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ASSESSMENT OF MEDIATING EFFECT OF INDIGENOUS OIL FIRMS' PARTICIPATION ON THE RELATIONSHIP BETWEEN LOCAL CONTENT POLICY AND JOB CREATION

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ABSTRACT

The primary target of the local content policy (LC policy) introduced into the Nigerian oil and gas sector is to address the issue of increasing value-added to the local economy. Specifically, the policy often aimed to increase participation of indigenous oil firms in supply service activities in the sector through which more jobs could be created for the citizens. Thus, this paper assesses the mediating effect of indigenous oil firms' participation on the relationship between LC policy and job creation in Nigeria's oil sector. Data were obtained through the self administered questionnaires survey from the Nigeria indigenous oil service firms.The bootstrap technique in Partial Least Squares Path Modeling (PLS-PM) was applied for the analysis. The bootstrap procedure yielded a significant point estimate of 0.16, with BCa 95% confidence interval (CI) lies between 0.043 and 0.249. Since zero does not lie between these values, this suggests that indigenous oil firms' participation has a significant mediating effect on the policy-job relationship. The implication is that LC policy may increase job creation within the industry if it increased indigenous oil firms' participation.

Keywords: local content policy, indigenous oil firms, participation, oil sector, job creation

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1. INTRODUCTION

A number of established oil and gas producing countries have adopted or are considering the adoption of policies that can turn the extraction of their exhaustible resources to enhance the development of their local economies. The most used of such policy is the so-called local content policy (LC policy), which has been seen as a strategy usually applied in the oil sector for generating more benefits of the resources to the common citizens, in particular. This mostly expected beyond the direct contribution of the oil resource value-added.

The targets of LC policy remain the same in Nigeria when the policy was introduced in its oil and gas sector in 2001. As imitated from some oil-dependent-economies such as Norway and Venezuela, the primary target of the policy is to increase participation of indigenous oil firms in the business activities in the oil sector. Conceivably, an increase in indigenous oil firms' participation in the business activities in the sector is a way of creating more job opportunities for the local workforce within the industry, which may likely trickle down the benefits of the nation's resources.

The Nigeria's LC policy it was defined as the:

> *"quantum of composite value added to or created in the Nigerian economy by a systematic development of capacity and capability through the deliberate utilization of Nigerian human, material resources and services in the Nigerian oil and gas industry"* (NOGICD, 2010)[1].

This definition translates the main objective of the policy which mostly similar to the target of the policy in other oil-dependent economies regarding the aim of achieving local economic development. The policy often aims at enhancing increased participation of Nigeria's indigenous oil service firms through utilization of local goods and services in exploration, production and distribution activities of the sector. The policy encourages local participation and job creation in the industry has stated in the part 1 of the content, section 3, subsection 2 that:

> "*there shall be exclusive consideration to Nigerian indigenous service companies … for contracts and services…",*

also mandates offering of job opportunities to the citizens has indicated in section 28 of the same part, that:

> *"Nigerian shall be given the first consideration for employment and training in any project …in the Nigerian oil and gas industry"*.

An analysis of business activity occurrence in the Nigeria's oil and gas industry confirms that more than US$2.8 billion value of related oil business activities does occur annually in the industry (Klueh et al. 2009). However, despite the fact that the activities could generate a large amount of job opportunities for local unemployed workforce, it appears that the present rate of unemployment in the country raises serious concern. Recent available evidence shows that, in 2011, the rate of unemployed economically active population was about 24% as against 13% in 2001 (NBS, 2012). Consequently, it is reported that about 1.8 million graduates are annually entering the labour market which is adding to unemployment in the country (Punch Newspaper, 2014). Although, the contribution of the oil sector to GDP has an impressed record, but available evidence has shown that the growth rate of GDP does not correspond to the level of local economic development when considering the rate of unemployment in the country.

Despite that employment opportunities are less broad in extractive sector due to its highly capital-intensity and speedily technological requirement (World Bank report, 2009), conceivably, the business activities in the sector are potentially associated with several direct and indirect jobs which may absorb substantial number of local unemployed labour (Steven, 2011). This is not often impossible to achieve especially when a viable LC policy is implemented. As it has been argued that a viable oil regulatory policy may not only increase local companies' participation in the industry but also mitigate the threat of unemployment that may pose the host country (Kazzazi and Nouri, 2012).

The introduction of LC policy in the Nigeria's petroleum sector is not a contentious in the literature. We recognized that some studies have evaluated the policy on different perspectives, including on backward linkages (Adewuyi and Oyejide; 2012); development and environmental sustainability (Nwosu et al., 2006); and political resource economy (Ariweriokuma, 2009). But the important issue is that the relationship between the policy and job creation through the increased participation of local firms in the industry, which has been the key motive of introducing the policy, has attracted less attention. Therefore, we ask: how has the policy encouraged increase participation of

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indigenous oil firms? How has the policy evolved job creation through the participation of indigenous oil firms in the industry? These questions need to vigorously dissect because the credibility of the policy often rides on its ability to create jobs.

Against this background, this study focuses on the mediating effect of indigenous oil firms' participation on the relationship between LC policy and job creation within Nigeria's oil sector. To achieve this objective survey data were obtained through questionnaire administered to selected indigenous service oil firms operating in Nigeria's oil sector. Data were analyzed using bootstrap method in partial least squares path modeling (PLS-PM) to test the conceptual model. The remaining part of this paper consists: section 2 provides a review of relevant literature; section 3 presents methodology and data analysis; section 4 discusses the results; while section 5 gives summary of the paper.

2. "NECESSITY" VS "OPPORTUNITY" OF OIL FIRMS' PARTICIPATION

The dominant discussion on oil resources sizzling in the resource-economic development studies is no longer on whether the oil resources is a "curse" or a "disease", but rather, the participation of local companies in the oil sector and their role towards achieving large benefits of the resources to the local economies is the recent issue being discussed. This is due to an important role that entrepreneurships can play in addressing some economic challenges (Amoros and Bosma, 2013), probably solving unemployment issue that is faced in many oil rich developing countries. In advocating for this motive, many oil-reliant countries established local oil corporations such as Statoil and NNPC in Norway and Nigeria, respectively, for development and promotion of the local entrepreneurship in the sector. The main focus of these corporations is to support the local oil enterprises in benefiting much from the opportunity of their national wealth, and evolving from a state of not being in business for necessity but opportunity, which is presumed to more likely link with economic development (Rosa et al., 2006; Nwosu et al., 2006).

In GEM[2] report, 2001, it was proposed that higher economic growth is more likely resulted from higher entrepreneurship rates. According to Reynolds et al. (2001), the authors of the study, necessity and opportunity are conditions that usually stimulate business start-ups. They observed that high level of poverty, rate of unemployment, and lack of choice at work mostly necessitate for participation of entrepreneurs in the business activities. This is what they developed as "Necessity theory". The theory explains the necessity-based entrepreneurship as an involvement in business activities either to balance subsistence livelihood, reduce poverty, or unemployment. This has been argued to characterize the business start-up in poor countries, where the level of poverty determines the necessity for entrepreneurial activity to survive. According to Acs et al., (2005), economic necessity conditions appear as driven factors in business start-up in less-developed countries, where entrepreneurs concentrate more in less complex, lower cost and more immediately accessible market sector.

On the other hand, participation in business activities in some cases is inspired by the opportunity spotted in the market (Reynolds et al., 2001). They explained that opportunity recognized in the market that favours entrepreneurs usually motivate them to participate in market activity. This is what the Reynolds et al. referred to as "opportunity theory". The situation is more applied to developed countries, where higher rates of entrepreneurial activities are motivated by opportunities recognized in the market, high business skill, and capacity to innovate (Acs et al., 2005). Radosevic and Yoruk (2013) viewed that the philosophical basis of this theory is rooted in response of enterprising individuals in exploiting available entrepreneurial opportunities. They further observed that high technological changes in developed countries could attribute to higher rates of entrepreneurial activities.

Nonetheless, government may intervene in a market to broad capacity of the players, which may serve as an opportunity to achieve common economic goals. Kazzazi and Nouri (2012) observed that such intervention, especially when it focused particular sector, can increase level of entrepreneurial activities in that particular sector. Despite that the Nigeria may characterized with both necessity and opportunity to establishing a business, entrepreneurial propensity of participating in the country's petroleum sector, in particular, is more likely of opportunity driven than necessity. This is because business activities in the sector tend to require capacity and capability to innovate and formal education. Some activities in the industry are complex to start-up unlike consumer-oriented sector that often necessity driven.

There is assertion that recognition of opportunity by the local firms in the oil industry largely depend on the effectiveness of regulatory policies adopted to create such opportunity (Radosevic and Yoruk 2013; Dew et al., 2004). Radosevic (2007) added that large opportunity may be achieved when the opportunity is guided by the rule of law.

3. RESEARCH METHODOLOGY

3.1. METHOD

From the theoretical perspective, the most common application of mediation is to explain why a relationship between exogenous and endogenous construct exists. However, the explanation on the effect size, i.e. practical significance, of a

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mediator variable often remains a cutting-edge. A commonly used approach for testing this effect is the Sobel (1982) test. However, this test suffers from some important limitations. First, it relies on normal distribution of variance, which usually do not hold for the indirect effect; and second, it requires unstandardized path coefficients for the test which lack statistical power, especially when the sample size is relatively small (Hair et al., 2014; MacKinnon et al., 2002). Based on this, Preacher and Hayes (2004, 2008) suggested bootstrap method. This method has statistical power to produce true and reliable point estimate over the Sobel test and it corrects and improves the accuracy of confidence interval for the indirect effect, in spite that the variance (Preacher and Hayes, 2008) and standard error of the indirect effect in small sample may be unbiased (MacKinnon et al., 2004). Therefore, we employed bootstrap method in partial least squares path modelling (PLS-PM) to test mediation hypothesis of whether the product of indirect path coefficient is different from zero.

3.2. INSTRUMENT AND SAMPLE SIZE

A survey of indigenous oil firms was carried out with a view to obtain data in capturing information about the local oil service suppliers' perception on the impact of LCP in influencing their business activities in the oil industry and how this affect job creation within the industry. A sample of questionnaire was adapted from a study conducted by Adewuyi and Oyejide (2012), which was redesigned and administered to indigenous oil service providers in five oil states among the nine oil states of Niger Delta region, in Nigeria to obtain information on how they perceive on the impact of LC policy in influencing their participation in the oil industry and how this affect job creation within the industry. The exercise was concducted between August – December 2014. A judgmental approach was used in selecting these based on the concentration of firms and volumes of oil business-related activities occur in the states. Therefore, the following five states were selected: Akwa Ibom, Bayelsa, Cross River, Delta and Rivers. Although some of these firms have headquarters in Lagos and Abuja for administrative purpose. A sampling frame of 145 of companies across the five states was obtained from the Department of Petroleum Resources (DPR). These firms engage in various oil and gas services such as fabrication and construction, well and drilling services, consultancy and engineering services. They are considered as indigenous firms on the characteristics that they are formed and registered in Nigeria in accordance with the provision of companies and allied matters Act with not less than 51% equity shares and have majority of local staff in the technical management workforce (NOGICD Act, 2010).

Stratify method was used in selecting representative from the population. Population sample was first stratified into five according to the location of the firms vis-a-vis: 18 (Akwa Ibom), 31 (Bayelsa), 22 (Cross River), 20 (Delta) and 54 (Rivers). Microsoft excel was then used to randomly select the sample size from each state which represented about 75% of the population. The excel tool allowed the respondents to be selected with minimal sampling bias. Accordingly, possible proportional elements of 11, 26, 17, 13, and 43 were selected from Akwa Ibom, Balyesa, Delta, Cross River and River states respectively, which yielded a sample size of 110. With assistance of three trained research assistants, structured questionnaires were distributed to each of the selected companies in each state concurrently. Rivers state is a central state laid among the other states, and Port Harcourt, its capital, was used as a base for distribution of the questionnaires within and to other states for the period of the exercise. We often requested for a top management or a representative that could provide relevant information on the questions to fill the questionnaire. In following up the questionnaire, multiple emails were sent and several telephone calls were made to remind the respondents and booked appointment for the collection. At the end of the exercise, a total of 7 companies across the states declined to participate in the exercise under the pretext that such excise is not in line with the company policy or could not find time to fill the questionnaire, while 103 responses were received of which 98 were properly filled.

The questionnaire requested the respondents to assess the influence of 7 indicators of LC policy towards enhancement of their participation in the business activities in the industry based on a five-point Likert-scale. The point ranged from 1= not at all influential to 5= highly influential. Also, they were asked on the extent they participate in the industry using 5 items and how their participation enhanced employment in the industry measured by 5 items. The Likert-scale ranged from 1= never to 5 = always.

Data characteristics such as minimum sample size and non-normal data appear as the main reasons, among others, for applying PLS-SEM method. Evidence has shown that PLS-SEM is an appropriate technique when sample size is small (Reinartz et al., 2009). Also, the method has an advantage of producing robust estimates and achieving statistical power when used with small sample sizes, as well as less restrictive requirement than SEM, and does not assume a particular distributional form (Radosevic and Yoruk, 2013; Reinartz et al., 2009).

Sample size has often been a concern when considering an adequate statistical power for SEM analysis. However, this issue, to some extent, is solved by a guide-table (see Appendix A) developed by Marcoulides and Saunders (2006). The table was developed particularly for PLS-PM based on factor correlation, φ, and factor loading, λ, in determining

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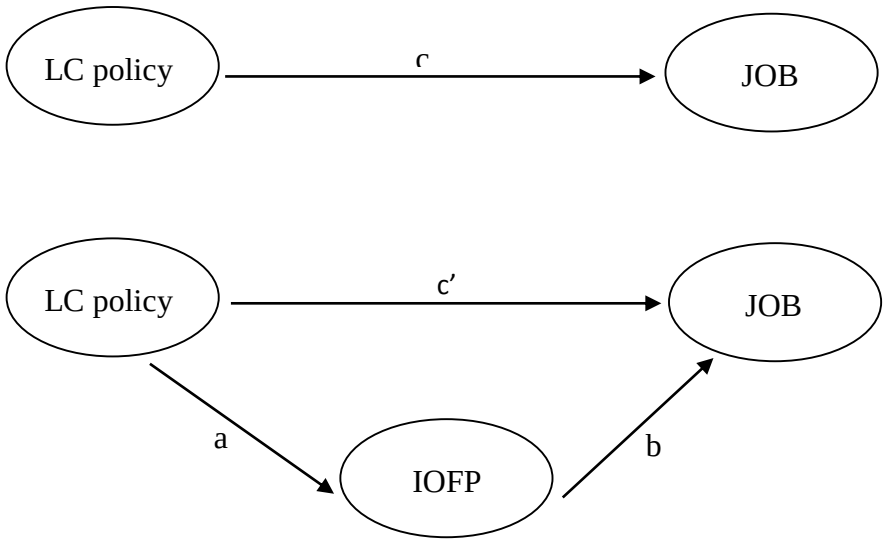
minimum sample size needed to achieving a statistical power of .80. Factor loadings represent the correlation between the observed variables and unobserved latent constructs, and a value ≥ 0.60 often considered practically significant in a sample size of 85 or greater acceptable for adequate measurement (Hair et al., 2010). Based on this threshold, the items that had factor loadings below 0.60, and not contribute to content validity, were trimmed from the models (see Appendix B and C). The manifest variables with factor loadings ≥ 0.60 are retained for the analysis and highest faction correlation is 0.431 (see table 2). When we translate these values into the guide-table, a sample size of 98 is sufficient to achieve a statistical power of 0.80, with 0.05 level of significance.

3.3. MEDIATION MODEL

Mediation model allows the effect of predictor variable on the predicted variable to be decomposed into direct and indirect effects. The relationship between these two variables in the model may likely due to the existence of the mediating variable. If such an effect occurs, then we could say that the effect of the predicted variable on the predictor variable is partially or completely influenced by the mediating variable depends on the direct relationship between Predicted and predictor variables.

Follow Baron and Kenny (1986), there are three assumptions to hold before indigenous oil firms' participation could be considered as a mediator: first, if LC policy significantly predicts job creation (JOB) i.e. $c \neq 0$ in model A; second, if LC policy significantly predicts indigenous oil firms' participation (IOFP) i.e. $a \neq 0$ in model B; and third, if IOF significantly predicts JOC controlling for LC policy i.e. $b \neq 0$ in model B.

Figure 1. *Hypothetical Mediation model showing relationships among LC policy, IOFP and JOB. Source: Authors' computation*



Based on the specified mediation model, we test for the significance of indirect effects (a and b) on the assumption that indigenous oil firms' participation mediates the relationship between LC policy and JOB. Accordingly, the following corresponding hypotheses should hold in order to confirm the mediating effect, that:

H1: LC policy has a positive influence on job creation.
H2: indigenous oil firms' participation has a positive influence on job creation.
H3: LC policy has a positive influence on indigenous oil firms' participation.

These hypotheses formed the conceptual structural model shown in figure 2, and they hold in a structural equation model where the mediator and criterion are continuous, but not in a case where one or more of the dependent variables are binary (Preacher and Hayes, 2008). The hypotheses were assessed by estimating the following regression equations:

$$JOB = \alpha_1 + cLCpolicy \qquad (1)$$

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$$JOB = \alpha_2 + c' LCpolicy + aIOFP \quad (2)$$

$$IOFP = \alpha_3 + bLCpolicy \quad (3)$$

where α_i is the intercept coefficient.

3.4. INDICATORS MEASURED LATENT VARIABLES

The indicators variables used in measuring LC policy were adapted from Adewuyi and Oyejide's (2012) study, which were modified to capture more information in relation to the construct they measured. These indicators were chosen because they designed in the Nigeria's content development Act, 2010, in promoting participation of indigenous oil firms in business activities in the petroleum industry. The instruments comprise of seven itmes which include licensing regulation, ownership regulation, firm registration, labour market regulation, tax incentives, import tariff policy and monitoring that may increase local firms' participation in the industry. This has been seen as government intervention in the sector which provides opportunities for the indigenous oil firms, influences business mechanism and creates an "enterprise culture" to enable the local oil firms to spot and sieze business opportunity in the sector, and also to take reasonable risks and seek profits (Radosevic and Yotuk, 2013; Ihua et. al, 2011). Practically, entrepreneurs would be encouraged to actively partake in business activities, especially in a corperate domain like oil sector, if license to operate, ownership procedural, tax policy are favourable and supportive. Most studies that focused on the role of government interventions, both directly and indirectly interfering, in developing its local entrepreneurship in particular suggest several policy options in which to achieve this goal. In relation to oil sector, the aforementioned indicators are often used for increasing active participation of the indigenous oil service first-tier suppliers in the supply chain of the petroleum industry. This has been evidenced as a common practice in developing oil-rich countries to develop their industrial base and build capacity and capability of the local firms. More so, these policy indicators are used as protective measures when comapared local oil firms' participation in the business activities in oil sector with foreign counterparts (Tordo et al., 2011). Those local oil firms may lack adequate resources needed for a balanced competitive with their foreign counterparts in the industry. Therefore, the instruments are used to increase the participation of the local oil firms, to benefits more from their national endowment.

In the survey, respondents were asked about the extent these policy indicators influence their participation in the business activities in the industry with seven statements by ticking appropriate number against each question. The scale numbers were ranged from 1= not all influential to 5=very influential. The measurement indicators and their factor loading are presented in Table 1 showing the values of the loadings. These values are above the threshold of 0.7, indicating the internal reliability consistency of the indicators.

The indicators measuring entrepreneur's propensity and ability to enterprise are widely spread in the existing literature. Followed Gnyawali and Fogel (1994), five relevant indicators were used to measure indigenous oil firms' participation, being a type of entrepreneurship, which include business opportunity, environment conduciveness, technical skill, financial accessibility and non-financial incentive. Arguably, entrepreneurial opportunity may tend to be higher in a free market where entrepreneurs could freely enter into the market, similarly, a favourable government policy may reduce entry barriers and create more business opportunity allowing increased participation of entreprenurs (Gnwayali and Fogel, 1994). In addition, financial accessibility as well as technical skill, especially in oil and gas sector, has been identified as important factors for successful participation of local entrepreneurs (Ihua et al., 2011). Acoording to OPEC report (2013), shortage of these factors can affect entrepreneurs' productivity, deliverability and competitiveness. Furthermore, non-financial support in terms of counselling, assistance programmes and technology transfer schemes in oil sector have seen to be useful for the development entrepreneurship. Also, conduciveness of the environment where entreprenurs operate is equally an important factor and often encourage entrepreneurs to take risks (Gnwayali and Fogel, 1994).

Each of the indicator was rated on five-Likert scale with different statements on which to score the indicators. For instance, respondents were asked about their perceptions on business opportunity available for them in the oil industry, while the statement concerning the environment where they operate asked about their perceptions on conduciveness of the environment for their business activities. The indicators show a high internal relaiablity as their factor loadings were above acceptable point of 0.7. However, two factor loadings of the indicators, business opportunity and environment conduciveness, considered relatively weak to adequately measure the constrct they supposed to measure for having

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values of 0.45 each, which fell below the threshold values. However, the other three indicators demonstrate adequate internal reliability consistency, implies the construct they measured still has sufficiently reliability.

On demand side, job creation often measured by the amount to which employment opportunities are available and offered to labor force. The observed variables measured job creation are reversed-items that were used to measure the perception of the job seekers on availability of job in the questionnaire designed by Hussmanns et al. (1992). A five-point Likert-scale response format was employed for the observed variables which include job availability, job placement, job applications, job requirement and job offer. These items inquired about the frequency of job positions, creation of awarness about the available positions and frequency of employability of the local applicants into the available positions. The items deemly measured the construct they intended to measure under assessment of their factor loadings. Although, three factors: job application, job requirements and job offer, had factor loading values of 0.655, 0.594 and 0.596 respectively, which slightly below the acceptable figure of 0.7, but they were above the consideration point necessary for practical significance (Hair et al., 2010: 118). There is no cross-loading value that was higher than the loading values of the indicators measured each construct, thus, no consideration of moving an item from one factor to other. The following subsection provides the details of the assessment measures of the variables.

The three latent variables and their indicators are presented in the Table 1.

Table 1. Observed indicators with loadings

		Factor loadings
	Local content policy (LC policy)	
LCP1	I can say our company is influenced with licensing regulation in the oil sector	0.768
LCP2	Ownership regulation has an important part in influencing our company to actively engage in the service business activities in the sector	0.718
LCP3	I perceive the method of firm registration influenced our company's to start up the business in the industry	0.733
LCP4	Labour market regulation influenced our company's performance in the industry	0.860
LCP5	Tax reduction policy favourably influenced the participation of our company in the business activities in the sector	0.711
LCP6	The tariff policy on imported oil influence more contracts to be awarded for our company	0.754
LCP7	Monitoring plays a key role in influencing our company' participation in the business activities in the industry	0.845
	Indigenous oil firms' Participation (IOFP)	
IOF1	How would you describe the business opportunity in the industry towards your company's participation	0.452
IOF2	The social environment where our company located is conducive for the company's activities	0.452
IOF3	Our company always meeting technical skill required to carry out its business activities	0.755
IOF4	The accessibility of financial funds enhances participation of our company in the business activities in the industry	0.725
IOF5	Non-financial incentives, such as government support training and technology transfer programmes enhances our company's participation in the industry business activities	0.744
	Job Creation (JOB)	
JOB1	Jobs often available in our company	0.822
JOB2	Our company often places job vacancies in creating awareness for submission of applications for the available positions	0.821
JOB3	Our company frequently receives job applications from the local applicants	0.655
JOB4	Local applicants do meet the job requirements our company often required	0.594
JOB5	We do often offer jobs to local applicants	0.596

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3.5. MEASUREMENT MODEL ASSESSMENT

The purpose of this paper is to assess the mediation effect of indigenous oil firms' participation on the relation between LC policy and JOB, using bootstrapping method in Partial Least Squares Path Modeling (PLS-PM), 3.0 version, for the analysis of the models. PLS-PM is a statistical technique that widely used in estimating effects of latent predictors on the predicted construct variable with relatively small sample size (Hair et al., 2012, Radosevic and Yoruk, 2012; Henseler and Chin, 2010; Esposito Vinzi et al., 2010), as in the case of the present study. In additional, MacKinnon et al. (2004) advocate that analysis of mediating effects is important in assessing the effect of policy intervention. Hence, PLS-PM deems appropriate method to achieve this objective. As shown in figure 1, c denotes the total effect of LC policy on JOB, c^{l} is the direct effect of LC policy on JOB while the indirect effect through indigenous oil firms' participation is defined as "ab".

The descriptive statistics and correlation matrix regarding the concerned latent variables are presented in Table 2. The correlation matrix among the latent constructs is relatively minimal, does not exceed 0.90, which is a sufficient requirement in structural equation analysis (Radosevic and Yoruk, 2013). We do not suspect collinearity problem. This is reflected by variance inflation factors (VIF) values which are within the acceptable range. The internal consistency of the indicators that measured unobserved variables indicated by Cronbach's alpha and communality attained the satisfactory threshold of 0.5.

Convergent validity assessment which builds on the average variance extracted (AVE) measures the extent the indicator variables of the same construct correlate with each other. The rule of thumb is that AVE should ≥ 0.5 (Hair et al., 2014; Fornell and Larcker, 1981). The AVE values of 0.60, 0.59 and 0.50 of LC policy, IOFP and JOB factors, respectively, attained the minimum requirement. This indicates that, on average, the construct explained more than half of the variance of their indicators. In the structural equation model, the presence of the manifest variables with outer loadings below threshold of 0.6 weaken the content validity, AVE (see appendix B and C). Therefore, they were removed from the model which left three items to measure IOFP. However, three indicator variables are sufficient to measure a construct (Diamantopoulos et al., 2012; Hair et al., 2010). Seven manifest variables were used to measure LC policy, while five measured JOB.

Table 2: Descriptive statistics

	Descriptive statistics			*Factor Correlation Matrix*			*Overall measures*	
	Mean	Std. Dev	VIF	IOF	JOB	LC policy	Cronbach's α	Communality
IOFP	2.93	0.98	1.26	**0.765**			0.640	0.59
JOB	3.58	0.84	1.72	0.389	**0.708**		0.751	0.50
LC policy	3.32	0.98	2.33	0.431	0.028	**0.772**	0.888	0.60

Source: authors' computation

More so, the composite reliability (CR) measures internal consistency reliability of the lower and upper bound respectively. The values range between 0 and 1 with higher values indicating higher levels of reliability. The CR values are above 0.7 acceptable threshold of reliability (see Hair et al., 2013, Hair et al. 2010). We equally test for the construct discriminant validity to assess whether the construct are sufficiently different. Following Fornell-Lacker criterion, the square roots of AVE of the constructs are higher than correlation values in the off diagonal in table 2. This provides evidence for the distinctness of the constructs in the model.

4. RESULTS

Applying the causal steps developed by Baron and Kenny (1986) for mediation test, as stated in the equations above, the conditions require that the total effect (c) of LC policy on JOB must be statistically significant, and this effect should turn insignificant and reduce in value when controlling the effects (c^{I}) of the LC policy, and the indirect effects (ab) must be significant. In table 3, the causal-steps estimates were presented. The estimated coefficients of both the total (c = 0.257, p=0.44) and direct effects (c^{I} = -0.10, p=0.64) of LC policy on JOB are found not significant. This implies that the LC policy is not directly associated with job creation in the industry.

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Table 3: Standardized Regression Weights

Path coefficients between	Total Effect			Direct Effect			Indirect Effect		
	Coeff.	SE	t-ratio	Coeff.	SE	t-ratio	Coeff.	SE	t-ratio
IOFP → JOB				0.409	0.098	4.179***			
LC policy → IOFP				0.380	0.078	4.885***			
LC policy → JOB	0.257	0.330	.779	-0.100	0.156	0.645	0.155	0.058	2.691***

* Significant at 10%
** Significant at 5%
*** Significant at 1% level

However, LC policy is statistically influenced indigenous oil firms' participation and indigenous oil firms' participation statistically influenced job creation at 1% significance level, respectively. Based on the Baron and Kenny's mediation approach, mediation effect through indigenous oil firms' participation cannot be established. This result indicates that firms' participation does not transmit the effect of LC policy to create more jobs in the industry.

However, this approach has been found weak in detecting mediation effect (Hayes, 2009), because the requirement that total effect between independent and dependent variables must be significant is not always considered necessary for mediation to occur (Preacher and Hayes, 2008; Taylor et al., 2008). More so, the approach only estimates each path of the hypothesized model and insignificant of one of these paths may lead to failure to detect mediation effect (Hayes et al., 2011). In a study, Sarah et al (2013), it was argued that a significant total effect it is not necessary for detecting a mediation effect of a consistent mediator in the model. Finally, they argued that the direct test of mediation has more power than the test of the total effect between independent and dependent variables. Based on these arguments, the condition for significance of total effect is relaxed.

An alternative approach, bootstrapping, was then applied to obtain confidence intervals (CI) for the indirect effect. Bootstrapping is a non-parametric resampling process that involves repeated sampling of data from the original data set and uses the resampled data to estimate the indirect effect (Preach and Hayes, 2008). The point estimate was computed based on 5,000[3] bootstrap resampling distribution, and this is used to construct two different 95 percent confidence intervals (CI): bias-correlated and accelerated (BCa), and bias-correlated BC, for the indirect effect. Bca and BC have been found preferable and consistent in detecting mediation effect (Sarah et al., 2013). The rule is that if the values between the upper and lower bounds of the interval do not contain zero, with a certain percent of confidence, then it can be claim that indirect effect is different from zero. This is conceptually the same as rejecting the null hypothesis that true indirect effect is zero (Mackinnon et al., 2004; Baron and Kenny, 1986).

In computing the path coefficients, the path algorithm was used with setting options of weighting scheme that often provides reliable coefficients (Becker et al., 2012) and maximum iteration of 300 was chosen as commonly applied in PLS path estimation. This would indicate whether the algorithm finds the data normal, it occurs when the number of iterations is lower than the maximum of number of iterations (i.e. 300).

The regression results of the hypothesized mediation model and point estimate of the indirect effects are tabulated in Table 4. An examination of the indirect effect through indigenous oil firms' participation indicates that the point estimate is 0.155 and statistically significant at .05 significance level, with 95 percent BCa and BC CI from 0.043 to 0.249 and 0.078 to 0.301, respectively. Since zero does not lie between these upper and lower bounds of the CIs, thus indicating that indigenous oil firms' participation can be established as a mediator. This implies that local oil companies do transmit the effect of LC policy to job creation within the oil sector and the mediation effect can be established.

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Figure 2. ***Structural/Mediation Model***

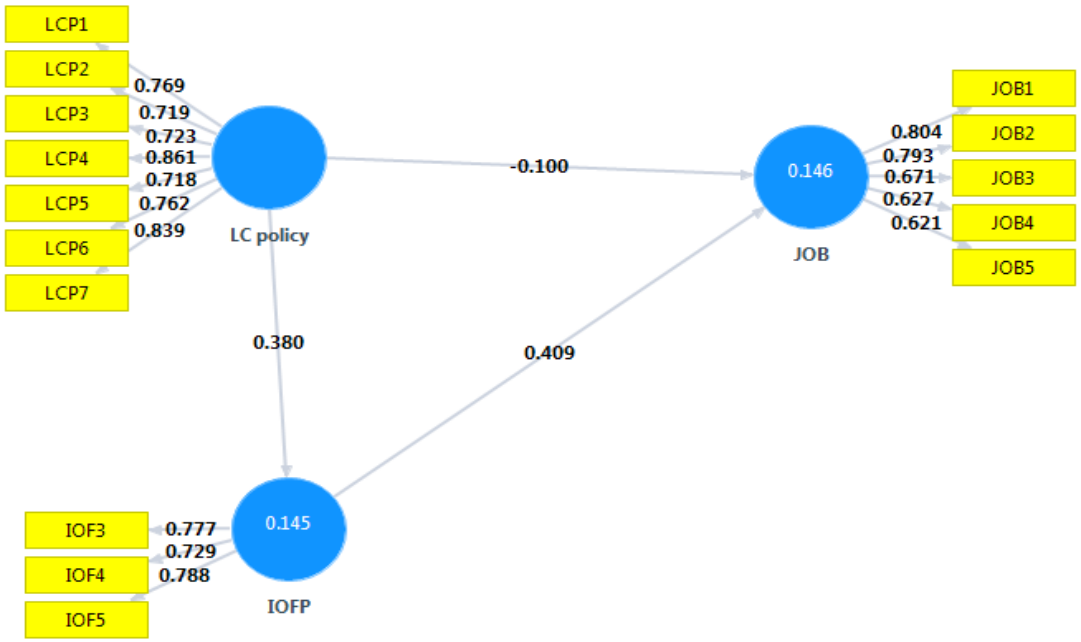

Table 4: Bootstrap result for indirect effect

	Product of coefficients			Bca 95% CI		BC 95% CI		Effect size
	point estimate	SE	z-value	lower	upper	lower	upper	
IOFP	0.155	0.056	2.779***	0.043	0.249	0.078	0.301	0.094

* Significant at 10%
** Significant at 5%
*** Significant at 1% level

This result implies that indigenous oil firms' participation transmits effect of LC policy to job creation. In agreement with these results, we can claim that indigenous oil firms' participation has a significant mediating effect on the relationship between LC policy and JOB. In addition. We checked the magnitude of the mediation by examining the absolute effect size of the IOFP intervention. We found that the statistical f-square value generates an effect size of 0.094. This size is considered to be a small effect (Westland, 2010)[4], which suggests that participation of local firms in the oil sector only transmit little effect of LC policy on job creation. This could be as a result of high technical skill requirement in the sector that Nigerians are yet to develop, or due to capital intensity of the industry that might retard new entrants that limit the number of the indigenous companies in the sector to markedly create a significant jobs (Ihua et al., 2011).

In sum, this finding strengthens our hypothesis that the mediating effect of indigenous oil firms' participation on the relationship between LC policy and job creation is different from zero. Although the effect is small in size due to the characteristics of the industry. Also, this result is consistent with the previous findings that the requirement for significant of total effect as a condition for testing mediation effect is not sufficient. Therefore, we may conclude that LC policy influenced participation of indigenous oil firms in the oil sector, which relatively creates little jobs within the industry.

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5. DISCUSSION AND CONCLUSION

This study analysed the mediating effect of indigenous oil firms' participation on the relation between LC policy and job creation within Nigeria's oil and gas sector. The results suggested that the mediating effect of indigenous oil firms' participation statistically influenced the link between LC policy and JOB more than direct effect. It was found that LC policy may increase job creation within the sector if it increases indigenous oil firms' participation, although, this may not account for creation of a large jobs.

Despite the positive result that revealed the key role of indigenous oil firms' participation on LC policy-JOB relationship, the number of indigenous oil service suppliers in the industry appears few compare with several supply services involve in oil and gas exploration and production processes. It is either the new entrants find it difficult to participate due to cumbersome prequalification requirement and incoherent in the policy guidelines or huge capital that usually required for start-up or both. Therefore, there is need for the government to provide precise directives and implementation guidelines for making the policy inherently effective and efficient. This would enable to achieve the policy focal objective of creating jobs for the unemployed citizens through increase in local firms' participation in the industry, which would in turn increase value to the domestic economy.

In addition, it is well known that working competitively or getting employment in the oil and gas industry requires well developed skills and adequate training, due to high technical activities entail in the sector. However, it appears that most Nigerians workforce lack adequate skills for the tasks in the industry, as this may be the part of global trend of skilled labour shortage facing the oil industry (OPEC, 2013: 36). Therefore, there is a need for the government and stakeholders not only to increase expenditure on Nigerian tertiary institutions and higher colleges of petroleum studies, but also curtail brain-drain from their institutions to maintain adequate teaching and training in order to enable to produce quality and competent graduates needed in the industry. This will more often than not create more jobs creation rather than forcing minimum local employment requirement on the oil firms as mandated in some part of the sections of the policy. Building local capacity and capability will enable the locals firms to able carry out more of the direct and indirect work effectively in the industry.

Generally, it is worth noting that indigenous oil firms' participation can serve as a mechanism in promoting the oil sector's socioeconomic goals with respect to employment generation for local unemployed youths. However, Nigeria's LC policy would be absolutely ineffective and inefficient if it does not turn the oil sector to contribute and add value to domestic economy for economic development.

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Note

1. NOGICD means Nigerian Oil and Gas Industry Content Development
2. Global Entrepreneurship Monitor.
3. Preacher and Hayes (2008) recommended at least 5, 000 resamples for a better estimate of the acceleration constant.
4. Westland (2010) cited Cohen (1988; 1992) who provided ranges for effect size.

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Appendix

Appendix A: Sample size needed to achieve power =.80 with normal distributed data & no missing values

φ_{21}	λ					
	0.9	0.8	0.7	0.6	0.5	0.4
0.1	916	1053	1261	1806	2588	4927
0.2	256	292	371	457	764	1282
0.3	96	99	147	223	317	672
0.4	46	57	71	98	186	343
0.5	25	34	43	66	111	220
0.6	16	20	23	44	78	175

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0.7	15	15	17	33	61	134
0.8	15	15	17	25	46	109
0.9	15	15	17	25	42	99

Source: Marcoulides and Saunders (2006)

Appendix B: Two low Factor loadings indicated

Indicator variables	Factor 1 LC policy	Factor 2 IOFP	Factor 3 JOB
LCP1	0.768		
LCP2	0.718		
LCP3	0.733		
LCP4	0.860		
LCP5	0.711		
LCP6	0.754		
LCP7	0.845		
IOF1		**0.452**	
IOF2		**0.452**	
IOF3		0.755	
IOF4		0.725	
IOF5		0.744	
JOB1			0.822
JOB2			0.821
JOB3			0.655
JOB4			0.594
JOB5			0.596
AVE	0.60	0.41	0.49
Discriminant validity?	Yes	Yes	Yes

Note: AVE = average variable extracted

Appendix C: Low factor loading removed

Indicator variables	Factor 1 LC policy	Factor 2 IOFP	Factor 3 JOB
LCP1	0.769		
LCP2	0.719		
LCP3	0.723		
LCP4	0.861		
LCP5	0.718		
LCP6	0.762		
LCP7	0.839		
IOF3		0.777	
IOF4		0.729	
IOF5		0.788	
JOB1			0.804
JOB2			0.793
JOB3			0.671
JOB4			0.627

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JOB5	0.621

Appendix D: Correlation Matrix and Cronbach's α for LC policy

Influence	LCP1	LCP2	LCP3	LCP4	LCP5	LCP6	LCP7	Cronbach's α Reliability	Cronbach's α if item deleted
LCP1	1.00							0.888	0.868
LCP2	.633	1.00							0.871
LCP3	.580	0.626	1.00						0.875
LCP4	.612	0.692	0.666	1.00					0.854
LCP5	.450	0.297	.335	0.484	1.00				0.884
LCP6	.474	0.384	0.347	0.507	0.658	1.00			0.879
LCP7	.550	0.526	0.514	0.705	0.512	0.589	1.00		0.865
	AVE			0.60		0.59	0.50		
	CR			0.911		.0809	0.832		
	Discriminant validity?			Yes		Yes	Yes		

Appendix E: Correlation Matrix and Cronbach's α for IOF

	IOF1	IOF2	IOF3	IOF4	IOF5	Cronbach's α Reliability	Cronbach's α if item deleted
IOF1	1.00					0.640	0.624
IOF2	0.133	1.00					0.642
IOF3	0.187	0.264	1.00				0.549
IOF4	0.295	0.234	0.371	1.00			0.532
IOF5	0.230	0.125	0.387	0.379	1.00		0.571

Note: AVE = average variable extracted, CR=composite reliability

Appendix F: Correlation Matrix and Cronbach's α for JOB

	JOB1	JOB2	JOB3	JOB4	JOB5	Cronbach's α Reliability	Cronbach's α if item deleted
JOB1	1.00					0.751	0.696
JOB2	0.717	1.00					0.700
JOB3	0.339	0.319	1.00				0.713
JOB4	0.229	0.229	0.477	1.00			0.715
JOB5	0.326	0.337	0.342	0.486	1.00		0.709