 2: A priori Expectations

Model	A Priori Expectations
$JV_i = \alpha_0 + \alpha_1 INTRAC_i + \alpha_2 INTERF_i + \alpha_3 NOPA_i + \alpha_4 CONTR_i + \alpha_5 MANGC_i + \alpha_6 GEND_i + \varepsilon_i$	$\alpha_1 > 0, \alpha_2 < 0, \alpha_3 > 0, \alpha_4 > 0, \alpha_5 > 0, \alpha_6 < 0, \alpha_7 > 0, \alpha_8 > 0, \alpha_9 > 0$. Reject H_0 if $p < 0.05$; Otherwise, accept.

RESULTS AND DISCUSSION

Demographic Distribution of Respondents

Before discussing the results with respect to each objective, it is important to have an understanding on the demographic distribution of respondents. The respondents are in two parts, namely the stakeholders and the end users. Stakeholders are members of joint venture formation who participates in the delivery of housing project owing to their respective expertise. End users are those who are awarded and are the owner of the housing project carried out by the stakeholders. Results of the demographic distribution of the respondents are as follows;

Demographic Distribution of Respondents

Table 2 Showed the result of the demographic structure of the respondents representing the stakeholders. A quick observation of the Table indicated that 304 respondents attended to and submitted the questionnaire. Out of the 304 respondents, 89.5% respondents are male while only 10.5% of respondents are female. This is an indication that housing construction experts are still occupied by male counterpart. This result is consistent with Toor and Ogunlana, (2010) and other studies where it was discovered that the construction sector is mainly occupied by male. The reason for this could be due to the time-intensive and risk-prone of the profession. Similar to the result of gender was marital status. Observably, joint venture at the period of this study was more of married men and women representing 84.2% of respondents that are married while 16.8% of respondents are single. Thus, it can be said that most people in joint venture of housing project are married and responsible people. The implication is that their thought will surely represent the true situation of joint venture in housing project.

Coming to the age distribution of respondents, representing 44.7% of respondents are between 41 and 50 years while 23.68% are above 50 years. Thus, participants in the joint venture of housing project in FCT are adults of 41 years and above which constituted 68% while the remaining 32% were young people. The educational status of the respondents indicated that virtually that all participants are highly educated. The minimum attained education as at the period of this study was first degree, posting 42.1% of respondents. Most of the members attained higher degree not less than 10% of respondents are Ph,D holder. With this high level of educational status coupled the structure of the age bracket of the joint venture members, it can be conjectured that the sector composed mostly of highly educated adults from the professional point of view, 44.7% are engineers while 36.8% came from other disciplines. Hence, this implied that the nature of professional distribution in joint venture at this point composed of people from diverse disciplines, not necessarily engineers.

Table 3: Demographic distribution of respondents

<i>Gender</i>		
Options	Freq.	Percent
Male	272	89.47
Female	32	10.53
Total	304	100
<i>Marital Status</i>		
Single	48	15.79
Married	256	84.21
Total	304	100
<i>Age Bracket</i>		
21-30 years	8	2.63
31-40 ye	88	28.95
41-50 years	136	44.74
Over 50 years	72	23.68
Total	304	100
<i>Highest Education Qualification</i>		
BSc./HND	128	42.11
PGD/MSc	144	47.37
Ph.D	32	10.53

Total	304	100
Mr/Mrs	112	36.84
Engineer	136	44.74
Dr	8	2.63
Professor	8	2.63
Professor/Engineer	16	5.26
Others	24	7.89
Total	304	100

Source: Authors Computation (2024)

Descriptive Statistics of the Lead Variables and Respective Constructs for Internal Factor Model

The internal factors variables identified and considered for the research work as shown in Table 3 are intra-partners characteristic, inter-partner fit, partner selection, contracts and managerial characteristics. Each indicators had constructs. The inter-partner characteristics had five (5) constructs , inter-partner fit has four (04) constructs, partner selection has five (05) constructs while and managerial characteristics possess six (06) constructs. All the five indicators (intra-partner, inter-partner, partner selection, contract and managerial characteristics) are the independent variables while questions concerning project delivery was used as the dependent variable and SMART PLS was employed to carry out the analysis.

The descriptive statistic confirmed that the number of respondents observed was 304. The average values of options chosen by respondents for the constructs under the dependent variable (DELIVER) was 1.95. The minimum value was 1 while the maximum value was 7. The constructs for inter-partner fit showed a minimum value of 1 (not important) each for most of the questions asked and a maximum value of 5 for (very important) for most of the questions asked. The general observation of the descriptive statistics showed that not all the choices are picked. A particular case in this regard is the choice “*not important*” that are not chosen for some constructs under some measurement variables.

However, the general picture was that each of the choices, ranging from *not important* to *very important* are ticked by the respondents. The distribution of the data was not divergent as indicated by the standard deviation. For each variable and the construct, the value of the standard deviation was less than the mean. This is an indication that the data are not sparsely distributed. This result corroborates the validity and consistency of each construct in the time pathway analysis of the SMART-PLS algorithm in figure 1

Table 4: Descriptive statistics of the variables and respective constructs for internal factor model

Variable	Obs	Mean	Std. dev.	Min	Max
<i>Dependent Variables</i>					
DELIVR	304	1.95	1.87	1	7

<i>Independent Variable: Contract</i>					
sci1	304	3.58	1.29	2	5
sci2	304	3.53	1.33	2	5
sci3	304	3.79	1.34	2	5
sci4	304	3.39	1.31	2	5
sci5	304	2.71	1.04	1	5
sci6	304	3.03	1.22	1	5
sci7	304	2.97	1.44	1	5
<i>Independent variable: Intra-partner characteristics</i>					
sic1	304	3.50	0.83	2	5
sic2	304	3.32	0.90	2	5
sic3	304	3.13	0.99	1	5
sic4	304	3.39	0.89	1	5
sic5	304	3.34	0.88	1	5
<i>Independent Variable: Inter-partner fit</i>					
sif1	304	3.26	0.95	1	5
sif2	304	3.39	0.95	1	5
sif3	304	3.24	0.97	1	5
sif4	304	3.34	0.99	1	5
<i>Independent Variable: Partner selection</i>					
sps1	304	3.68	0.84	2	5
sps2	304	3.39	1.05	1	5
sps3	304	2.87	1.21	1	5
sps4	304	3.39	1.05	1	5
sps5	304	3.08	0.94	1	5

<i>Independent Variable: Managerial Characteristics</i>					
smc1	304	3.89	1.39	1	5
smc2	304	3.87	1.34	1	5
smc3	304	4.05	1.29	2	5
smc4	304	3.95	1.31	1	5
smc5	304	4.11	1.31	1	5
smc6	304	4.08	1.36	1	5
<i>Independent Variable: Gender parity</i>					
gen1	304	2.03	1.42	1	5
gen2	304	2.61	1.53	1	5

Source: Authors Computation, (2024)

Structural Path Model of the Internal Factors Influencing Joint Ventures on Housing Projects Delivery in the Study Area

Figure1 showed the structural path model of the independent variable to the dependent variables of the internal factors influencing joint venture and housing project delivery in the study area. The term DELIVER indicated the dependent variable and there are there are six major measures of internal factor pointing to DELIVER. These are intra-partner characteristics (SC), inter-partner fit (SF), partner selection (SP), contract (CI), managerial characteristic (MC) and gender (GE). Each of these measures has its identified constructs.

Results from the algorithm showed path coefficients in two parts. The first indicated in the yellow boxes assessed the reliability and validity of the constructs. Reliability of the construct measured the consistency and the validity measured the accuracy. The second indicated in the blue boxes assessed the relationship between variables with the use of structural model. The figures in the arrows from the yellow to the blue boxes showed the degree of consistency and accuracy of the constructs in the measurement model. The degree of consistency and accuracy for intra-partner characteristics and its constructs are observed from SIC1-SIC5. That of SIC1-SC was 0.99, SIC2-SC was 0.92, SIC3-SC was 0.6, SIC-SC4 was 0.79 and SIC5-SC was 0.79. Clearly, each of these constructs posted a figure greater than 0.5 and so, can be considered as accurate and consistent as a measure of intra-partner characteristic (SC).

The variable model for managerial characteristic (MC) and each of the constructs was very strong, ranging from 0.87 (SMC6-MC) to 0.95 (SMC5-MC). All the constructs for measuring managerial characteristic are reliable and consistent. In this regard, the values range between 0.87 (SMC6-MC) to 0.95 (SMC5-MC). Thus, it can be established that the constructs for measuring managerial characteristics are reliable and valid. Two constructs were developed for gender parity measurements. The first was captured in GEN1 with 0.96 as degree of validity and reliability while GEN2 posted 0.7 as degree of validity and reliability. It followed that the constructs for gender parity are also reliable and valid. Generally, most of the constructs indicate consistency and accuracy in measuring each factor (variable).

The second part is the structural model that assessed the degree of the relationship between the variables. The results showed that the relationship between intra-partner characteristics (SC), inter-partner fit (SF) and contract (CI) with housing project delivered (DELIVER) was 0.13, 0.11 and 0.05 respectively. These showed a weak but positive relationship. Generally, the results showed that the degree of relationship between each of the measurement model and structural model was weak but positive. Since the objective was to examine the effect of internal factor influencing project delivery by the joint venture, the study also estimated the effect of each of the variables.

Thus, Figure 1 showed that path coefficient of intra-partner characteristic (SC) effect on the numbers of housing project delivered (DELIVERED) was 0.66. This showed that one more unit of improvement in intra-partner characteristic raised numbers of housing project delivered by 0.66. This magnitude of effect was also found similar to the effect of inter-partner fit, where the path coefficient was 0.74. Observably, the path coefficients of SP, CI, and MC relatively smaller than the path coefficient of SC, GE and SF. This is an indication that intra-partner characteristic (SC), inter-partner fit (SF) and gender (GE) have more effect on housing project delivery than partner selection (SP), contract (CI) and managerial characteristic (MC). This corroborates the finding of Li et al. (2020) that investigated the importance of inter-partner fits and intra-partner characteristics, concluding that cultural and operational compatibility is crucial.

Although the path coefficient was generated, some information regarding the authenticity of the values were not provided. The study in Table 4 further used regression output to provide better and reliable coefficient of effects.

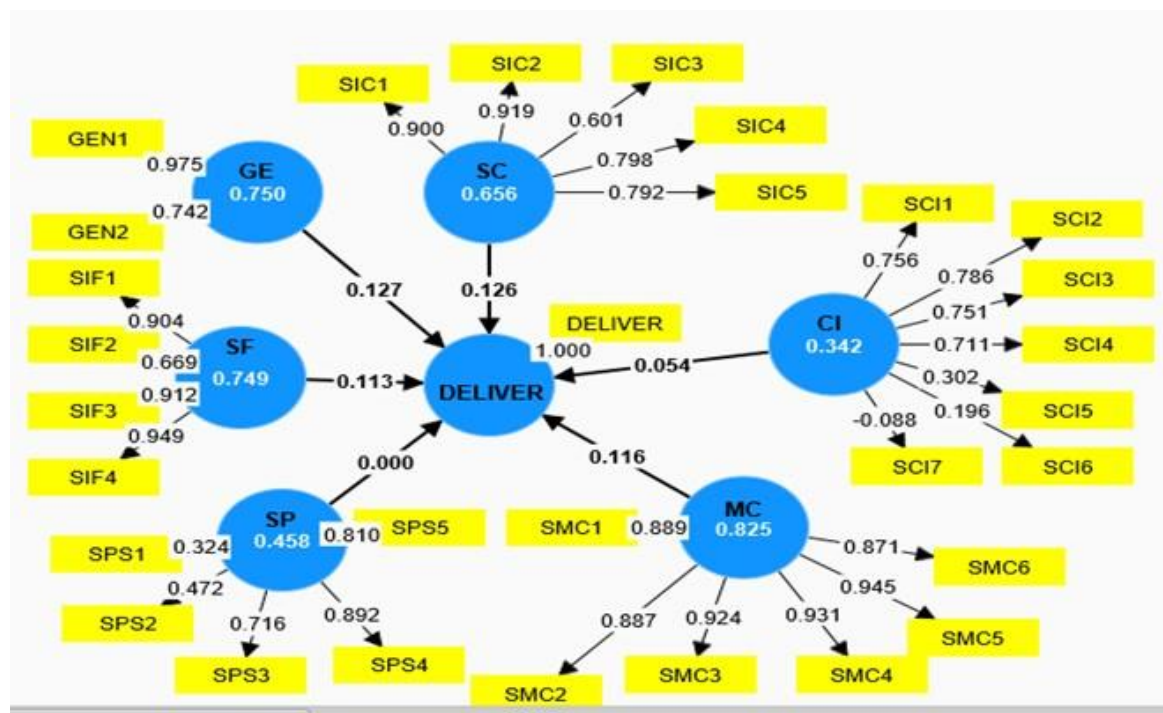


Figure 1: The SMART-PLS algorithm showing the time pathway of how internal factors influence project delivery in the FCT

Source: Authors Computation (2024)

Regression Output of Internal Factors Influencing Housing Project Delivery of Joint Venture in the FCT

The regression output presented in Table 4 showed that all the internal factors considered have positive

influence. The adjusted R-squared indicated 34% of total variation in housing delivery that can be explained by the internal factors identified in this research work. However, the result showed that not all the factors are statistically significant. The effect of contract (CI; $P = 0.348$) and partner selection (SP; $P = 0.96$) do not significantly influence housing project delivery by the joint venture. Gender parity (GE; $P = 0.07$), managerial characteristics (MC; $P = 0.013$), intra-partner characteristics (SC; $P = 0.018$) and inter-partner fit (SF; $P = 0.032$) have significant effect. Specifically, the most significant was the effect of managerial characteristics at 5% (0.01).

This is an indication that Managerial characteristics are very important to housing delivery as indicated by the coefficient. Thus, if the importance attached to leadership ability, communication skills, decision-making skills, problem-solving skills, team building skills doubles, housing project delivered will increase by 30 units. Thus, joint venture in housing project do well by raising the level of their leadership ability and so on.

Generally, the regression output in assessing the extent to which internal factors influence housing project delivery by the joint venture in FCT showed that four out of six internal factors are positive and significant. These four are intra-partner characteristic, inter-partner fit, managerial characteristic and gender. Partner selection and contract do not significantly affect housing delivery. This is in line with Adebayo et al. (2021) highlighting issues with contract enforcement and dispute resolution as there remains a gap in the literature regarding the specific internal factors influencing JV performance in housing projects in Abuja. Further tests indicated that these two variables do not reliably measure the data and are not valid. Others tests established that the variables are reliable and valid. This is an indication that the magnitude of coefficients generated by the regression output was reliable and valid, and hence can be used for prediction.

Table 5: Regression output showing internal factors influencing housing deliver of the joint venture

Variables	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
CI DELIVER ->	0.205	0.089	0.218	0.940	0.348
GE DELIVER ->	0.314	0.349	0.175	1.794	0.073
MC DELIVER ->	-0.304	-0.205	0.12	-2.533	0.013
SC DELIVER ->	0.347	0.159	0.159	2.182	0.018
SF DELIVER ->	0.337	0.19	0.1338	2.519	0.031
SP DELIVER ->	-0.011	-0.047	0.213	-0.052	0.96
R-square	0.445				
R-square adjusted	0.338				

Source: Authors Computation, (2024)

CONCLUSION

The analysis of internal factors influencing joint ventures in housing project delivery revealed several key findings. Descriptive statistics provided insights into the distribution and characteristics of the variables under study. The structural path model illustrated the relationships between various internal factors and housing project delivery, highlighting the significance of intra-partner characteristics, inter-partner fit, managerial characteristics, and gender parity. The results from the regression analysis further supported these findings, indicating that four out of six internal factors had a positive and significant influence on housing project delivery.

Specifically, intra-partner characteristics, inter-partner fit, managerial characteristics, and gender parity were found to be significant contributors to project delivery, emphasizing the importance of leadership, communication, decision-making, and team-building skills. However, it was observed that partner selection and contract did not significantly affect housing delivery, suggesting that further investigation into these factors may be necessary to understand their true impact. In sum, this study underscores the critical role of internal factors in influencing joint ventures and housing project delivery.

Based on these findings, it is recommended that stakeholders prioritize the development of intra-partner and inter-partner relationships, enhance managerial capabilities, and promote gender diversity within joint ventures to improve project outcomes. For future research, it is suggested to explore additional variables that may affect housing project delivery, such as external market conditions, regulatory frameworks, and technological advancements. Furthermore, longitudinal studies could provide valuable insights into the long-term effects of internal factors on project success and sustainability.

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