



THE SOCIO-ECONOMIC CONTRIBUTIONS OF ESTABLISHMENT OF FEDERAL POLYTECHNIC, OROGUN, DELTA STATE ON THE HOST COMMUNITY

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ABSTRACT: *Chi-square test of independence was used in this study to determine associations between establishment of Federal Polytechnic, Orogun and various important socio-economic determinants. Also, to know the significant contribution of the establishment of the Federal Polytechnic, Orogun on the socio-economic development of Orogun in Ughelli North Local Government Area of Delta State in Nigeria. Questionnaire was administered on 1000 respondents randomly selected from various categories of people in the community. Data collected was presented and analyzed using Statistical Package for Social Science, (SPSS) and Microsoft Excel. Most importantly various socio-economic impacts of this great Polytechnic is established in this study.*

KEYWORDS: Acquisition, Economic, Establishment, Institution, Questionnaires.



INTRODUCTION

The Federal Polytechnic, Orogun, was established by Federal Government of Nigeria in February 2023 with the appointment of the School Principal Officers (The Rector, Registrar, Bursary and Polytechnic Librarian). The academic activity of the Polytechnic kick start on February 2024; this was preceded with National Board for Technical Education (NBTE) Resource Inspection (Evaluation) on 1st December, 2023; three Departments were considered in the exercise, the departments were: Accounting, Business Administration & Management and Statistics. On October 23, 2024 additional nine departments were approved by NBTE.

Away from that, farming is the major occupation of the Oroguns. The indigenes of Orogun are known for planting of cassava while their garri flour is one of the best in Nigeria most especially when it is used to make 'eba'.

It is worthy of note that Federal Polytechnic, Orogun was attracted by a renowned senator and seasoned politician who was also the deputy senate president of Nigeria, Senator Ovie Omo-Agege. The indigenes of Orogun and the entirety of Delta State will ever be grateful to this famous senator for this unprecedented milestone in the history of Orogun and Delta State at large.

The contributions of tertiary institutions to host communities' socio-economic development cannot be underestimated. This is because institutions of higher learning draw their resources from both local, national and sometimes international economies, even though their operations are mostly local. In view of this, colleges or universities would justify their earnings to the host localities/communities by creating jobs, boosting internally generated revenue and thereby stimulating the local economy. This could be the reason why establishment of tertiary institutions of recent was generating a lot of discords and political quarrel among Communities on the specific location where it should be sited in Nigeria (Fatoki O, 2017). It is a known fact that tertiary institutions contribute to the development and advancement of the society and assist the communities that host them in having a democratic voice in the process of globalization (Ali A, 2010). Indubitably, higher education remains a major investment in human capital to enhance capabilities and advancement. It is also an indispensable ingredient for national development, not just in the economy but other facets of national life including communities where such institutions are located.

Consequently, communities hosting a tertiary institution will, therefore, have to prepare to allow innovations and development which cannot but compromise some social, environmental and cultural interests of the people. Such is the case where Federal Polytechnic, Orogun is located.

According to Garlick(2005), the relationship between Tertiary institution and its community can be described in three different ways; it can be describe through the structural perspective as a situation in which tertiary institutions are seen as economic boosters, through the spatial perspective as the association with equity measures such as student placement and also through a third stream perspective which is based on the appreciation of the importance of a region to the tertiary institution that are located there. Thus, higher institutions have always had an impact on the local, regional and central development apart from producing trained and educated skilled labour; Institution Research and Innovation are often seen as engines of growth for development while peaceful coexistence is given priority (*FME, 2016*)).



The Communities require tertiary institutions more than ever before because they serve the people; they advise governments in policy-making decisions; they help develop skills, create knowledge and train leaders. They are at the centre of crucial research, through which a country can stimulate innovations as well as attract foreign investments and engage in scientific commerce. When an institution is given the opportunity to thrive, they can also help to promote an open, modern, civil, tolerant and democratic community, for it is a medium through which higher education that deeper ethical and moral values can be enculturated.

The association between tertiary institutions and cities has continued to the present: Yale, Stanford and so on. The often heard expression; "town and gown" derives from the integration of an institution within a town. The British experience of the so-called red brick universities started around 1910 and is an excellent example. Cities like Birmingham, Sheffield, Bristol, Southampton, are after the other have created a university to serve their urban community (Kyazze, 1993).

Nearer home in Nigeria, several communities see the advantage and pride in having schools bear their names. For instance, the University of Ibadan developed out of a very small settlement. The people of Nigeria took pride in knowing that a good educational institution could emanate from their country then, Ibadan in those days was a rural settlement with its red-roof houses. But now, it has metamorphosed into a big urban settlement. Also, the University of Port Harcourt developed from a small rural settlement, but now, it is a bustling urban settlement. Other examples are the University of Nsukka, University of Benin, Yaba college of Technology, to mention but few.

From a global perspective, one could say that economic and social development is progressively driven by the application of knowledge. Education generally (tertiary education precisely) are fundamental to the construction of knowledge economy and society in all nations. Complementing this, (Hayward 2006) reiterated that, active participation in societal knowledge is essential to economic growth; higher education institutions are the potential engines for that growth. Therefore, the attention given to higher education by a nation determines the extent to which the dividends will be reaped. American Journal of Management Science and Engineering 2017; 2(6):176-182 178 place as a principal player in a global system increasingly driven by knowledge, information and ideas. We live in a time when knowledge is ever more vital to our societies and economies, in a world of rapidly circulating capital and people and of revolutionary communication technologies. Knowledge is replacing other resources as the main driver of economic growth, social Integration and Cohesion and education has increasingly become the foundation for individual prosperity and social mobility (Fatoki O, 2017).

Societies have witnessed different stages of human civilization centering around knowledge. Based on advancement in knowledge, societies have been changing, transitioning and transforming. In appreciating this and recognizing the critical role of Tertiary institutions in Socioeconomic sphere, (Ali 2010), while expressing his view on the special role of open university buttress the desire of nations for a progressive, stable and peaceful community as the one that is economically, socially materially and spiritually complete as well as able and consistent to contribute to the wellbeing of countries.



However, this study is aimed at carrying out the socio-economic impact study of establishment of Federal Polytechnic, Orogun in relation to its host community, Orogun in Delta State.

The Objectives of this study are outlined as follows:

- To know the socio-demographic distribution of the people using descriptive statistics tool.
- To determine if there is a change in the economic growth of Orogun and its people.
- To establish whether there is an association between establishment of Federal Polytechnic, Orogun and the economic growth of the community.

MATERIALS AND METHODS

This study makes use of survey method that depends on a sample of respondents drawn from population as representative of the population. The target populations were residential people of Orogun, Delta State. The survey was distributed to 1000 people in Orogun community using non-probabilistic sampling technique called Convenience sampling.

A questionnaire was developed and consisted of two major parts: The first part contained questions about demographic distribution. In the second part, statements with 3-point Likert scale options as Agree, Disagree and Undecided were used to explore people's perceived notion on economic impact of establishment of Federal Polytechnic, Orogun in Orogun kingdom of Delta State. The data was analyzed using the statistical software SPSS and Microsoft Excel.

In order to answer research questions, both descriptive and inferential statistics were employed in the analysis. Descriptive statistics includes frequency distributions and percentages, tables and bar-chart. While in inferential statistics, Chi-Square test of independence was used.

According to Murray R. Spiegel and Larry J. Stephens (2008), Chi square (χ^2) statistic is a test that measures how expectations compare to actual observed data (or model results). The data used in calculating a chi square statistic must be random, raw, mutually exclusive, drawn from independent variables, and drawn from a large enough sample. There are two main kinds of chi square tests: the test of independence for data and tests of goodness of fit for a model. Based on the scope of this study, Chi-Square Tests of Independence was employed. These tests can be used to determine whether a certain null hypothesis can be rejected in hypothesis testing that there is independence/no association between the variables of a contingency table or not. The statistic is calculated by first obtaining for each cell in table, the expected number of events that will occur if the null hypothesis is true. When the observed number of events deviates significantly from expected counts, then it is unlikely that the null hypothesis is true, and it is likely that there is a row-column association. Conversely, a small chi-square value indicates that the observed values are similar to the expected values leading us to conclude that null hypothesis is plausible. For the Test of Independence, the chi-square (χ^2) test statistic is given as



$$\chi^2_{\text{cal}} = \sum_{i=1}^n \sum_{j=1}^r \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

$$\chi^2_{\alpha} = t_{\alpha, (r-1)(c-1)}$$

Where O_{ij} is observed count in category; E_{ij} is expected count in the category under the null hypothesis ; c, r represents the number of columns and rows in the contingency table respectively; The number of the degree of freedom is equal to the number of cells, rc , minus the reduction in degree of freedom, p , which reduces to $(r - 1)(c - 1)$.

Hypothesis statement

H_0 : There is independence between the economic growth of Orogun and establishment of the Federal Polytechnic, Orogun in Delta State

H_1 : There is no independence between the economic growth of the Orogun and establishment of Federal Polytechnic, Orogun in Delta State

Data Presentation, Analysis and Discussion of Findings

Here is the detail of the analysis of the data collected from the survey through the use of questionnaire, which were administered to the residential of Orogun town, Ughelli North local government area, Delta State, the results from the analysis were presented in the tables and chart below (frequency and percentages), and inferential statistics (test of association using chi-square between selected variables),

SECTION A: Social- Demographic Distribution of the Respondents

Table 1: *Gender Distribution of the Respondent*

Sex	No of Respondents	Percent % of Respondents
Male	493	49.3
Female	507	50.7
Total	1000	100.0

Source: *Field Survey, 2024*

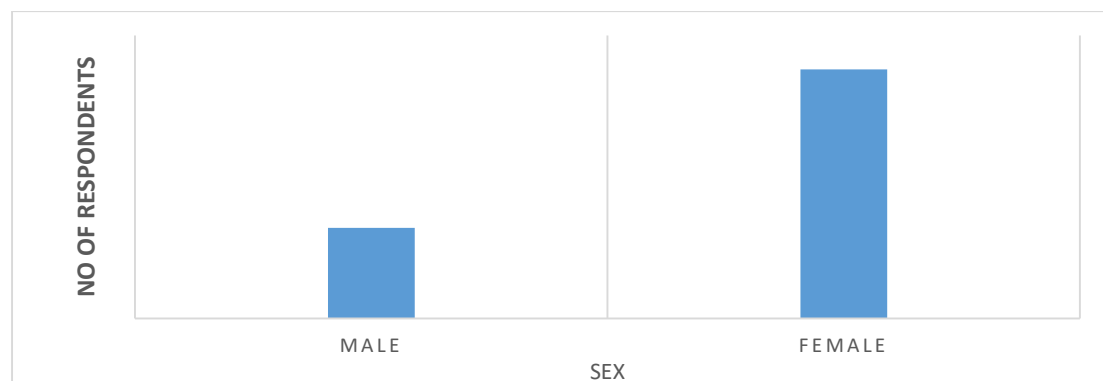


Figure 1: Chart Showing Sex and Percentage Sex Distributions of the Respondents

From the table and chart above, the result show that 50.7% of the respondent were female while 49.3% were male.

Table 2: Age Distribution of the Respondents

Age Group	No of Respondents	Percent % of Respondents
30 and below	587	58.7
35 – 40	313	31.3
45 and above	100	10.0
Total	1000	100.0

Source: Field Survey, 2024

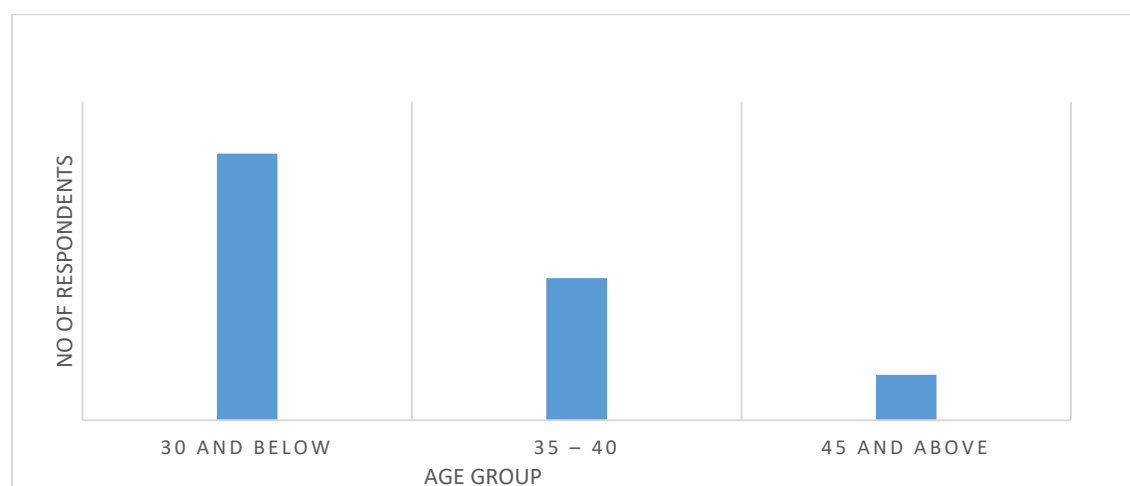


Figure 1: Chart showing the Age and Percentage Age Distributions of the Respondents

From Table 2 and Figure 2 above, the result show that 58.7% of the respondents were age 30 and below, 31.3% of the respondent were between age 35 to 40 while 10.0% of the respondents were age 45 and above

**Table 3: Religions Distribution of the Respondent**

Religions	No of Respondents	Percent % of Respondents
Christianity	887	88.7
Islam	73	7.3
Other	40	4.0
Total	1000	100.0

Source: Field Survey, 2024

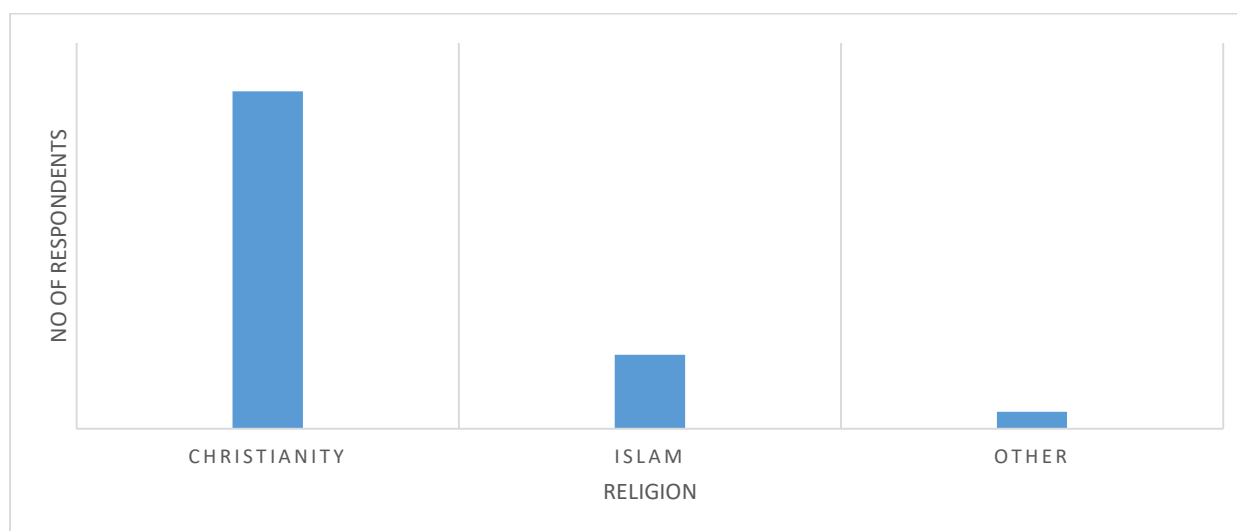


Figure 2: Chart showing the Religion and Percentage of Religion Distributions of the Respondents

Table 3 and Figure 3 above show that 88.7% of the respondent were Christians while 7.3% of the respondent were Islam. It means that the community is majorly populated by Christians.

Table 4: Result Collated from the Respondents using SPSS

Questions	Agree	Disagree	Undecided	Remark
There is an access to high education for the indigenous student	887	93	20	Agree
There are increase employment opportunities	747	173	80	Agree
Increase in small scale enterprise opportunities	834	126	40	Agree
There is increase Training on entrepreneurial skills	714	173	113	Agree
There is an increase in farming	800	140	60	Agree



activities				
Due to immigration, there has been increase pressure on public service like health/transportation?	694	166	140	Agree
Due to immigration there has been increase cost of housing/renting	773	160	67	Agree
There is improved quality of life in Orogun	754	166	80	Agree
There is innovation and establishment of new companies	647	213	140	Agree
There is increase in crime?	620	293	87	Agree
There is increase in pollution; noise, garbage, etc.	720	220	60	Agree
There is an increase social gathering?	714	173	113	Agree
There are more congestion, accident and parking problems?	740	140	120	Agree
There is an improvement in the security of the community?	674	213	113	Agree
The federal polytechnics Orogun has brought more acquisition to the people in the community?	767	160	73	Agree

SECTION A: Inferential Statistics (Test of Association between Selected Variables and Establishment of the Federal Polytechnic Orogun).

Hypothesis Testing

H_0 : Establishing Federal Polytechnic Orogun in Delta State is independent of respective factor as stated in the table below.

H_1 : Establishing Federal Polytechnic Orogun in Delta State is dependent of respective factor as stated in the table below.

Decision rule: Reject H_0 if P-value is less than 0.05 significant level

**Table 5: Show the computed value of Hypothesis Testing result from SPSS**

Hypotheses	Determinant Variables	Chi-Square	Df	P-value	Decision	Conclusion
1	There is an access to high education for the indigenous student	21.97	4	0.00	H ₀ rejected	Dependent
2	There are increase employment opportunities	13.78	4	0.01	H ₀ rejected	Dependent
3	Increase in small scale enterprise opportunities	3.16	4	0.53	H ₀ accepted	Independent
4	There is increase Training on entrepreneurial skills	11.50	4	0.02	H ₀ rejected	Dependent
5	There is an increase in farming activities	4.77	4	0.31	H ₀ accepted	Independent
6	Due to immigration, there has been increase pressure on public service like health/transportation?	14.13	4	0.01	H ₀ rejected	Dependent
7	Due to immigration there has been increase cost of accommodation?	19.84	4	0.00	H ₀ rejected	Dependent
8	There is improved to quality of life in Orogun	19.34	4	0.00	H ₀ rejected	Dependent
9	There is innovation and establishment of new companies	17.51	4	0.00	H ₀ rejected	Dependent
10	There is increase in crime?	21.51	4	0.00	H ₀ rejected	Dependent
11	There is increase in pollution; noise, garbage, etc.	13.51	4	0.01	H ₀ rejected	Dependent
12	There is an increase social gathering?	30.11	4	0.00	H ₀ rejected	Dependent
13	There are more congestion, accident and parking problems?	15.12	4	0.004	H ₀ rejected	Dependent
14	There is an improvement in the security of the community?	5.79	4	0.22	H ₀ accepted	Independent



15	The federal polytechnics Orogun has brought more acquisition to the people in the community?	8.59	4	0.07	H_0 accepted	Independent
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SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Summary of Findings

This research deal with the Economic Impact of Federal Polytechnic, Orogun on the host community, Orogun in Delta State. On table 1, the study showed that the respondents were having almost equal gender distribution. i.e. 50.7% of the respondent were female while 49.3% were male. It also shows that majority of the respondent are below the age of 30. In **Table 3** and **Figure 3**, it showed that the respondents were majorly Christians (**88.7%**) while **7.3%** of the respondents were Muslims. From **Table 4**, the result indicated that majority of the respondents agreed that the factors outlined in the research have Impact on the economy of Orogun due to the establishment of the Institution.

The result from Pearson chi-square test for Independence/Association by SPSS at 0.05 Significant level, the first hypothesis test showed that Federal Polytechnic Orogun had contributed significantly to increase in access to higher education by the indigenous populace. Investigation revealed that many apprentices were returning to take higher education in the institution.

The second hypothesis test showed that there was an association between the establishment of the Federal Polytechnic Orogun and economic growth of the community. This means that establishment of the Federal Polytechnic Orogun had also contributed to the economic growth of the community through increase in employment opportunities such as skilled and unskilled labour.

The third hypothesis result shows that increase in small scale enterprise was independent of the establishment of Federal Polytechnic Orogun in the community. This may rely largely on other factors not discussed in this study like farming activity and nearness to a city.

The Fourth hypothesis result shows that Federal Polytechnic Orogun had contributed significantly to increase in Training and entrepreneurial skills. This also has positive effect on the economic growth of the community.

The Fifth hypothesis result shows that Federal Polytechnic Orogun and increase in farming activities are not dependent. This may be responsible to the fact that the community was originally known for farming activities even before the establishment of the institution.

The Sixth hypothesis result shows that Federal Polytechnic Orogun and increase in pressure on public utilities like health/transportation etc. are dependent. This may be responsible to increase in the number of people residing in the community as a result of the institution.



The Seventh hypothesis result shows that Federal polytechnic Orogun and increase in cost of accommodation, are dependent.

The Eight hypothesis result shows that is an association between establishment of Federal Polytechnic Orogun to improved quality of life in Orogun.

The Ninth hypothesis result shows there is an association between establishment of Federal Polytechnic Orogun and innovation and establishment of new companies.

The Tenth hypothesis result shows that Federal Polytechnic Orogun and increase in crime are dependent. This implies that the more the number of people the more criminal activities in the community.

The Eleventh hypothesis result shows that Federal Polytechnic Orogun and increase in pollution; noise, garbage, etc. are dependent. This implies that the more the number of people in community

The Twelve hypothesis result shows that Federal Polytechnic Orogun had contributed significantly to increase in social gathering.

The Thirteen hypothesis result shows that there is an association between establishment Federal Polytechnic Orogun to more congestion, accident and parking problems.

The Fourteen hypothesis result shows that Federal Polytechnic Orogun and improvement in the security of the community. Are not dependent

The Fifteen hypothesis result shows that Federal Polytechnic Orogun has brought more acquisition by people in the community. Are not dependent.

Conclusion

This study investigates the Economic Impact of Federal Polytechnic, Orogun on the host community Orogun, Ughelli North Local Government Area, Delta State. 1000 people in some selected locations in Orogun were selected and questionnaires administered. Data collected were analyzed by using Statistical Package for Social Sciences (SPSS). The descriptive statistics includes frequency distributions and percentages using table and bar chart while inferential statistics was carried out using Independent/Association test of Chi-Square. Considering various variables as indicated in the study, it could be concluded that the establishment of the institution in the community provided increased socio-economic opportunities by residents of the community. This implied that establishment of the institution has impacted on both the social and economic growth of Orogun, the host community. Though, variables like "increase in small scale business", "increase in farming activities" and "improvement in the security" of the community and "acquisition" did not reflect directly link to the establishment of the higher institution in the host community, Orogun.



Recommendations

It is hereby recommended that;

- i. The Institution should involve more indigenes in developmental projects so that they can benefit from the Institution directly.
- ii. More training/workshop/skill acquisition programmes in partnership with the existing skill acquisition Centre in the Community to boost skills acquisition and technical-know-how of the populace.
- iii. More collaboration with the Community in the area of modern farming since the people in the Community are mostly agrarians.

REFERENCES

- Ali, A. (2010). *The role of universities and open and distance learning*, “Being a text delivered at the 6th Pan-Commonwealth forum on open learning”, Developing the community, India, 24-28 November.
- Bewick V, Cheek L, Ball J (2004). Statistics review 8: Qualitative data-test of association. Crit care. 8:46-53.
- Ehinmowo, A. A. & Eludoyin, M. O. (2010). *The university as a nucleus for growth pole: Example from Akungba - Akoko, Southwest, Nigeria*. International Journal of Sociology and Anthropology. 2(7), 149-154.
- FME. (2016). *List of Nigerian Tertiary institutions*. Abuja, FCT, Nigeria: Federal Ministry of Education (FME).
- Garlick, S. (2005). *The role of higher education institutions in regional development – the case of Australia*. Paper presented at a seminar at Karlstad Uni., Sweden. <https://www.oecd/longabstract>
- Hayward, F. M. (2006). *Accreditation and quality assurance in African Higher Education: Feelings and lessons learned from a survey of Africa*. Paper presented at the 1st international conference of assessing quality of Higher Education. Dec. 11– 13 University of Punjab, Lahore.
- Kyazze, J. (1993). *The Effect of School Community Relation on Enrolment and Retention*. Journal of Education. Issue 20.
- Murray R. Spiegel and Larry J. Stephens (2008). *Schaum’s Outlines Statistics*, McGraw Hill 3rd Edition, 261-276
- NBTE (2016). *List of Nigerian Polytechnics and Colleges of Education. Kaduna, Nigeria: National Board for Technical Education, (NBTE)*
- Parsons, R.J., & Griffiths, A. (2003). *A micro economic model to assess the economic impact of universities: A case example*. AIR Professional File, 87, 1-18.
- Shaping the future: *The economic impact of public universities*. (2001). National Association of State Universities and Land-Grant Colleges, Washington, DC.
- Stokes, K., & Coomes, P. (1998). *The local economic impact of higher education: An overview of methods and practice*. AIR Professional File, 67, 1-14.
- The economic benefits from investment in university based research, development and education. (2003). Arizona State University, Tempe, AZ.
- Weisbrod, B and G. weisbrod (1997): *measuring economic impacts of projects and programs*. Economic development research group.