

Exploring Measures for Improving Small and Medium Construction Enterprises' (SMCEs) Participation in the Nigerian Public Procurement

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Abstract

Despite the roles which small and medium construction enterprises (SMCEs) play in the Nigeria construction industry and the economy at large, extant research revealed that their participation in public procurement is poor as large firms have dominated the public procurement market. Previous studies have identified barriers responsible for their low participation and also suggested improvement measures. However, improvement measures best suited to dismantle/mitigate each barrier is not known. This study thus, assessed measures for improving SMCEs' participation in Nigeria public procurement. The study collected data from 100 SMCEs in Nigeria, via a questionnaire survey. Mean/relative importance index was used for ranking the measures and ANOVA for checking difference between the studied measures. The result of the study revealed that E-procurement is the best measure for improving SMCEs' participation in public procurement as it is best in dismantling barriers related to "problematic procurement procedure", "lack of awareness of public procurement" and "legal issues/corruption". Training which is suitable for eliminating barriers related to "lack of skilled employees and partners", emerged as the second best followed by Division of Contract into lots that is best suitable for tackling barriers related to "lack of resources" which is contrary to previous researchers' belief that it is the best measure. The study concludes that E-procurement, training and division of contract into lots are all suitable measures for improving SMCEs' participation in Nigeria public procurement in their order of priority. The study's findings show that it is desirable that the measures are applied together as none of these measures is singularly sufficient in dismantling all barriers to SMCEs' participation in public procurement.

Keywords: Small and medium construction enterprises (SMCEs), public procurement, E-procurement, division of contract into lots, training

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1.0 INTRODUCTION

The construction industry is organisationally complicated and extremely fragmented with a preponderance of Small and Medium Enterprises (SMEs) (Orange et al., 2005). SMEs are growth-supporting sectors that contribute considerably to living standards, drive innovations and promote competition in the construction sector and the economy at large (Benjaoran, 2009; Olusegun & Akinbode, 2016).

Public procurement has been recognised as a vehicle for supporting SMEs (Loader, 2018). Also, Piga (2011) reported a number of potential benefits when SMEs participate in public procurement. Among them is the fact that SMEs access to opportunities for public procurement strengthen the overall economic environment, promote inclusive growth, and support values such as equal treatment, open access, and effective competition. However, despite all the proven benefits of participation in public procurement to SMEs and the economy at large, researchers (e.g. Mvubu, 2009; Nicholas & Fruhmann, 2014; Umezina, 2017) have confirmed that SMEs are underrepresented in public procurement and also identified a number of barriers responsible for their under representation and hence, under realization of their potentials.

Researchers (e.g. Nkonge, 2013; Olusegun & Akinbode, 2016) identified the barriers responsible for low participation of SME in public procurement, suggesting support and improvement measures. Vyklický (2013) reported supporting measures which includes; division of contracts into lots, partnership with other SMEs and larger companies, direct payment of sub-contractors, reducing the administrative burden, increase administrative assistance towards response to tender, further develop e-procurement, improving discipline and transparency in public procurement, and improve internal organization of contracting SME. Other researchers added that these measures can either be regulated by legislation (McKevitt & Davis, 2015) or application of e-procurement (Fernandes & Vieira, 2015).

Saastamoinen et al. (2017) examined the role of training in dismantling the barriers of SMEs' participation in public procurement. A similar research was conducted by Egeberg (2016) to assess the suitability and implication of lot divisions in promoting SMEs' participation in public procurement. Glas and Eßig (2018) focused only on the effect of number of lots and discovered that the number of lots in a public tender has no significant effect on SMEs' bidding success, whereas a more competitive situation does influence SMEs' bidding success.

In Nigeria, public procurement is authorized by the Nigerian Public Procurement Act (2007). In addition, measures such as the Small and Medium Enterprises Equity Investment Scheme (SMEEIS), the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) as well as the National Poverty Eradication Programme (NAPEP) have been established to facilitate growth and development of SMEs (Akenroye & Aju, 2013). Notwithstanding, SME participation in Nigerian public procurement is still very low (Akenroye & Aju, 2013; Olusegun & Akinbode, 2016). While foremost barriers (such as information obscurity, incapability and also lack of transparency in the conduct of public tendering) responsible for the low participation of SMEs in Nigeria public procurement have been uncovered, it is not known what measures are most suitable to dismantle these barriers and hence improve SME participation in Nigeria public procurement. This research thus seeks to fill this gap by assessing the extent to which measures for improving small and medium construction enterprises' (SMCE)s' participation in public procurement in Nigeria can eliminate/dismantle the barriers responsible for the low participation.

■2.0 LITERATURE REVIEW

2.1 Barriers to SMEs' Participation in Public Procurement

In microeconomic theory, restrictions preventing any firm on the market to demonstrate unfettered entrance are called barriers to entry. SMEs face numerous barriers hampering their access to public procurement. Such barriers are both perceptible and true, as Loader (2005) found that small firms are discouraged from bidding for public sector contracts as a consequence of a range of perceived or real impediments. Several researches have reported barriers hampering access of SMEs to public procurement.

Saastamoinen et al. (2017) identified five main variants of barriers to participation in public procurement. These are: a lack of resources, the problematic procurement processes which are related to matters such as policy, procurement organisation and culture, contract requirements and the tendering process, a lack of practical skills, a lack of awareness of public procurement, and a lack of skilled workers and partners. Similarly, Akenroye and Aju (2013) in their study of barriers to SMEs participation in public procurement in Nigeria using the Federal Capital Territory, Abuja as a case-study revealed that information obscurity and incapability are the most foremost barriers facing SMEs' participation in public procurement. Also, Huka (2016) while studying the contribution of public procurement to the success of SME in Moshi Municipality in Tanzania, observed that low winning rate of SME in public procurement is due to unfavourable technical conditions, unfavourable financial conditions as well as unfair evaluation criteria demanded by the public procurement Act 2011. In another related study, Olusegun and Akinbode (2016) perceived lack of transparency in the public procurement proceeding from pre-bid to post-bid stages, dis-proportionate eligibility criterion, burdensome nature of public tenders, delay/unfavourable terms of payment, unethical behaviour of procurement officials, bias evaluation/award criterion, complex contract management as well as multiple deductions, as significant factors hindering the participation of SME in public procurement.

2.2 Measures for Improving SMCEs' Participation in Public Procurement

On understanding these impediments faced by SMEs in entering into Public procurement, researchers have made tremendous efforts in developing and recommending measures that could help solve these problems and in-turn provide a good environment for SME to participate favourably in public procurement. Several researches have focused on the real effect of some basic measures for improving SMEs' participation in public procurement so as to provide a clear framework and understanding for procurement policy makers and SME to select most effective and appropriate measures. Division of contract into lots (Flynn, 2018; Glas & Eßig, 2018; Morand, 2003), e-procurement (Azmi & Rahman, 2015; Morand, 2003; Vyklický, 2013) and training (O'Regan et al., 2010; Saastamoinen et al., 2017) are the measures discussed under this heading as they are the most reported measures for dismantling barriers to SMEs' participation in public procurement.

2.2.1 Division of Contract into Lots

Dividing contracts into lots has gained a lot of traction as an SME friendly strategy (Flynn, 2018). However, the concept has simultaneously sparked concerns due to potential risks imposed by dividing contracts into lots (Glas & Eßig, 2018). Dividing contracts into lots causes the individual contract to correspond better with SME restricted financial, personnel and technical capacity. As stated by Morand (2003, p. 2) "technically, the very first way of enabling direct SME participation in public procurement is to divide proposed acquisitions of supplies and services into reasonably small lots to permit offers on quantities less than the total requirement. This allotment (or unbundling) favors wide small business participation".

2.2.2 Training

Another measure that has gained substantial attention is training. This has been identified by researches on measures for improving SMEs' participation in public procurement (Vyklický, 2013). Glas and Eßig (2018) also recognized the need for training as a tool to supplement division of contract into lots and thus achieve a healthier public procurement for SME. Saastamoinen et al. (2017) established that barriers related to lack of information and knowledge could be addressed through training as it relates to procurement processes. Also, through training, the perceptions SME hold about tendering as well as its practices and processes could also be shaped. O'Regan et al. (2010) acknowledged that training can help form a clearer overall picture of the firm's strategy and every person's role in implementing the firm's strategy.

2.2.3 E-Procurement

E-procurement is an internet-based purchasing system that allows buyers and suppliers to make electronic purchases, execute orders, and perform administrative tasks (Panayiotou et al., 2004) or the sourcing of goods and services via electronic means, usually through the internet (Schoenherr & Tummala, 2007). E-procurement has been seen by several scholars as a driver of transparency in public procurement. Azmi and Rahman (2015) found that e-procurement can be used as a ‘gatekeeper’ for all bidders in ensuring that they follow the ‘rules’ as stipulated in the system and by using e-procurement, the bidders must comply with all rules otherwise their application will simply be rejected.

3.0 METHODOLOGY

The study’s data were collected with the aid of a questionnaire survey administered on registered Small and Medium Construction Enterprises (SMCEs) in major cities of Nigeria specifically Abuja and Lagos. Professionals at the senior/strategic management level of the respective SMCEs were requested to respond to the questionnaires on behalf of their firms. As no readily available record separating SMCEs from Large Sized Construction Enterprises existed in Nigeria, purposive sampling was used to select registered SMCEs who were issued with questionnaires via mails and distribution on site/offices (making use of the Central Bank of Nigeria classification of SMEs presented in Table 1).

Through a careful and critical review of previous literature (Akenroye & Aju, 2013; Azmi & Rahman, 2015; Glas & Eßig, 2018; Morand, 2003; Olusegun & Akinbode, 2016; O’Regan et al., 2010; Saastamoinen et al., 2017; Vyklický, 2013), measures for improving SMCEs participation in public procurement as well as barriers to SMCEs participation in public procurement were identified, synthesized and used to structure the study’s questionnaire (Table 2 presents measures and barriers synthesized from literature). The SMCEs were requested in the questionnaire to give an indication of the extent to which they agree that each identified measure for improving SMCEs participation in public procurement could eliminate/dismantle each identified barrier, using a 1 to 5 Likert scale provided for each measure. 1 represented strongly disagree, 2 represented disagree, 3 represented neutral, 4 represented agree, while 5 represented strongly agree. Similar to previous researches which have used a 1 to 5 Likert scale (Kothari, 2003; Almustapha, 2017), this study adopted a decision rule whereby any mean score below 3.0 is considered a negative decision, while any mean score from 3.0 and above is considered a positive decision.

According to the Nigeria Federal Inland Revenue Service (FIRS) (2018), there exist a total of ten thousand four hundred and seventeen (10,417) construction contractors in Nigeria. In line with previous studies (Alabi, 2020; Bayaga, 2017) which used Yamane (1967) formula for populations that are large in this case 10,471, this study made use of Yamane (1967) formula to compute the study’s sample size i.e.:

$$n = \frac{N}{1 + N(e)^2}$$

where, n = required sample size from the population under study

N = population under study

e = precision or sampling error which is usually 0.10, 0.05, or 0.01

Similar to a previous research by Ikharehon and Briggs (2016), a sampling error of 0.1 was adopted. The research was considered similar to the present study since the focus was on SMEs in Nigeria, hence the decision to adopt similar sampling error. Therefore,

$$n = \frac{10,417}{1 + 10,417 (0.1)^2}$$

$$n = \frac{10,417}{105.17}$$

$$n = 99.05 = 100$$

A total of 100 questionnaires were thus, distributed to SMCEs, 61 of which were returned and found appropriate for the analysis. The study utilized descriptive statistics (specifically, mean and ranking) to facilitate the organization, analysis and interpretation of the data. Finally, ANOVA test was used to check the differences between the suitability of measures.

Table 1 Central Bank of Nigeria’s classification of SMEs

Firm type	Number of Employees
Micro	0 to 5
Small	6 to 19
Medium	20 to 99

Table 2 Synthesized measures for improving SMCEs participation in public procurement and barriers to SMCEs participation in public procurement

Measures for Improving SMCEs' Participation in Public Procurement	Source(s)
Application of E-Procurement	Azmi and Rahman (2015); Morand (2003); Vyklický (2013)
Division of Contract into Lots	Flynn (2018); Glas and Eßig (2018)
Training	O'Regan et al. (2010); Saastamoinen et al. (2017)
Barriers to Construction SMEs' Participation in Public Procurement	
<i>Lack of resources</i>	Saastamoinen et al. (2017)
Financing is difficult to obtain	Saastamoinen et al. (2017)
Contract values are too large	Saastamoinen et al. (2017)
Lack of financial guarantees	Saastamoinen et al. (2017)
Our ability to compete with price is not sufficient for public sector tenders	Saastamoinen et al. (2017)
Requirements for environmental responsibility, equality, and sustainability are too stringent	Saastamoinen et al. (2017)
<i>Problematic procurement procedure</i>	
Lack of regulation to influence SMEs' participation	Akenroye and Aju (2013)
Lack of a dialogue with the customer	Saastamoinen et al. (2017)
Unfair evaluation of bids	Olusegun and Akinbode (2016)
Discrimination against new contractors	Akenroye and Aju (2013)
There is preference for big contractors	Akenroye and Aju (2013)
It is difficult to obtain additional information on tenders	Saastamoinen et al. (2017)
Lack of access to public procurement guideline	Akenroye and Aju (2013)
Unsuitable payment terms	Akenroye and Aju (2013)
Lack of adequate enforcement mechanisms	Akenroye and Aju (2013)
Lack of understanding of tender requirements	Akenroye and Aju (2013)
Excessive administrative and documentation requirements	Akenroye and Aju (2013)
Multiple taxation	Olusegun and Akinbode (2016)
<i>Lack of skilled employers and partners</i>	
Lack of skills to respond to tender	Akenroye and Aju (2013)
Lack of sub-contracting opportunities	Saastamoinen et al. (2017)
Insufficient knowledge of the procurement process	Akenroye and Aju (2013)
Lack of staff with expertise on public procurement	Saastamoinen et al. (2017)
Contracting partners are unavailable	Saastamoinen et al. (2017)
<i>Lack of awareness of public procurement</i>	
Inadequate advertising of contract opportunities	Akenroye and Aju (2013)
The channel where public sector tenders are announced is unknown	Saastamoinen et al. (2017)
<i>Legal issues/corruption</i>	
Perceived lack of transparency	Olusegun and Akinbode (2016)
Unethical behaviour of procurement officials	Olusegun and Akinbode (2016)
Bias evaluation/award criteria	Olusegun and Akinbode (2016)

4.0 RESULTS AND DISCUSSION

4.1 Background Information of Respondents' SMCEs

Table 3 Information related to respondents' SMCEs

Variable	Frequency	Percentage
Nature of SMCE		
Building construction firm	44	72%
Civil Engineering construction firm	7	11%
Building & Civil Engineering construction firm	10	16%
Size of SMCE		
0 - 5 (micro)	4	7%
6 -19 (small)	36	59%
20 -100 (medium)	21	34%
Years of operation of SMCE		
1-5 years	8	13%
6-10 years	13	21%
11-15 years	24	39%
16-20 years	12	20%
Above 20 years	4	7%

Table 3 highlights information relating respondents' SMCEs. As shown in the above table, senior/strategic level management professionals from three categories of SMCEs participated in the survey, namely: building construction SMCEs (44 numbers/72%), building & civil engineering construction SMCEs (10 numbers/16%), and civil engineering construction SMCEs (7 numbers/11%). Also, based on the Central Bank of Nigeria's (CBN) classification of SMEs according to number of employees, a greater number (36 numbers/59%) of the respondents' SMCEs were small, 21 numbers/34% were medium, while 4 numbers/7% were micro firms.

Only 8 numbers/13% of the SMCEs have been operating for less than 6 years. A greater number of the SMCEs in the survey have their years of operation within the range of 6 to over 20 years. This suggest that regardless of the category and size of the respondents' SMCEs, respondents can be considered well-acquainted to provide information requested in the study's questionnaire.

4.2 Assessment of Measures for Improving SMCEs' Participation in Public Procurement

Table 4 presents barriers to SMCEs' participation in public procurement outlined against measures for improving SMCEs' participation in public procurement. The Table highlights the extent to which senior/strategic level management professionals who responded to the study's questionnaire on behalf of their firms, consider each measure suitable for eliminating/dismantling each barrier to SMCEs' participation in public procurement.

Table 4 Assessment of measures for improving SMCEs' participation in public procurement

Barriers to Construction SMEs' Participation in Public Procurement	Measures for Improving SMCEs' Participation in Public Procurement					
	Application of E-Procurement		Division of Contract into Lots		Training	
	Mean	Rank	Mean	Rank	Mean	Rank
Lack of resources						
Financing is difficult to obtain	2.33	4	3.41	4	3.48	1
Contract values are too large	2.21	5	3.97	2	2.89	5
Lack of financial guarantees	2.38	2	3.72	3	3.11	3
Our ability to compete with price is not sufficient for public sector tenders	2.36	3	4.02	1	3.07	4
Requirements for environmental responsibility, equality, and sustainability are too stringent	2.72	1	2.95	5	3.31	2
<i>average mean score</i>	<i>2.4</i>		<i>3.61</i>		<i>3.17</i>	
Problematic procurement procedure						
Lack of regulation to influence SMEs' participation	3.56	8	3.79	1	3.41	4
Lack of a dialogue with the customer	3.8	7	2.89	5	3.3	5
Unfair evaluation of bids	4.67	1	3.15	4	2.84	10
Discrimination against new contractors	4.38	2	3.36	3	2.54	12
There is preference for big contractors	4.3	3	3.64	2	2.87	9
It is difficult to obtain additional information on tenders	3.85	6	2.8	7	3.3	5
Lack of access to public procurement guideline	3.98	4	2.51	11	3.44	2

Unsuitable payment terms	3.02	10	2.54	10	2.92	8
Lack of adequate enforcement mechanisms	3.87	5	2.51	11	2.98	7
Lack of understanding of tender requirements	3.7		2.56	9	3.85	1
Excessive administrative and documentation requirements	3.56	8	2.87	6	3.43	3
Multiple taxation	2.74	11	2.74	8	2.77	11
<i>average mean score</i>	<i>3.79</i>		<i>2.95</i>		<i>3.14</i>	
Lack of skilled employers and partners						
Lack of skills to respond to tender	3.16	2	2.77	3	4.25	2
Lack of sub-contracting opportunities	3.11	4	3.48	1	3.62	4
Insufficient knowledge of the procurement process	3.28	1	2.51	5	4.39	1
Lack of staff with expertise on public procurement	3.13	3	2.52	4	4.2	3
Contracting partners are unavailable	2.92	5	3.21	2	3.34	5
<i>average mean score</i>	<i>3.12</i>		<i>2.9</i>		<i>3.96</i>	
Lack of awareness of public procurement						
Inadequate advertising of contract opportunities	4.36	2	2.85	1	3.03	2
The channel where public sector tenders are announced is unknown	4.43	1	2.69	2	3.64	1
<i>average mean score</i>	<i>4.39</i>		<i>2.77</i>		<i>3.34</i>	
Legal issues/corruption						
Perceived lack of transparency	4.41	2	2.84	3	3.02	1
Unethical behaviour of procurement officials	4.38	3	2.89	2	2.7	2
Bias evaluation/award criteria	4.49	1	3.08	1	2.66	3
<i>average mean score</i>	<i>4.43</i>		<i>2.93</i>		<i>2.79</i>	
<i>Overall average mean score</i>	<i>3.63</i>		<i>3.03</i>		<i>3.28</i>	

Based on the decision rule adopted for this study (mean score below 3.0 is considered a negative decision, while mean score from 3.0 and above is considered a positive decision) (Almustapha, 2017; Kothari, 2003), it is clear that for the first category of barriers (lack of resources) application of E-procurement with an average mean score (AMS) of 2.4, is not suitable for eliminating/dismantling any of the barriers to SMCEs' participation in public procurement. Division of contract into lots and training on the other hand are both suitable for eliminating/dismantling four of the barriers under this category, with division of contract into lots been the best measure since it has the highest AMS (3.61).

For the second category of barriers (problematic procurement procedure), E-procurement with AMS of 3.79 and suitable for eliminating/dismantling eleven out of twelve barriers in this category, appear to be the best measure over division of contract into lots and training with AMS of 2.95 and 3.14 respectively.

Training, with AMS of 3.96 emerged as the best measure over E-procurement and division of contract into lot, with regards to eliminating/dismantling the third category of barriers (lack of skilled employers and partners). This is not surprising as the logical solution/remedy for any form of skill deficiency is to educate/tutor skill deficient subject/person concerned. For the last two categories of barriers (lack of awareness of public procurement and legal issues/corruption), it is clear from mean scores and average mean scores in Table 4 that, E-procurement is the most ideal measure for eliminating/dismantling both category of barriers. E-procurement emerging as the most suitable measure for eliminating/dismantling barrier categories "problematic procurement procedure, lack of awareness as well as legal issues/corruption", is understandable as these are all issues that can be surmounted with E-procurement's unique attribute of "opening lines of communication between parties by creating a direct link and facilitating interactions such as bids, purchase orders, and emails".

Based on the overall average mean score of each measure, the results suggest that E-procurement, division of contract into lots and training are all suitable measures for reducing barriers that hinder the participation of SMCEs' in public procurement in Nigeria, but to varying degrees. Essentially, for Nigeria, E-procurement is shown by the results as the best measure out of the three studied measures. This is a reflection of Fernandes and Vieira's (2015) assertion that the application of an e-procurement system that is easy to handle even for micro-sized enterprises and SMEs could be the best way of reducing barriers to SMEs' participation in public procurement.

Division of contract into lot is specifically suitable for reducing barriers related to lack of resources. This is in line with the findings of Morand (2003) that suggested that dividing contracts into lots causes the individual contract to correspond better with SMEs restricted financial, personnel and technical capacity. It is also in agreement with Flynn's (2018) proposition that dividing contract into lots seeks to reduce difficulties relating to contract size. Nonetheless, as shown in Table 4, division of contract into lots is not suitable for dismantling the other categories of barriers and thus has no significant overall effect of improving SMCEs' participation in public procurement in Nigeria, even though it is considered suitable as a measure because its overall average mean score slightly exceeds 3.0. It is thus in itself not sufficient except supported with other measures. These findings contradict the general understanding of researchers that division into lots is a major policy for improving SMEs' participation in public contracts.

Training was found to be the best measure for eliminating barriers related to the lack of skilled employees and partners. This is in line with the assertion that training increases knowledge (Saastamoinen et al., 2017) and also improves the technical and other skills required to perform work tasks and in-turn improve the ability to participate in public procurement (Bryan, 2006).

Table 5 Comparison of measures for improving SMCEs' participation in public procurement

ANOVA						
Measures for Improving SMCEs' Participation in Public Procurement						
	Sum of Squares	Df	Mean Square	F	Sig.	F-crit
Between Groups	3.051	2	1.525	4.355	0.016	3.11379
Within Groups	27.319	78	0.350			
Total	30.370	80				

Table 5 above shows the result of a one-way ANOVA conducted to test whether a significant difference exist between the mean values of the extent to which each measure for improving SMCEs participation in public procurement can eliminate the barriers to their participation in public procurement. As shown, the result reveals that a significant difference exists (the significance value is below 0.05 (0.016) (Heiberger, & Neuwirth, 2009). It is therefore desirable to determine the measures responsible for this difference. Tukey's Honesty Significance Difference (HSD) was the post hoc test used to determine this. Table 6 below shows the result of the test. From Table 6, it can be seen that there is a significant difference between E-procurement and division of contract into lots ($p = 0.012$) while there is no significant difference between training and E-procurement as well as division of contract into lots and training. This suggests that training has a wider range as compared to other measures as its suitability cut across that of E-procurement and division of contract into lots.

Table 6 Post hoc test (Tukey's HSD)

Multiple Comparisons						
Dependent Variable - Measures for Improving SMEs' Participation in Public Procurement						
Tukey's HSD						
(I) Measures		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
E-procurement	Division of contracts into lots	.47519*	0.16107	0.012	0.0903	0.8600
	E-procurement	-0.24963	0.16107	0.274	-0.6345	0.1352
Training	Division of contracts into lots	0.22556	0.16107	0.346	-0.1593	0.6104

*. The mean difference is significant at the 0.05 level

From the foregoing findings, none of these measures is singularly sufficient in dismantling all barriers to SMCEs' participation in Nigeria public procurement. However, from the AMS of the respective measures it is evident that applying all measures together will provide a basis for improving participation of SMCEs in Nigerian public procurement.

6.0 CONCLUSION

This study assessed the level to which E-procurement, division of contract into lots and training could dismantle barriers hindering SMEs from attaining full participation in public procurement in Nigeria. The study results revealed that for Nigeria, E-procurement is the best of these measures followed by training and then division of contract into lots. Division of Contract into Lots could only solve problems related to "lack of resources" and thus the least important among the studied measures, which is contrary to previous researchers' believe that it's the best measure. Training and E-procurement on the other hand cut across four barriers groups, thus, are better measures compared to Division of Contracts into Lots. The study results further revealed a statistically significant difference in the extent to which each measure can dismantle all barriers, suggesting that none of these measures is singularly sufficient in dismantling all barriers to SMCEs' participation in Nigeria public procurement. Clearly, applying all measures together will sufficiently dismantle all barriers and thus, provide a basis for improving participation of SMCEs in Nigeria public procurement. To ensure the effective management of these barriers therefore, it is recommended that SMCEs should adopt e-procurement by registering and constantly checking e-procurement portal for tender opportunities and alerts. Also, SMCEs should pay more attention to training personnel on public procurement process, use of e-procurement and financial market. In addition, SMCEs should promote division of contract into lots to cover the problem of lack of resources.

The foregoing results presents Nigeria and other developing economies with useful insights on encouraging public procurement participation and growth of SMCEs as well as reducing domination by large firms. This ultimately will create more productivity and hence boost the GDP of most developing economies.

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