

Critical Risk Factors Associated with Public Private Partnership Housing Projects

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Abstract: Studies have shown that project risks are responsible for the failure of most Public Private Partnership (PPP) projects. The study examined the critical risk factors associated with PPP housing projects. Data for the research was obtained through a questionnaire. The data were analysed using descriptive statistics and mean ratings. Corruption and bribery among contracting parties (0.681), Exchange rate volatility (0.621) Availability of development funds (0.599) and Change in government (0.580) were the critical risk factors identified. The study also indicated that project cost is highly influenced by lack of development funds and changes in interest rates. The quality of PPP housing projects in Abuja was found to be influenced by partner selection risks. The study suggested a competitive, transparent, and efficient bid process to eliminate corruption, workable strategies for ensuring the availability of development funds at a cheaper rate and adopting mixed strategy in which government continues to provide social housing to the low-income class while providing the enabling environment for the private sector to thrive.

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1. Background of the Study

The ever-increasing housing inadequacies and shortage of government funds have led many governments in developing countries including Nigeria to adopt public private partnership (PPP) arrangements in housing provision. PPP hinges on collaborative efforts between the public agencies and the private sector on the assumption that by coming together, the weakness of one sector would be compensated by the strength of the other sector. It is an approach that plays an important role in the housing development where the government is unable to achieve it autonomously (Abd-Elkawy, 2017). The adoption of PPP in housing provision in Nigeria is intended to increase urban housing stock and address housing affordability and accessibility challenges (Ibem, 2012). It is government expectation that if the projects are managed properly and parties involved fulfill their contractual obligations, the adoption of PPP will enhance the provision of affordable housing (Sani et al., 2018). It was also envisaged that PPP will promote efficiency, broaden access to housing, improve the quality of public services, promote technology transfer, reduce government's financial burden, enhance

timely delivery of housing projects, sharing risks and responsibilities and enhance value for money (Chisa et al., 2015; Kavishe, 2018).

However, in practice, these arrays of benefits are rarely achieved due to numerous risks associated with PPP projects. Project risks have been viewed differently by different scholars; while others see risks as events that can have negative impacts on projects (Hodge and Greve, 2007), others view risks as having both negative and positive influence on project objectives (Zou et al., 2014). However, Maslova and Sokolov (2017) opined that such broad definition of risks as having two-fold influence is confusing and does not correspond to the ultimate goal of risk management which is to prevent risks and minimise their consequences; they further maintained that, although successful events during PPP projects may influence the project, it will not be a problem for project participants and should not be the subject of efforts to manage them. This study centers on determining the criticality of risks factors in PPP housing projects towards better risk management practices, hence in the context of this paper, risks are

defined as any factor or event that threatens the successful completion of a project in terms of time, cost or quality.

PPPs like other construction projects are exposed to numerous risks and different PPP arrangements present different forms of risks. These risks can be grouped into financing risks, technical/design risks, construction risks, revenue/demand risks, economic risks, partner selection risks, political risks and legal/regulatory risks (Alfen et al., 2009; Awodele, 2018). Projects risks had been reported to have various degrees of impact on projects objectives such as project cost, project time/duration, project quality, project safety, environmental sustainability, satisfaction of contracting parties and access to housing by target group (Zou et al., 2007; Checherita and Gifford, 2007). For successful implementation PPP projects therefore, there is the need for project managers to adequately identify the various risks and their impact on project objectives to guarantee efficient risk management. The knowledge of risks impact which is determined by its criticality index is essential in risk management because it is expected that resources should be allocated to critical risk factors otherwise the entire risk management exercise would amount to waste of time and resources with attendant consequences on the project objectives (Savari et al., 2019). It has earlier been suggested that a better understanding of the risks inherent in the PPP projects as well as knowledge of the magnitude and possible impact of those risks shall lead to a better risk response measures (Ahmad et al., 2018).

The need to adequately address risks associated with PPP projects has generated a lot of researches in the area. In Nigeria, researchers have attempted studying risk factors in PPP projects with the view to suggesting possible strategies for addressing such risks. The constraints in the implementation of PFI (Private Finance Initiative)/PPP have been examined with the purpose of developing an implementation model for PPP in developing countries (Akelere and Gidado, 2003). The study indicated that there is a significant difference in the perception of risks and the effects of constraints among PPP stakeholders. The perception of risks in PPP projects among bankers was explored; the study focused was on the basis of sharing the risks identified in PPP projects among the contracting parties (Akinyemi et al., 2009). Similarly, risk allocation preferences in Public Private Partnership has been examined; the study assessed 46 risk factors pertaining to PPP projects by combining risk probability, risk impact and risk significance to determine the criticality of those risks; the risk criticality and risk transfer pattern were used to determine what risk is transferred to which party in a typical PPP arrangement (Tolani, 2013). The development practice and measures of risk adjustment in commercial property development had also been appraised; the focus of the study was on identifying the techniques used in the appraisal of commercial property development and how risks are adjusted to ensure project success (Ojo, 2006). From the ongoing discussions, it could be seen that although there are researches on risks in PPP, those studies are skewed towards infrastructure projects.

Studies have shown that risks vary from one place to another and between projects; consequently, a critical risk factor in infrastructure projects may not pose the same degree of threat in the housing projects. Examining the risks associated with PPP housing project becomes imperative. This study is an attempt to determine the

critical risks in PPP housing projects and the strategies of addressing such risks with the view to improve the performance of PPP initiatives in housing provision. The research questions for this study were: What are the critical risk factors associated with PPP housing projects? How do risks impact on achieving the objectives of PPP housing projects? The study objectives were to:

- i. Characterise the risks associated with Public PPP housing Projects in Abuja, Nigeria.
- ii. Determine the impact of risks on achieving the objectives of PPP housing projects in Abuja, Nigeria

2. Research Methodology

This paper characterised risk in PPP housing projects using their criticality index which is the product of the probability of occurrence and impact on project objectives. In line with the research questions and purpose of the study, this research adopted questionnaire as instruments of data collection. The study extracted 80 risk factors from related studies and these risks were grouped in line with harmonized presentations available in the literature (Ghosh and Jintanapakanot, 2004; Khumpaisal and Chen, 2008; Tadayan et al., 2012). In determining the risk criticality index, both the probability of occurrence and impact were rated on a 3-points scale. Risks have been classified into high, medium and low-level impact risks. Since risk analysis is rooted in the concept of probability and the probability of certainty is 1, converting these classifications into numerical scales, "high" takes a value of 1, "medium" takes a value of 0.5, and "low" takes a value of 0.1. (Shen et al., 2001; Wang and Liu, 2004). This three-point rating system had also been adopted in a similar study on identifying key risks in the construction project life cycle (Zou et al., 2014).

Registered contractors and professionals in the built environment formed the study population but the sample frame consisted only of those with requisite experience in PPP housing in order to ensure the validity and reliability of the information. The study adopted the purposeful sampling technique due to the difficulty of identifying professionals with the requisite experience in PPP. A total of 209 questionnaires were administered and 131 were returned, out of these 24 were considered invalid due to the inability of the respondents to supply the required information; 107 were duly completed and used for the study. The compositions of the respondents were contractors 33, consultants 26, government officials 26 and sponsors 22.

The mean rating was used to determine the probability of occurrence and impact of the identified risks on specific project objectives. The criticality index was obtained by multiplying the overall mean scores for the probability of occurrence and impact of risks. The decision rule is that the closer the critical index is to 1, the more critical is the risk factor while the further away the value is from 1, the less critical is the factor.

3. Data Presentation, Analysis and Discussion

In line with research objectives, this section presents the results of the study which focuses on the risks associated with PPP housing and the impact of those risks on achieving project objectives of PPP housing.

3.1 Critical Risk Factors Associated with PPP Housing Projects

Risks have been categorised into low, medium and high based on their criticality by combining the product of their probability of occurrence and their impact on project objectives should they occur. In order to determine the criticality of identified risk factors, the probability of the risks occurring and their impacts was investigated and the overall mean scores are shown in Table 1.

Based on the risk criticality index (Table 1), the top four risk factors associated with PPP housing projects in Abuja were Corruption and bribery among contracting parties (0.681), Exchange rate volatility (0.621), Availability of development funds (0.599) and Change in Government (0.580). These are the risk factors that would have a high influence on PPP housing projects in Nigeria.

3.2 Impact of Risks on Achieving the Objectives of PPP Housing Projects

The opinion of the respondents on the impacts of various risk factors on specific project objectives was sought and the results are presented in Table 2. The results showed that project cost is highly impacted by financing risks (4.02), construction risks (3.59) and technical/design risks (3.59). The risk factors that would have a high impact on project time were technical/design risks (4.13), financing risks (4.00) and construction risks (3.96). The factors of high impact on project quality were partner selection risks (4.14), construction risks (3.96) and financing risks (3.84); the risk factors that would have high impact on project safety were legal and regulatory risks (3.93), construction risks (3.23) and technical/design Risks (3.16).

The results also show that risks factors that would have a high impact on project sustainability were political risks (4.20), construction risks (3.45) and force majeure (3.21) (Table 2). Satisfaction of contracting parties as a project objective is highly impacted by financing risks (4.22), partner selection risks (4.13) and technical/design risks (4.01); Risk factors that have high impact on the ability of target group to access the housing units were economic risks (4.14), political risks (3.53) and financing risks (3.37) (Table 2). These indicated that the risk factors have different degrees of influence on specific project objectives.

3.3 Discussion of Results

3.3.1 Critical risk factors in PPP housing

The results of the analyses indicated corruption is a critical risk associated with PPP housing projects in Abuja, Nigeria. It was observed that the implementation of PPP housing projects in Abuja is marred with insincerity and fraudulent acts amongst the contracting parties. In Nigeria, several PPP projects failed at inception because the processes of selecting contracting partners are flawed (Capital, 2010). Corruption in PPP housing projects manifested in diverse ways including practices whereby government officials defied the rules and specifications for allocation of land. This confirmed earlier report that due to corruption, large parcels of lands meant for PPP housing Projects in Abuja were allocated to developers without giving considerations to their financial capability who later connived with government officials to subdivide the plots allocated to them and sell same to interested developers thereby making unproductive gains (Abdullahi, 2010).

Exchange rate volatility was highlighted as one of the major risk factors in the study. The Nigerian construction industry heavily depends on imported building materials whereby prices are dictated by the value of Naira (Nigerian Currency) in relation to foreign currencies such as the Dollar. High exchange rates result in a general hike in prices of building materials and labour leading to variations in the estimated Bill of Quantities (BOQ) submitted at the tender stage. Policies on the production and use of indigenous building material are weak or non-existing in Nigeria. Investment in the area of Research and Development (R&D) of new building materials is inadequate and there are no incentives to encourage the use of locally produced building materials. The effects of high exchange rate lead to the use of substitutes, not the specified building materials thereby prompting the use of often inferior materials which affects the quality of the housing units in PPP projects.

Funding remains a key determinant of the success of any development project. However, the Infrastructure Concession Regulatory Commission Act (ICRC) which was meant to encourage the participation of private sector in financing PPP projects through concession agreement did not properly address the issue of project finance; consequently, private developers are left on their own to fund the PPP housing projects which are an added burden. Housing developers, therefore, factor high cost of finance obtained from commercial sources into the cost of construction which translates into increased prices of the housing units. It has been noted that in Nigeria, the cost of housing provided under PPP is higher than that provided through non-PPP housing schemes (Ibem and Aduwo, 2012). In addition, lack of loan facilities affects the ability of the target population to actively participate in the housing market. All these translate to financial loss to the private developers. These findings are similar to those reported on PPP housing delivery in Kolkata, India (Sengupta, 2005).

Change in government was also highlighted as a major risk factor in PPP housing projects. Incessant change in government owing to political instability breeds a lack of trust among key stakeholders. This is perceived as taking risks because partners become vulnerable to opportunistic behavior (Warsen et al., 2018). PPPs are known to be long term contracts; however, due to lack of continuity, new governments in most developing countries including Nigeria come in with a new set of agenda and priority leading review of already awarded contracts and in extreme cases, outright cancellation of such projects. These often affect long-term projects such as PPP housing.

3.3.2 Risk impact on project objectives

In relation to achieving specific project objectives, the results indicated that project cost is highly impacted by financing, construction and technical related issues. Finance related risk factors border on lack of development funds prompting developers to obtain loans from commercial banks at high interest rates. Changes in interest rates also increase the cost of finance as well as the overall project budget.

Table 1(a). Criticality of Risk Factors combining the Probability of occurrence and Impact Rating

Risk Factor	PR		RI		RC (PR x RI)		Criticality Index
	MS	Rank	MS	Rank	MS	Rank	
Financing risks							
Changes in interest rates on borrowed funds	0.733	5	0.701	12	0.513	10	Very Critical
Construction cost overrun	0.733	5	0.706	11	0.517	9	Very Critical
Bankruptcy of sponsors or concessionaire	0.356	56	0.463	41	0.165	43	Less Critical
Lack of creditworthiness of the private partner	0.342	60	0.344	68	0.118	63	Less Critical
Deliberate underbidding	0.289	74	0.333	72	0.096	69	Less Critical
Inability to service debt	0.407	43	0.416	55	0.169	42	Less Critical
Lack of government guarantee	0.444	33	0.513	33	0.228	31	Less Critical
Attractiveness of the project to contractors	0.409	41	0.485	37	0.198	37	Less Critical
Construction time overrun	0.727	8	0.769	5	0.559	5	Very Critical
Availability of development funds	0.787	2	0.761	6	0.599	3	Very Critical
Weak financial market	0.382	45	0.493	35	0.188	41	Less Critical
Errors in estimate of project financing costs	0.357	55	0.336	70	0.120	62	Less Critical
Technical/Design risks							
Defective design	0.362	52	0.439	51	0.159	48	Less Critical
Unclear specifications	0.333	62	0.371	64	0.124	61	Less Critical
Inaccurate geological or geothermal exploration	0.487	30	0.489	36	0.238	30	Less Critical
Deficiencies in drawing and specifications	0.360	53	0.453	42	0.163	46	Less Critical
Inadequate site information (soil test and survey report)	0.506	29	0.574	27	0.290	28	Less Critical
Poor definition of project scope	0.387	44	0.413	56	0.160	47	Less Critical
Engineering and design failures	0.325	66	0.450	44	0.146	53	Less Critical
Construction risks							
Increase in labour and material cost	0.622	13	0.688	13	0.428	13	Critical
Low productivity of labour and equipment	0.281	77	0.328	73	0.092	72	Less Critical
Issues bordering on project supervision	0.605	14	0.573	28	0.347	18	Critical
Changes of design by the owner/ design variation	0.429	36	0.469	40	0.201	36	Less Critical
Delay in obtaining site access and right of way	0.349	58	0.309	70	0.108	68	Less Critical
Unreasonable tight schedule	0.227	78	0.279	81	0.077	78	Less Critical
Delays in issuance of drawings and documents	0.306	70	0.313	76	0.096	69	Less Critical
Poor quality of work	0.547	22	0.606	21	0.331	20	Critical
Unpredicted technical problems in construction	0.521	26	0.609	20	0.317	23	Critical
Labour strike and disputes	0.223	82	0.272	82	0.061	79	Less Critical
Shortage in material supply and availability	0.263	80	0.336	70	0.088	75	Less Critical
Loosely defined safety specification	0.347	59	0.379	62	0.132	56	Less Critical
Error in construction	0.429	36	0.453	42	0.194	39	Less Critical
Inappropriate construction techniques	0.359	54	0.417	54	0.150	51	Less Critical
Revenue/ Demand risks							
Housing units remains vacant for longer than anticipated	0.631	12	0.724	9	0.457	12	Critical
Changes in tax regime	0.368	50	0.419	53	0.154	50	Less Critical
Project demand level	0.595	16	0.625	18	0.372	15	Critical
Changes in demand and supply	0.525	25	0.584	24	0.307	25	Critical
Delayed payment to contractors	0.564	19	0.594	23	0.335	19	Critical
Residual value of housing after the concession	0.333	62	0.386	61	0.128	60	Less Critical
Volatility of rental value for housing units	0.335	61	0.339	69	0.114	66	Less Critical
Higher maintenance cost than earlier envisaged	0.365	51	0.363	65	0.133	55	Less Critical
Typology of housing units	0.465	32	0.449	45	0.209	34	Less Critical
Accessibility of housing units	0.639	11	0.868	1	0.554	6	Very Critical
Financial capacity/ Income of housing consumers	0.733	5	0.730	8	0.535	8	Very Critical
Changes in market value and capitalization rate	0.521	26	0.535	30	0.297	27	Less Critical

Table 1(b). Criticality of Risk Factors combining the Probability of occurrence and Impact Rating

Risk Factor	PR		RI		RC (PR x RI)		Criticality Index
	MS	Rank	MS	Rank	MS	Rank	
Economic risks							
Interest rate fluctuation	0.600	15	0.652	14	0.391	14	Critical
High rate of inflation and sudden changes in prices	0.737	4	0.751	7	0.553	7	Very Critical
Exchange rate volatility	0.775	3	0.801	4	0.621	2	Very Critical
Purchasability of the housing units	0.662	10	0.715	10	0.473	11	Critical
Inability to repay loans due to reduction in cash flow	0.420	38	0.525	31	0.221	32	Less Critical
Project financiers suddenly pulling out of the project arrangement	0.300	72	0.441	48	0.132	56	Less Critical
Partner selection risks							
Wrong selection of partner	0.314	68	0.420	52	0.132	56	Less Critical
Cultural variations among contracting parties	0.276	79	0.298	79	0.082	76	Less Critical
Conflicting goals among main stakeholders	0.436	35	0.473	38	0.206	35	Less Critical
Contractor's incompetence/ poor management ability	0.418	40	0.502	34	0.210	33	Less Critical
Delay of material supply by suppliers	0.300	72	0.394	59	0.118	63	Less Critical
Quality of building materials supplied	0.350	57	0.443	47	0.155	49	Less Critical
Lack of commitment from the contracting parties	0.533	24	0.613	19	0.326	21	Critical
Inadequate experience in PPP	0.472	31	0.514	32	0.243	39	Less Critical
Political risks							
Change in government	0.690	9	0.840	2	0.580	4	Very Critical
Inconsistencies in government policies	0.507	28	0.603	22	0.306	26	Critical
Public resentment of the project	0.327	65	0.404	58	0.132	56	Less Critical
Import/ export restrictions	0.439	34	0.446	46	0.196	38	Less Critical
Corruptions and bribes among contracting parties	0.815	1	0.835	3	0.681	1	Very critical
Failure to issue necessary permits for Project implementation	0.379	46	0.394	59	0.149	52	Less Critical
Political groups/ activism	0.284	76	0.315	75	0.090	73	Less Critical
Commercial tax policies	0.303	71	0.316	74	0.096	69	Less Critical
Lack of support from government	0.558	21	0.577	25	0.322	22	Critical
Failure to honour contract agreement by the public sector	0.593	17	0.626	17	0.371	16	Critical
Legal/ Regulatory risks							
Delay in obtaining project approval	0.375	48	0.440	50	0.165	43	Less Critical
Changes in laws and regulations pertinent to PPP operations	0.316	67	0.350	67	0.111	67	Less Critical
Inconsistency in contract laws	0.312	69	0.377	63	0.118	63	Less Critical
Resolution of disputes	0.409	41	0.472	39	0.193	40	Less Critical
Enforceability of legal provisions	0.535	23	0.577	26	0.309	24	Critical
Delays in reimbursing contractors	0.580	18	0.635	16	0.369	17	Critical
Force Majeure							
Weather condition	0.373	49	0.441	48	0.164	45	Less Critical
War threats/ civil unrest	0.378	47	0.356	66	0.135	54	Less Critical
Accidents on site	0.262	81	0.298	79	0.078	77	Less Critical
Epidemics	0.285	75	0.312	77	0.089	74	Less Critical

Note: MS = Mean Score; PR= Probability of Occurrence; RI = Risk Impact; RC = Risk Criticality

Construction related issues that influence project cost in PPP housing projects in Abuja were increased in prices of building materials and labour, poor workmanship and errors in construction. An increase in prices of building materials and labour lead to an upward review of project estimates; poor workmanship and errors in construction resulting in re-working of the affected elements increase the overall project cost.

Furthermore, technical/design risks, financial risks and construction risks were the major factors that impacted the project delivery period of PPP housing projects in Abuja. Design related factors identified were defective design and design variations. Finance related factors include unavailability of development funds and lack of government guarantee where the contractors were not creditworthy. Delay in obtaining site access and shortage

in materials supply and availability were construction related factors identified. Quality of PPP housing projects was found to be impacted by partner selection risks, construction risks and financing risks. Based on agency theory, conflict of interest in PPP projects is inevitable. Wrong partner selection generates opportunistic behaviours manifesting in breach of contract such as the use of low-quality building materials by contractors. Construction related factors such as inadequate supervision and poor workmanship also affect project quality. In order to minimise unethical practices by operatives on construction sites, adequate supervision is necessary. Lack of development funds may lead to substitution of specified materials with substandard building materials.

Table 2. Impacts of Risks Factors on Project objectives

Risk Factor	Project objectives													
	Project Cost		Project Time		Project Quality		Project Safety		Environmental sustainability		Satisfaction of contracting parties		Access to Housing by target group	
	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MS	Rank	MS	Rank
Financing risks	4.02	1	4.00	2	3.84	3	2.24	6	2.53	6	4.22	1	3.37	3
Construction risks	3.59	2	3.96	3	3.96	2	3.23	2	3.45	2	3.47	4	2.96	5
Economic risks	2.98	4	3.20	4	2.72	5	2.17	8	2.19	8	2.69	6	4.14	1
Technical/design risks	3.59	2	4.13	1	3.59	4	3.16	3	2.33	7	4.01	3	2.69	6
Revenue/demand risks	2.33	8	2.18	9	2.31	8	1.97	9	2.08	9	2.49	9	3.10	4
Partners selection risks	2.85	5	3.15	5	4.14 9	1	3.03	5	3.06	4	4.13	2	2.53	7
Political risks	2.44	7	2.50	6	2.46	6	2.23	7	4.20	1	2.67	7	3.53	2
Legal and regulatory risks	2.27	9	2.41	8	2.19	9	3.93	1	2.98	5	2.93	5	2.33	8
Force majeure	2.45	6	2.44	7	2.40	7	3.14	4	3.21	3	2.64	8	2.21	9

The results also indicated that project safety is impacted by legal/regulatory, construction and technical issues. Accidents on sites are related to lack of safety management regulations, nature of construction industry, workers behaviours, among others. However, it was observed during the study, that there are no adequate legislation to guarantee safety on construction sites. Moreover, the few available legislations are not been enforced during the project implementation. Furthermore, operatives are reluctant to observe safety measures during construction which increases their vulnerability on sites. Project safety was also found to be impacted by inappropriate construction techniques, loosely defined safety specifications and poor site conditions. Unplanned and untidy construction sites increase the exposure of workers to accidents.

The major factors impacting the sustainability of PPP housing projects were political and construction related issues. An important factor for the sustainability of housing project is the genuine involvement of local people as active participants and equal partners whose concerns and experience are intrinsic to the project success. However, it was observed that in the majority of PPP housing projects in Abuja, the local communities were never involved at any stage of the project. Adeogun and Taiwo (2011) had earlier reported the exemption of the beneficiaries in the decision-making process as a major threat to the sustainability of PPP housing projects in Nigeria. Construction related factors border on inappropriate construction techniques thereby exposing the operatives and the locals to excessive dust, noise, solid and liquid waste. In Nigeria, there seems to be dearth of legislations protecting local and neighbourhood communities from harmful construction related elements.

The satisfaction of contracting parties to PPP housing projects was found to be impacted by financing, partner selection and technical/design related factors. The availability of long-term finance is key to successful PPP housing projects. It ensures the specified materials and equipment are procured which helps guarantee prompt completion of projects. A wrong selection of partners results in the breach of contract which manifests through

lack of commitment from the contracting parties thereby impacting the satisfaction of the parties to the contract. Defective design also affects the satisfaction of housing consumers in relation to circulation within the housing units.

The ability of households to access the housing units was found to be influenced by economic, political and finance related factors. Exchange rate fluctuations affect the real value of a nation's currency which in turn impact on the real income of households. The fluctuations in the exchange rates affected the value of Naira resulting into general price increase in the economy. These translate into high cost of housing which would further affect the ability of the households to pay for their desired housing units. This finding distinguishes PPP housing projects from those of infrastructure in which expended capital is recoup through user charges as against consumers directly bearing the cost of projects. In addition, where formal mortgage loans are not available, households resort to seeking for loans from commercial banks at higher interest rates. Housing consumers who obtained loans from commercial banks to acquire their housing units could not service those loans due to increase in the cost of living. In a similar vein, majority of private developers could not service their loans due to a dip in the real value of Naira.

4. Conclusion

This research focused on determining the criticality of risks factors associated with PPP housing projects with the view to identify the risk factors that would likely have high impact on project objectives. The findings of the study suggest, that despite adopting PPP in housing provision much still needs to be done for the initiative to realise its full potential. The study also indicated that PPP housing projects in Nigeria are highly politicised and are bedeviled by insincerity among stakeholders. Consequently, PPP initiatives have failed to achieve the desired success in housing due to lack of support from the government. From the results of the findings, it can be concluded that the private sector is more prepared and committed to partnerships for housing provision than the public sector.

The findings also suggest that PPP housing is further constrained by the unavailability of development funds owing to the non-sophistication of the mortgage market characterised by the high cost of finance and cumbersome procedures for accessing such loans. Weak stakeholder participation in PPP housing projects was also highlighted; housing consumers are never involved at any stage of the projects which threatens the sustainability of such projects and the housing units produced seldom get to the target population due to their inability to demand those housing. It can, therefore, be concluded, that houses produced through PPP arrangements are often beyond the affordability level of the consumers. Overdependence on imported building materials in the face of the dwindling value of Naira manifesting in general increase in prices also impacted the cost of PPP housing in the Federal Capital Territory (FCT). This result suggests that giving more attention to the development of new building materials will reduce the cost of PPP housing thereby enabling the developers to deliver at the same time boosting the affordability level of the households which will improve the level of satisfaction of contracting parties to PPP housing projects.

Theoretically, the formulation and implementation of PPP housing projects from one country to another are similar in nature; it is expected that the challenges would bear some similarities too. It is therefore expected that with little modification, the findings of this study can be applied in other countries especially those that share a similar economic environment with Nigeria. In addition, the procurement process, PPP implementation processes and stages of project implementation are similar in many countries of the world; this underscores the relevance and applicability of the outcomes in other countries of the world.

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