Determinants of Labour Force Participation in Nigeria: The Role of Expansion in Tertiary Education and Internet

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ABSTRACT

The aim of this study is to examine the determinants of labour force participation in Nigeria. The Fully Modified OLS was used to investigate the relationship between labour force participation rate and, life expectancy rate, trade openness, education (% secondary), education (% tertiary), labour tax wedge, dummy variable for era of expansion tertiary education in Nigeria, ratio of service to industry, and number of internet users from 1990 to 2021. The series were tested for the stationarity with ADF and the results showed that all the series were stationary at first difference. The Johansen cointegration technique was employed to examine the existence of long run relationship among the series and the result showed the existence of six cointegration equation among the series. The findings of the study showed that life expectancy rate, internet, and the interaction of tertiary education, dummy variable for the expansion of tertiary education in Nigeria and internet contribute significantly to labour force participation in Nigeria. The authors concluded that expansion in tertiary education combined with access to internet is a necessity for labour force participation in Nigeria. The authors therefore recommended that there should be improvement in social infrastructure as to enhance good living conditions among the population; thereby, increase their lifespan. In addition, the recent investment in ICT should be sustained in order to ensure that great numbers of Nigerians, especially students have access to internet. Lastly, the government can liberalise the economy to give room for foreign investors' involvement in manufacturing of ICT infrastructure and accessories.

Keywords: Labour force participation rate, tertiary education, labour tax wedge, internet

INTRODUCTION

Nigeria is one of the largest country in the world in terms of human population (World Population Review, 2023). High population means availability of large number of labour force; that is, manpower to manage and work in the industries (Zimmer, Baer & Brown, 2013). How many of the people that comprise of Nigerian population are available as work force? Also, how many of the people have the basic requirements to fit into the available work in the economy? Having active labour force is one of the targets of every economy, it is this regards; that countries in the world embrace policies that promote participation of their people in the labour force (Young, 2018). According to Man, Rahman, Arsad (2021), a country cannot be said to be successful in its microeconomic and macroeconomic stabilisation without giving proper consideration to number of people actively available for work. It an important factor in determine how production and distribution take place in the country and solely reflect the well- being of the people. This makes Lisanler and Bhatti (2005) to consider it as key factor in socioeconomic development of a country.

It is people in the work- age population of a country that are saddled with the responsibility of economically providing for the essential needs of the entire country. As such, the deficiency in the number can hinder sustainable growth of the entire economy because it can lead to long – run fall in the aggregate output of the economy; thereby leading to economic glut. It is on this wise that countries always attempt to create environment, which stimulate the growth of labour supply. Labour supply in an economy can be hindered by many factors. Several studies have emerged to explain some of these factors. There are studies from conceptual points of such as Nwakwe (2004), Galbis- Reig, Cajner, Smith, Fallick and Wascher (2014) and Parmar and Thomas (2020); and others from empirical point of view as well (Fadayomi & Olurinola, 2014; Evangelia & Silbernan, 2014; Merwe, 2016; Andres, Dasgupta, Joseph, Abraham & Correia, 2017; Grigoli, Koczan & Topalova, 2018; Yusnandar, Nazamuddin, Masbar & Jamal, 2020; Man, Rahman & Arsad, 2022).

Notably among these studies is that of Grigoli, Kozan and Topalova (2018) who pointed out that these factors influence individuals' decisions in offering their labour any productive activities. Individuals therefore, assess the prevailing condition in the economy in order to ascertain the readiness to return to market work. This post- Keynesian economists affirmed this argument of individual economic agents reacting to economic conditions before deciding whether to engage in workforce or not. This assertion needs to be investigated in the light of the recent trend in Nigeria, which can contribute to participation of individual in the workforce of Nigeria. The first one is the expansion of tertiary education in Nigeria, especially the emergence of private universities, National Open University of Nigeria and other specialised tertiary education. The second is the growth in the number of internet users. The authors will incorporate these new trends as gap to be covered in this study.

LITERATURE REVIEW

Several theories have emerged to show what determine the supply of labour in the economics. Among these theories is the neoclassical theory of labour supply. In the words of Spencer (2006, p.459), "individual works as assumed effectively to 'choose' whether they work or not and also how long they work, depending upon their (given) preference and the level of real wages". From this assertion of Spencer, it is clear that neoclassical economists perceive the choice of determining to work or not is a function of prevailing real wages in the economy and individual preferences. From the view of the neoclassical economist, unemployment does not exist.

Ratzel (2009) adds that "income and leisure are considered as the source of individual utility. Work is seen as bad necessary to create income for consumption" (p.2). The basic fact is that emerges is that individual involves in a tradeoff between work and leisure and income determines the proportionate in which the individual substitute numbers of available for leisure for number of hours worked. Thus, the standard neoclassical theory sees income as the determinant of preference for work.

Another theory that has emerged in the literature is the human capital theory. Almendarez (2011) says that human capital theory "rests on the assumption that formal education is highly instrumental and necessary to improve the productive capacity of a population" (para. 4). The population being referred to in this assertion include the working age population of an economy. Human capital theory posits that education is needed in the determinant of the number of people in an economy that can available for work. Each stage of education produce manpower that is needed to function in some level of employment. As such, the labour supply rests on the education provided for the citizen and the total expenditure incurred in providing the education.

Apart from the Human Capital Theory, there is post- Keynesian perspective that sees supply of as endogenous. In this perspective, labour is seen to react some economic conditions (Staveren, Tulder & Dafnomili, n.d; LingQ, n.d). The supply of labour reacts to whatever conditions that are prevailing in the

economy. In a simplify form, the post- Keynesian perspective on labour supply argues that there can be some hindrance in the economy, which produce underemployment, emergence of informal labour market, discouraged worker effect, and added worker effect. The conclusion of the post- Keynesians is that the demand for labour is a derived demand; as such, it depends on the aggregate demand in the economy (Staveren, Tulder & Dafnomili, n.d; LingQ, n.d).

From the explanation of the theories aforementioned, some factors that determine the labour supply have been brought into limelight. These factors have been subjected to empirical investigations by authors such as Fadayomi and Olurinola, 2014; Evangelia and Silbernan, 2014; Merwe, 2016; Andres, Dasgupta, Joseph, Abraham and Correia, 2017; Grigoli, Koczan and Topalova, 2018; Yusnandar, Nazamuddin, Masbar and Jamal, 2020; Man, Rahman and Arsad, 2022). The studies of these authors and others have been reviews as follow.

One of the oldest studies on labour force participation in Africa is that of Graft- Johnson (1978). Graft-Johnson examined the influence of the various factors on the labour force participation in Africa. Drawing data from the census data in Ghana 1960 and 1970, Graft- Johnson found out that female participation rates in Ghana was high and affected by age. In addition, there was positive relationship participation of men and migration; but negative for women. Hafeez and Ahmad (2002) investigated factors that influence the educated married women's decision to enter into labour force in Mani Bahaudin districts. The application of logit and probit model enabled the Hafeez and Ahmad to identify factors such as females' education level, monthly household income, number of workers in the household other than husband and wife and financial assets of the households. The study by Uwakwe (2004) was on factor affecting women's participation in labour force in Nigeria. Uwakwe pointed out that there has been increased in the number of women engaging in labour force than before and provided explanation on factors that determine women's active participation in labour force.

In another study from Pakistan, Ahmad (2011) focused on educated married women in Mandi Bahudin. Using Logit and Probit, the findings of the study showed that female' education level has significant impact on female labour force participation. In same vein, Ahmad pointed out that monthly household income, number of workers in the household other than husband and wife including financial asset exhibited negative significant impact on female labour force participation by women.

The major concern of the study conducted by Aaronson, Galbis- Reig, Cajner, Smith, Fallick and Wascher (2014) was to examine recent developments and future developments in labour force participation. The authors attributed the low level of labour participation at that period to labour market slack. Variety of approaches was undertaken by the authors to arrive at this decision on labour participation rate. How the household structure affects the labour market participation was examined by Fadayomi and Olurinola (2014). Using the Nigerian Labour Market Survey of 2005, Fadayomi and Olurinola empirically estimated the relationship between labour force participation and household characteristics of the population. Fadayomi and Olurinola found out that household structure significantly influenced the labour force participation of the households.

Toil in line with the study of Galbis- Reig, Cajner, Smith, Fallick and Wascher (2014) is the study conducted by Evangelia and Silbernan (2014). The study by Evangelia and Silberman also tended to examine the recent decline in labour force but the focus was on female labour force in Indian. Through the examination of the labour market performance, scenario analyses and econometric analysis, the findings of Evangelia and Silberman revealed that the major hindrance was lack of employment opportunities for women, which was seen as a long run issue.

Based cross- sectional analysis of 2012 Egyptian Labour Market Panel Survey (ELMOS) and 2012 German Socio- Economics Panel (SOEP), Hosney (2015) did a comparative study of the factors influencing female

labour participation in German and Egypt. Hosney's findings showed that years of schooling, age, being a married woman, living in urban areas and number of children are common factors influencing female participation in both countries. Hosnye further showed that the impact of wealth holding differed among the countries.

In the same year, Merwe (2016) explored how the characteristics and circumstances of someone in one year can affect the probability of being in a particular labour market in the next year. Merwe made use of Household, Income and Labour Dynamics in Australia (HILDA) Survey to obtain the population for the study. Merwe excluded those who were in the category of self- employed or engaging in full time study. Merwe's findings showed that those who were currently employed with certificates in tertiary institutions have high propensity of being employed in the future. Merwe also found out that those with long- term health conditions, who were inability to complete high school and migrants from non- English speaking countries.

Similar findings were obtained by Hussain, Anwar, and Huang (2016). (2016) in their study on factors influencing participation in labour force in Pakistan. Hussain, Anwar and Huang used 36,400 households collected from Labour Force Survey of Pakistan between 2008 and 2009 and the findings showed that level of education, training, age, location, residential period and being male significantly determine the participation in labour force in Pakistan. In another study on female participation in labour force by Lsaniler and Bhatti (2016), education of the women, age of the women, and residence were found to be significantly related to women's decision to participate in labour force in North Cyprus.

Still on the issue of declining in women labour force participation in Indian, Andres, Dasgupta, Joseph, Abraham and Correia (2017) followed suit in complementary to the study conducted by Evangelia and Silberman (2014). The findings of Dasgupta, Joseph, Abraham and Correia (2017) deviated from the results of the study conducted by Evangelia and Silberman (2014). In the words of Dasgupta, Joseph, Abraham and Correia, this decline can be attributed to stability in family income and declining in the share of casual labour in the composition of family labour supply. Dasgupta, Joseph, Abraham and Correia therefore, suggested government initiating policies that lead to the growth of women friendly enterprises.

Oguz (2018) conducted study on factors affecting labour supply in Turkey. Oguz made use of secondary annual data on certain variables, which included inflation, manufacturing industrial production index, labour cost index, unemployment rate and export. Oguz empirically examined the relationship between labour supply and the aforementioned variables and the findings showed that inflation, manufacturing industrial production index, labour cost index, unemployment rate, real exportation, labour productivity, real wage, and growth significantl influenced labour supply in Turkey. In the study by Grigoli, Koczan and Topalova (2018), there was increase in the labour force participation due to labour market policies and institutions, structural transformation, and gains in educational attainment. The findings of Grigoli, Koczan and Topalova also showed the impact that investment in education and training, reforming the tax system, reduction in early retirement incentives and so on.

One of the studies that have focused on female force participation is by Kaur and Nagaich (2019). These authors did a comparative analysis of labour force participation among women in high and less developed districts of Himachal Pradesh. Kaur and Nagaich discovered female labour force participation did not significantly differ between the rural and urban of highly developed districts in terms of cultivation but these results changed when considering total female workers, agricultural labours, household industry and other workers in rural and urban areas of high per capita income. Kaur and Nagaich also compared the rural and urban areas of the low per income districts and obtained contradictory results. Using 2019 Quarterly Labour Force Survey, Jongh and Mncayi (2019) examine the factors that lead to discouragement of people in South African labour market. The findings of the authors showed that a low absorption capacity, structural mismatches and the use of ineffective and ill- informed job- search methods enhanced discouragement of

people in the South African labour market. Yusnandar, Nazamuddin, Masbar and Jamal (2020) attempt to examine the factors that influence labour force participation in Indonesia. The authors also considered the impact of labour force participation on the standard of living of the people. The authors sourced data from 2018 Indonesian National Labour Force Survey and the outcomes showed that marital status played significant impact in labour force participation in the country. Yusnandar, Nazamuddin, Masbar and Jamal further observed the existence of an inverted U- shaped in their estimation.

Using static panel data, Man, Rahman and Arsad examined the determinants of labour force participation in Malaysia and the results obtained showed that unemployed, widowed status, outside labour force and marital status have indirect relationship with female labour force participation while non- formal education level, tertiary education level and age group between 40 and 64 exhibited direct relationship with female participation in labour market. In similar study, Man, Rahman and Arsad (2022) investigate the factors that influence the overall labour force in Malaysia. The authors adopted the Generalised Moment of Method and the findings showed that unemployment rate has negative significant on overall labour force participation rate.

METHODOLOGY

This study is a longitudinal survey in nature, in the sense that, secondary data covering the period of 1990 to 2021 were used for the estimation. The choice of the 1990 came from the fact that the economy was stable in that year and the availability data up to 2021 (Central Bank of Nigeria, 1990). The model used in this study derived its foundation from the works of Grigoli, Koczan and Topalova (2018). Due to poor availability of data, some of the variables used by Grigoli, Koczan and Topalova (2018) were dropped from the model; and two additional variables were added, which were dummy variable to capture the era of expansion in tertiary education in Nigeria and log of the numbers of internet users. The variables used were as follows: labour force participation rate, life expectancy rate, trade openness, education (% secondary), education (% tertiary), labour tax wedge, dummy variable for era of expansion tertiary education in Nigeria, ratio of service to industry, number of internet users. The model for the study was specified as follows:

$$LFPR_t = \beta_0 + \beta_1 TER_t + \beta_2 SEC_t + \beta_3 LEXR + \beta_4 LTW_t + \beta_5 OPN_t + \beta_6 SEIN_t + \beta_7 INT_t + \beta_8 ERA_t + \mu_t \ldots (1)$$

Where LFPR = labour force participation rate, LEXR = life expectancy rate, OPN = trade openness, SEC = education (% secondary), TER = education (% tertiary), *ln*LTW = log of labour tax wedge, ERA = dummy variable for era of expansion tertiary education in Nigeria (1990 to 2003 takes the value of 0; 2004 above takes the value of 1), SEIN = ratio of service to industry, *ln*INT = log of number of internet users in the period under study, $?_0 - ?_8$ = coefficients to be estimated, and *t* = time period. Equation 2 is a modified form of Grigoli, Koczan and Topalova (2018) and variables such as dummy variable to capture the era of expansion in tertiary education in Nigeria (ERA) and log of the numbers of internet users (*ln*INT) were added.

$$LFPR_t = \beta_0 + \beta_1 TER_t + \beta_2 SEC_t + \beta_3 LEXR + \beta_4 \ln LTW_t + \beta_5 OPN_t + \beta_6 SEIN_t + \beta_7 \ln INT_t + \beta_8 ERA_t + \mu_t \ldots \quad (2)$$

$\beta_1, \beta_2, \beta_3, \beta_5, \beta_7, \beta_8 > 0$; $\beta_4, \beta_6 < 0$

The model was estimated using Fully Modified Ordinary Least Squares. The advantage of this technique is that it helps to account for endogenity and serial correlation in the model. The use of Fully Modified OLS required carrying out Unit Root test to ensure that all of the series were stationary at First Difference and also conducting cointegration to have the assurance that the series have a long- run relationship. The data for

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the study were sourced from National Bureau of Statistics, World Bank and Federal Ministry of Education. The 2021 data for life expectancy was not available in the World Bank indicator.

DATA ANALYSIS AND DISCUSSION

The authors began explanation of the data analysis and discussion with descriptive statistics. Certain silent features of the series are explained and such features are in Table 1.

Table 1: Descriptive statistics

	LFPR	LEXP	ERA	LINT	LTW	SEC	SEIND	TER	OPN
Mean	30.32	49.03	0.56	16.67	15.96	0.20	4.24	0.06	36.16
Med	30.88	49.30	1.00	15.83	16.01	0.20	3.82	0.057	36.54
STD.	2.00	2.68	0.50	1.77	2.35	0.02	1.86	0.03	9.40
Skew	-1.87	-0.04	-0.25	0.29	-0.44	0.30	0.23	0.02	-0.15
Kurt	5.88	1.45	1.06	1.33	1.76	2.35	1.60	1.50	2.47
JB	29.86	3.11	5.34	4.19	3.07	1.07	2.89	2.96	0.51
Pro	0.00	0.21	0.06	0.12	0.21	0.59	0.24	0.23	0.77
Obs	32	31	32	32	32	32	32	32	32

Note: 5% level of significance

Source: Regression Output using Eview

In Table 1, basic descriptive statistics of the series were computed. The standard deviation of each of the series was low, which the evidence of evenly spread of the series around their means. Hence, there is no outlier in any of the series. The values obtained for the skewness were between -1.87 and 0.30; which showed evidence of being moderately skewed. The values of the skewness for labour force participation rate (LFPR), life expectancy rate (LEPR), labour tax wedge (LTW), and dummy variable for era of expansion tertiary education in Nigeria (ERA) were negative while others were positive. In terms of Kurtosis, the values for labour force participation rate (LFPR) was above 3, which showed evidence of not being normally distributed. Similar result was obtained for labour force participation rate (LFPR) in Jarque Bera. Since, the results for all other series, in terms of Kurtosis and Jarque Bera, showed that the series were normally distributed. Based on the fact that there is evidence of outlier in the series, the authors proceed with the estimation.

The authors employed Augmented Dickey Fuller (ADF) Unit Root Test and the result obtained is shown in the Table 2 below:

Table 2: Results of Augmented Dickey Fuller (ADF) Unit Root Test

Variable	ADF Calculated Value In Level	ADF Calculated Value At 1st Difference	Mckinnon 5% Critical Value	Order Of Integration
LFPR	-2.56	-3.05*	-2.96	1(1)
lnINT	-0.71	-4.92*	-2.96	1(1)
lnLTW	-0.87	-6.48*	-2.96	1(1)
SEC	-2.56	-5.01*	-2.96	1(1)

SEIND	-1.54	-3.12*	-2.96	1(1)
TER	-1.17	-6.25*	-2.96	1(1)
OPN	-2.81	-5.42*	-2.96	1(1)
ERA	-1.11	-5.48*	-2.96	1(1)
LEXP	0.70	-3.44*	-2.96	1(1)

Note: 5% level of significance

Source: Regression Output using Eview

In the results shown in Table 2, all the series were stationary at First Difference. With these results, the first condition to make use of Fully OLS has been fulfilled. The authors, thereby, proceed to carry out the cointegration technique using Johansen cointegration technique. The results of the Johansen cointegration test was shown in Table 3 below:

Table 3: Summary of Johansen Co-Integration Trace and Max-Eigen Test Statistic

Hypothesized No. of CE(s)	Eigen Value	Trace Statistics	0.05 Critical Value	Max-Eigen Statistic	0.05 Critical Value
None *	0.99	428.06	197.37	122.44	58.43
At most 1 *	0.96	305.63	159.53	96.13	52.36
At most 2 *	0.90	209.50	125.62	69.22	46.23
At most 3 *	0.76	140.28	95.75	41.33	40.08
At most 4 *	0.73	98.95	69.82	39.04	33.88
At most 5 *	0.68	59.91	47.85	33.19	27.58
At most 6	0.51	26.72	29.80	20.36	21.13
At most 7	0.19	6.36	15.49	5.94	14.27
At most 8	0.01	0.42	3.84	0.42	3.84

Note: 5% level of significance

Source: Regression Output using Eview

The result obtained in Table 3 showed that there are six cointegrating equation in the model. Both Trace Statistics and Max- Eigen Statistic gave same results. This showed that there is long run relationship among the series. The model therefore, can be estimated using Fully Modified OLS.

Table 4 showed the Fully Modified OLS for the model specified as Equation 2.

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Table 4: Regression output

Dependent Variable: LFPR				
Method: Fully Modified OLS				
Sample: 1990 – 2021				
Variable	I	II	III	IV
C	10.40 (0.50)	29.10[c] (1.90)	85.04[c] (5.47)	37.42[b] (2.56)
LEXP	1.29[b] (2.32)	0.71[c] (1.83)	0.40 (1.45)	0.64[c] (1.79)
*ln*INT	-2.02[b] (-2.63)	-1.80[a] (-3.38)	-5.10[a] (-6.93)	-2.26[c] (-4.33)
*ln*LTW	-0.81 (-1.71)	-0.44 (-1.31)	0.03 (0.11)	-0.31 (-1.00)
SEC	-1.17 (-0.04)	5.97 (0.30)	2.97 (0.21)	7.07 (0.39)
SEIND	-0.32 (-0.89)	-0.53[c] (-2.06)	-0.31[c] (-1.73)	-0.51[c] (-2.18)
TER	65.22[C] (2.03)	-5.47[C] (-0.19)	-597.41[a] (-5.80)	-8.48 (-0.19)
OPN	0.04 (0.85)	0.06[c] (2.05)	0.09[a] (4.38)	0.07[b] (2.51)
ERA	-1.21 (-0.74)	-4.44[a] (-2.91)	1.09 (1.27)	-3.95[b] (-3.09)
TER*ERA		96.51[a] (3.36)		
TER* *ln*INT			40.37[a] (6.29)	

TER*ERA* *ln*INT				5.85[a] (4.03)
R- squared	0.54	0.65	0.77	0.67
Adjusted R- squared	0.37	0.49	0.67	0.53
Long- run variance	1.96	0.93	0.47	0.78
Wald (F- Statistic)	5.49[a] (0.00)	10.59[a] (0.00)	21.90[a] (0.00)	12.73[a] (0.00)

Note: [a]1%, [b]5% and [c]10% level of significance, t- statistics in parenthesis. Column I (All variables without interaction term), Column II (All variables with inclusion of interaction term for tertiary education and dummy variable for expansion of tertiary education), Column III (All variables with inclusion of interaction term for tertiary education and log of number of internet users), and Column IV (All variables with inclusion of interaction term for tertiary education, dummy variable for expansion of tertiary education and log of number of internet users)

Source: Regression Output using Eview

In Column 1, the life expectancy rate (LEXP) exhibits positive and significant impact on labour force participation rate (LEXP), which healthy life contributes significantly to the people's participation in the workforce of Nigeria. It can also be seen that the log of number of internet users (*ln*INT) has significant impact on willingness of the people to participate in the workforce of Nigeria. A good reason for this is that internet provides opportunity for job- seekers and employers of labour to interact and assist in making provision of information especially on job advert placement. The labour tax wedge (*ln*LTW) is negative and not significant. This may have come from the fact that Nigeria is characterised by the existence of large informal sector. As a result of this, tax plays insignificant role in the determinant of whether someone participate in labour force or not.

The secondary education (SEC) exhibits negative non – significant effect on labour force participation in Nigeria. This finding contradicts the results obtained by Grigoli, Koczan and Topalova (2018). Grigoli, Koczan and Topalova (2018, p.16) showed that "education is a powerful prediction of labour force participation". This result showed that secondary education has not played its role in enhancing labour force participation in Nigeria. The result obtained for tertiary education (TER) is significant and positive. Unlike the secondary education, the tertiary education exhibits itself as the predictor of labour force participation in Nigeria. One fact to draw from these results is that the relevance of secondary education certificate is declining in Nigeria.

Also, ratio of service sector to the industrial sector (SEIN) is negative and not significant. Thus, the domination of the service sector in Nigeria weakens labour force participation as a result of high capital intensive nature of the sector. In same table is the trade openness (OPN) and the coefficient is positive but not- significant. This shows that it contributes to labour force participation in Nigeria. Lastly, the era of expansion in tertiary education is negative and not significant, as well.

Column II showed the inclusion of the interaction term for tertiary education and era of expansion in tertiary education. The inclusion of this variable showed improvement in the coefficient of determination and all the variables except tertiary education maintained their previous signs. The inclusion of the interaction term has made trade openness (OPN) to be significant though not highly significant. One fact to draw about the

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coefficient of trade openness is that the interaction of tertiary education and the era of the expansion of tertiary education in Nigeria might have resulted increase in the need for educational infrastructure, technologies, expatriate and foreign students.

With this interaction term, the era of expansion in tertiary education (ERA) is highly significant. This shows that it enhances labour force participation in Nigeria. Nigeria is a country characterises by demand for higher education exceeding supply of education. As such, emergence of new tertiary institutions means greater opportunity for those who have been seeking admission for years and have become liability to the parents and government. The inability of the secondary education in Nigeria to produce in students the ability to engage in productive activities resulted in large number of people believing that the tertiary education gives the needed succor.

In Column III, the interaction term for tertiary education and number of internet users is included in the model. The table showed the effect of the inclusion of the interaction term. The value of the coefficient of determination has moved from 54.53% to 77.28%; which showed the high impact exerted by this interaction term in the model. The inclusion of the interaction term has led to change in the signs of variables such as log of labour tax wedge, secondary education, tertiary education, and era of expansion in tertiary education. The unique contribution of this interaction term is in the influence on tertiary education. The tertiary education becomes highly significant. This shows that the tertiary education's contribution to labour force participation is conditioned on the number of internet users. In the recent times in Nigeria, online/virtual learning has become the trend and participants must be internet users in one way or other. It can also be seen that the interaction term is also significant and conform to the expected sign.

Lastly, the authors introduced the interaction term for tertiary education, log of number of internet users and era of expansion in tertiary education and the result is shown in Column IV. The coefficient of determination is moderate. The coefficient stood at 67.21%. The inclusion of this interaction term has revealed the role that industry and trade openness can play in the labour force participation in the economy. Both variables were significant and conform to the expected signs, which show the growth of the industry is paramount in achieving high participation of the people in the work force. In addition, the expansion of tertiary education and log of number of internet users are both significant; which showed the relevance of the two variables to labour force participation in Nigeria. The interaction is significant and conform to a prior expectation. The conclusion from this result is that the contribution of tertiary education to labour force participation is conditioned on its expansion and expansion of ICT infrastructure in Nigeria.

CONCLUSION

This paper has examined the determinants of labour force participation in Nigeria and the focus has been on the role of tertiary education cum its expansion and internet. This has been empirically investigated using Fully Modified OLS. The results obtained has shown that the growth of the industry and trade openness are relevant to the participation of people in Nigerian work force. In addition, the role of internet cannot be set aside in the labour force participation in Nigeria. Also, longevity has impact on labour force participation. Lastly, tertiary education can only be only become a powerful prediction for the participation of Nigerians in labour force when it is supported by rapid expansion in tertiary education itself and investment in internet. With emergence of COVID-19, this result cannot be overlooked in regard to provision of education in Nigeria. Based on these results, the authors recommend that there should be improvement in social infrastructure as to enhance good living conditions among the population; thereby, increase their lifespan. In addition, the recent investment in ICT should be sustained in order to ensure that great numbers of Nigerians, especially students have access to internet. Lastly, the government can liberalise the economy to give room for foreign investors' involvement in manufacturing of ICT infrastructure and accessories.

REFERENCES

1. Almendarez, L. (2010). Human capital theory: Implications for educational development. https://www.open.uwi.edu/sites/default/files/bnccde/belize/conference/papers2010/almendarez.html
2. Ahmad, E. (2011). Factors determining the labour force participation decision of educated married women in a district of Punjab. https://www.semanticscholar.org/paper/FACTORS-DETERMINING-THE-LABOUR-FORCE-PARTICIPATION-Ahmad/6307f42d84d8ee3e2056713e2d6ab926834f853f
3. Andres, L. A., Dasgupta, B., Joseph, G. & Abraham, V. & Correia, M. C. (2017). Precarious drop: reassessing patterns of female labor force participation in India. Policy Research Working Paper Series 8024, The World Bank.
4. Central Bank of Nigeria (1990). Monetary Policy: The conduct of monetary policy. https://www.cbn.gov.ng/monetarypolicy/Conduct/1990.asp.
5. Evangelia, S. K. & Silberman, B. A. (2014). Why is female labour force participation declining s so sharply in India? ILO Research Paper No. 10. International Labour Office
6. Fadayomi, T. O., & Oluranti, O. I. (2014). Determinants of labour force participation in Nigeria: The influence of household structure. Journal of Economics and Development Studies, 2(2), 169- 190.
7. Graft- Johnson, KT D. (1978). Factors affecting labour force participation rates in Ghana 1970: case study no. 7. http://www.popline.org/node/447807
8. Grigoli, F., Koczan, Z., & Topalova, P. (2018). Drivers of labour force participation in Advanced Economies: Macro and micro evidence. 2018 International Monetary Fund WP/18/150. https://www.imf.org/en/Publications/WP/Issues/2018/06/25/Drivers-of-Labor-Force-Participation-in-Advanced-Economies-Macro-and-Micro-Evidence-45977.
9. Hosney, S. H. M. H. (2015). Factors influencing female labor force participation in Egypt and Germany: A comparative study. (Master's Thesis, Germany University, Cairo).
10. Hussain, M., Anwar, S., & Huang, S. (2016). Socioeconomic and demographic factors affecting labor force participation in Pakistan. Journal of Sustainable Development, 9(4), 70- 79.
11. Jongh, J. J. & Mncayi, P. (2019). An analysis of the factors affecting discouragement in South Africans labour market. Proceeding of International Academic Conferences, 9912304. International Institute of Social and Economic Sciences.
12. Kaur, B. & Nagaich, S, An overview of female labour force participation rate in Punjab (August 16, 2019). SSRN: https://ssrn.com/abstract=3438301 or http://dx.doi.org/10.2139/ssrn. 3438301
13. LingQ (n.d). Economic Theories, 5.04 (V) Labour markets- Post Keynesian economics. https://www.lingq.com/en/learn-english-online/courses/690366/504-v-labour-markets-post-keynesian-e-4993324/
14. Lisaniler, F. G. & Bhatti, F. (2005). Determinants of female labour force participation: A study of North Cyprus. Review of Social, Economic & Business Studies, 5/6, 209 – 226.
15. Oguzi, A. (2018). Analysis of the factors affecting labour supply. Dumlupinar Üniversitesi Sosyal Bilimler Dergisi 56, sayi / nisan, 157- 170
16. Man, L. B., Rahman, N. A., & Arsad, Z. (2021). Determinants of labour force participation rate in Malaysia from gender perspective. Journal of Statistical Modeling and Analytics, l3 (2), 109-121.
17. Merwe, M. v. (2016). Factors affecting an individual's future labour market status. RBA Bulletin Reserve Bank of Australia, 11-22.
18. Parmar, S. & Thomas, B. (2020). Impact of gender inequality on female labour force participation: A literature review. International Journal of Creative Research Thoughts. 8(9), 2667 – 2672.
19. Rätzel, S. (2012). Labour Supply, life satisfaction, and the (dis)utility of work. The Scandinavian Journal of Economics, 114(4), 1160–1181. http://www.jstor.org/stable/23356953
20. Spencer, D. A. (2006). Work for all those who want it? Why the neoclassical labour supply curve is an inappropriate foundation for the theory of employment and unemployment. Cambridge Journal of Economics, 30(3), 459- 472.
21. Staveren, I., Tulder, R., & Dafnomili (n.d). Labour – Post Keynesian Economics. Introduction to

Economic Theories [PowerPoint Slides]. URL: https://www.coursera.org/lecture/intro-economic-theories/labour-markets-post-keynesian-economics-p8puo.

22. Yusnandar, Y. Nazamuddin, B. S., Masbar, R., & Jamal, A. (2020). Determinants of labour force participation and its impact on the standard of living of working age individuals in Indonesia, a gender perspective. Economics Bulletin, 40(2), 989 – 1001.
23. Uwakwe, M. O. (2004). Factors affecting women's participation in the labour force in Nigeria. Journal of Agriculture and Social Research, 4(2), 43- 53. DOI: 10.4314/jars.v4i2.2815.
24. Zimmer, T. E., Baer, C., & Brown, T. (2013). Labor force dynamics: What influences the size of the labor force? https://www.incontext.indiana.edu/2013/jan-feb/article3.asp.
25. World Population Review (2023). Total population by country 2023. https://worldpopulationreview.com/countries.
26. Young, A. O. (2018). Impact of labour force dynamics on economic growth in Nigeria: An empirical analysis using ARDL Bound Testing Approach. Journal of Resources Development and Management, 42, 31- 46.