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# Assessment of Nigeria's Manufacturing Industry and Economic Growth Relationship through Factors that Affect Economic Growth

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## Abstract

The aim of this study is to investigate the relationship between Nigerian's manufacturing industry and economic growth for their relative improvement through factors that affect economic growth which include financial accessibility, human capital development, government policy/ implementation and infrastructural development. The statistical significant relationship between manufacturing and financial accessibility human capital development, government policy/implementation and infrastructural development are 0.031, 0.04, 0.022 and 0.012 respectively. Comparatively, the p-value obtained from the relationship between manufacturing and infrastructural development indicates stronger evidence in favour of the alternative hypothesis than other factors affecting economic growth. This study focuses on the Nigerian labour-intensive manufacturing sector and the units of analysis are manufacturing leather, wood, and metal products. To effectively investigate this relationship, quantitative research approach and survey research strategy are used. The data collected from the research were analyzed statistically with IBM SPSS Statistics Version 21. The results obtained show that statistically there is significant relationship between manufacturing and economic growth.

**Keywords: Assessment, Manufacturing industry, Relationship, Factors, Economic growth.**

## 1. Introduction

### 1.1 Background of Study

Nigeria is most populated African nation blessed with human resources from diverse cultures and religions [2]. Nigeria is a country endowed with a lot of mineral resources like fossil fuel, radioactive minerals, metallic minerals, non-metallic minerals and arable land [4]. Furthermore, Nigeria is 11$^{th}$ largest oil producer in the world and the largest in Africa (6). Based on rebased figures announced in April 2014, Nigeria is the largest economy in Africa with potential to reach the top 10 global economy [12].

Despite all these, Nigeria's economic growth value (in GDP per capita) is low while her poverty and unemployment rates remain high. Nigeria's United Nations Human Development Index (HDI) value for 2014 is 0.514. This puts Nigeria in low human development category and positions her at 152 out of 188 countries and territories [14]. According [19]. over 62% of Nigeria Population lives below the international poverty lines of $1.25 and $2.00 a day. Thus, Nigeria can be said to be underdeveloped or a developing economy according to the classification by the World Economic Situation and Prospects [16].

### 1.2 Statement of the Problem

One peculiar thing about Nigeria's poor economic growth and underdevelopment is the associated low level of her manufacturing industry development and performance. For instance, [10] observed that manufacturing contribution to GDP increased from a modest 4.8% in 1960, to 10.7% in 1985 and increased to 4.23% in 2013 which is less than what it was in 1960, to 10.7% in 1985. Between 1960 and 2013, there has been no growth in the manufacturing industry. At the same time, Nigeria's Economic growth value (in GDP per capita) remains low. Econometric evidence from131 developing countries in 2000 - 2005 suggest that economic growth is correlated with manufacturing value-added growth [15]. Hence factors that affect economic growth will also affect manufacturing. Therefore, there is the need to explore the relationship between manufacturing industry and economic growth in Nigeria towards their relative improvement through factors that affect economic growth.

1.3 Aim and Objectives

The aim of this study is to investigate the relationship between Nigerian's manufacture industry and economic growth for their relative improvement through factors that affect economic growth. This study was carried out considering the following objectives:

- To theoretically and statistically examine the relationship between the manufacturing and economic growth through factors that affect economic growth.
- To statistically examine how these growth factors have influenced manufacturing in Nigeria
- To deduce from the statistical examination how activities can be improved and in so doing grow Nigeria economy

## 2. Materials and Methods

In this study, data were obtained by means of self-administered questionnaire and the results analyzed and interpreted by the use of Chi-Square test and IBM SPSS statistics Version 21. This study focused on the Nigeria Labour intensive manufacturing industry and the units of analysis are the manufacturers of the leather, wood and metal products. These manufacturers are the respondents to the self-administered questionnaires of this study. They are the owners/ managers of their manufacturing businesses. Also they see to the day to day running of their manufacturing outfits. Data for this study were collected from three geo-political regions of Nigeria: South-South, South- East and South-West. Frequency table was used in the descriptive analysis while Chi-Square test for independence was used in the inferential analysis.

However fisher's exact of independence was used instead of Chi-Square test for independence each time the expected frequency count for each cell of the contingency table was at least 5. The frequency table and the chi-square test /fisher exact test tables presented in this study are downloaded from the IBM SPSS Statistics Version 21.

### 3. Result and Discussion

120 questionnaires were issued. 107 manufacturers responded. As a result, 89.17% response was obtained. 30.84% of these manufacturers that responded are manufacturers of metal products, 25.23% are manufacturers of wooden products while 43.93% are manufacturers of leather products. These are shown in table 1 below.

2.1 Descriptive Analysis

Table 1: Respondents' Line of Manufacturing

| Products | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Metal | 33 | 30.8 | 30.8 |
| Wood | 27 | 25.2 | 56.1 |
| Leather | 47 | 43.9 | 100.0 |
| Total | 100 | 100.0 | |

46.729% of these manufacturers are located in Aba (South-East), 43.925% are located in Port Harcourt (South-South) while 9.346% are located Lagos (South- west) as shown in Table 2.

Table 2: Manufacturers Location

| Location | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Aba | 50 | 46.7 | 46.7 |
| Lagos | 10 | 9.3 | 56.1 |
| Port Harcourt | 47 | 43.9 | 100.0 |
| Total | 107 | 100.0 | |

93.46% of the respondents are male while 6.54% of the respondents are female. Table 3 shows the percentage (%) of male and female responses. It shows the dominance of the male in the ownership and management of these areas of manufacturing.

Table 3: Sex of Respondents

| Sex | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Female | 7 | 6.5 | 6.5 |
| Male | 100 | 93.5 | 100.0 |
| Total | 107 | 100.0 | |

Table 4 shows the age profile of manufacturers. It shows the dominance of the 31 – 40 years age bracket in the ownership and management of these areas of manufacturing activities.

Table 4: Age of Respondents

| Age | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| 20 – 30 Years | 22 | 20.6 | 20.6 |
| 31 – 40 Years | 47 | 43.9 | 64.5 |
| 41 – 50 Years | 21 | 19.6 | 84.1 |
| 51 – 60 Years | 8 | 7.5 | 91.6 |
| Above 60 years | 6 | 5.6 | 97.2 |
| Missing system | 3 | 2.8 | 100.0 |
| Total | 107 | 100.0 | |

Manufacturers in the leathers, wood and metal products are made up of people of different educational levels. Table 5 shows the Educational profile of these manufacturers. Some entered these areas of business without formal education while 29.9% are graduate.

Tables 5: Respondents Highest Educational Level

| Educational Levels | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| None | 2 | 1.9 | 1.9 |
| Primary | 17 | 15.9 | 17.8 |
| Secondary/ Technical | 53 | 49.5 | 67.3 |
| Polytechnic/ University | 32 | 29.9 | 97.2 |
| Others | 1 | 0.9 | 98.1 |
| Missing System | 2 | 1.9 | 100.0 |
| Total | 107 | 100.0 | |

These manufacturers have acquired skill and competence mainly through apprentice, on job training and classroom environment. Table 6 shows the profile of how they acquired their skills and competence.

Table 6: Respondents' Skill Acquisition Method

| Skill Acquisition Method | Frequency | Percent | Cumulative Frequency |
|---|---|---|---|
| Apprentice | 64 | 59.8 | 59.8 |
| On Job Training | 15 | 14.0 | 73.8 |
| School Environment | 24 | 22.4 | 96.2 |
| Others | 2 | 1.9 | 98.1 |
| Missing System | 2 | 1.9 | 100.0 |
| Total | 107 | 100.0 | |

Also, these respondents have been in the ownership and management of their business for different years. Table 7 shows that while 12.1% have owned and managed their manufacturing business for more than 20 years, about 29.9% are less than 5 years in owning and managing their manufacturing business.

Table 7: Respondents' Years of Ownership management

| Years of Ownership Management | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Less than 5 Years | 32 | 29.9 | 29.9 |
| (5 – 10) Years | 48 | 44.9 | 74.8 |
| (11 – 15) Years | 10 | 9.3 | 84.1 |
| (16 – 20) years | 4 | 3.7 | 87.9 |
| Above 20 Years | 13 | 12.1 | 100.0 |
| Total | 107 | 100 | |

2..1.1 Manufacturing and Financial Accessibility

Manufacturers need access to capital to achieve a healthy financial position that will lead to successful operation, innovation, and expansion. Response from the manufacturers on how easy for them to raise capital is shown in table 8. Only about 15% of the manufacturers find it, at least, very easy to raise capital for their activities.

Tables 8: Respondents' Ability to Raise Fund

| Ability to Raise Fund | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Extremely Easy | 6 | 5.6 | 5.6 |
| Very Easy | 10 | 9.3 | 14.9 |
| Moderately Easy | 39 | 36.5 | 51.4 |
| Lightly Easy | 39 | 36.5 | 87.9 |
| Not Easy at All | 12 | 11.2 | 99.1 |
| Missing System | 1 | 0.9 | 100.0 |
| Total | 107 | 100.0 | |

Manufacturers can raise fund through several means. They can raise fund through relations, friends, clubs etc. Also they raised fund through financial institutions. Table 9 shows that 44.9% of the manufacturers receive financial support from their relations, friends, clubs etc.

Tables 9: Financial Assistance from Relations/ Friends

| Financial Assistance | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Yes | 48 | 44.9 | 44.9 |
| No | 59 | 55.1 | 100.0 |
| Total | 107 | 100.0 | |

On the other hand, only 23.4% manufacturer have received loan / facilities from financial institutions as shown in table 10. This means that majority of these manufacturers have limited access to fund to finance their activities.

Tables 10: Loan / Facilities from financial Institution

| Loan / Facilities | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Yes | 25 | 23.4 | 23.4 |
| No | 82 | 76.6 | 100.0 |
| Total | 107 | 100.0 | |

2.1.2 Manufacturing and Government policy/ Implementation

The level of manufacturing activity in any country is affected by government policies and her policy implementations. 77.6% of respondents have not received any materials or financial assistance from government agents before as indicated in Table 11.

Tables 11: Manufacturing and Government Policy / Implementation

| Policy / Implementation | Frequency | Percent | Cumulative percent |
|---|---|---|---|
| Yes | 24 | 22.4 | 22.4 |
| No | 83 | 77.6 | 100.0 |
| Total | 107 | 100.0 | |

Also. 75.7% have not had access to government facility/ equipment centers as shown in Table 12.

Tables 12: Access to Government Facility/ Equipment Center

| Facility / Equipment Center | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Yes | 26 | 24.3 | 24.3 |
| No | 81 | 75.7 | 100.0 |
| Total | 107 | 100.0 | |

58.9% have not attended any training or workshop organized by government agents before as shown in Table 13.

Tables 13: Attendance to Government Organized Training/ Workshop

| Organized Training / Workshop | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Yes | 44 | 41.1 | 41.1 |
| No | 63 | 58.9 | 100.0 |
| Total | 107 | 100.0 | |

In the opinion of less than 1%, government has supported their manufacturing activities very well. However, for 53.3% manufacturers, government support to their manufacturing activities is very poor as indicated in table 14 below.

Tables 14: Government Support Rating

| Government Support Rating | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Very Good | 1 | 0.9 | 0.9 |
| Good | 15 | 14.0 | 15.0 |
| Fair | 23 | 21.5 | 36.4 |
| Poor | 11 | 10.3 | 46.7 |
| Very Poor | 57 | 53.3 | 100.0 |
| | 107 | 100.0 | |

2.1.3 Manufacturing and Human capital development

The quality of human resources is dependent on its skills, creative abilities, training and education. Manufacturing requires people with the requisite skill abilities and training to deliver qualitative production. From the data collected, 21.5% of the manufacturers have not attended self- sponsored technical trainings for more than 4 years now as shown in Table 15.

Tables 15: Attendance of Self Improving Training - Technical-Self Sponsored

| **Attendance** | **Frequency** | **Percent** | **Cumulative Frequency** |
|---|---|---|---|
| Less than a Year ago | 34 | 31.8 | 31.8 |
| (1 – 2 ) Years Ago | 18 | 16.8 | 48.6 |
| ( 3 – 4 ) Years Ago | 10 | 9.3 | 57.9 |
| More than 4 Years Ago | 23 | 21.5 | 79.4 |
| Not at All | 20 | 18.7 | 98.1 |
| Missing System | 2 | 1.9 | 100.0 |
| Total | 107 | 100.0 | |

Also, 53.3% of the manufacturers have not attended trainings on how to manage their manufacturing business as shown in Table 16.

Tables 16: Attendance of Self Improving Training – Management-self sponsored

| **Attendance** | **Frequency** | **Percent** | **Cumulative Percent** |
|---|---|---|---|
| Yes | 50 | 46.7 | 46.7 |
| No | 57 | 53.3 | 100.0 |
| Total | 107 | 100.0 | |

2.1.4 Manufacturing and Infrastructural Development

Manufacturing requires equipment and infrastructure to operate effectively. Two key infrastructure considered in this study are road network and electricity. About 84.1% of the manufacturers are of the opinion that road network is very important for their work as shown in table 17.

Tables 17: Importance of Road Network to Respondents' work

| Important of Road Network | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Very Important | 90 | 84.1 | 84.1 |
| Important | 5 | 4.7 | 88.8 |
| Moderately Important | 7 | 6.5 | 95.3 |
| Slightly Important | 2 | 1.9 | 97.2 |
| Not Important | 3 | 2.8 | 100.0 |
| Total | 107 | 100.0 | |

79. 4% of the manufacturers are of the opinion that electricity is very important for their work as shown in table 18.

Tables 18: Importance of Electricity to Respondents' work

| Important of Electricity | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Very Important | 85 | 79.4 | 79.4 |
| Important | 5 | 4.7 | 84.1 |
| Moderately Important | 4 | 3.7 | 87.9 |
| Slightly Important | 11 | 10.3 | 98.1 |
| Not Important | 2 | 1.9 | 100.0 |
| Total | 107 | 100.0 | |

29.9% of the manufacturers consider the condition of road networks for raw material / finished product transportation as being fair as indicated in table 1

Tables 19: Rating of Road Network

| Rating of Road Network | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Very Good | 9 | 8.4 | 8.4 |
| Good | 12 | 11.2 | 19.6 |
| Fair | 32 | 29.9 | 49.5 |
| Poor | 19 | 17.8 | 67.3 |
| Very Poor | 34 | 31.8 | 99.1 |
| Missing System | 1 | 0.9 | 100.0 |
| Total | 107 | 100.0 | |

81.3% manufacturers are at least dissatisfied with the number of hours of electricity per day available for their work as shown in table 20.

Tables 20: Rating of Electricity Provision

| Rating of Electricity Provision | Frequency | Percent | Cumulative Percent |
|---|---|---|---|
| Satisfied | 6 | 5.6 | 5.6 |
| Neither | 14 | 13.1 | 18.7 |
| Dissatisfied | 38 | 35.5 | 54.2 |
| Very Dissatisfied | 49 | 45.8 | 100.0 |
| Total | 107 | 100.0 | |

2.2 Inferential Analysis

This statistically considered the relationship between the factors that affects economic growth and manufacturing using the data collected during this research. The factors that affects the economic growth are examined in the relationship below:

- The relationship between manufacturing and financial accessibility was statistically examined using IBM SPSS Statistic Version 21. The null hypothesis to test is;

$H_{01}$: There is no relationship between manufacturing and financial accessibility. The alternative hypothesis;

$H_{A1}$: There is relationship between manufacturing and financial accessibility.

This relationship is examined using the responses of the manufacturers to whether they have received loan/ facilities from bank before. Table 21 shows the observed and expected frequencies of manufacturers' loan / facilities from financial institutions.

Tables 21: Loan / Facilities from Financial Institutions * Respondents' Line of Manufacturing Crosstabulation

| **Loan / Facilities from Financial Institution** | **Respondents' Line of Manufacturing** | | | **T0tal** |
|---|---|---|---|---|
| | **Metal Products** | **Wooden Products** | **Leather Products** | |
| Count | 26 | 25 | 31 | 82 |
| No Expected Count | 25.3 | 20.7 | 36.0 | 82.0 |
| Count | 7 | 2 | 16 | 25 |
| Yes Expected Count | 7.7 | 6.3 | 11.0 | 25.0 |
| Count | 33 | 27 | 47 | 107 |
| Total Expected Count | 33.0 | 27.0 | 47.0 | 107.0 |

The result of the Chi-square test is shown in table 22.

Table 22: Chi-Square Test

| **Chi-Square Test** | **Value** | **df** | **Asymp. Sig. (2-sided)** |
|---|---|---|---|
| Pearson Chi-Square | 6.819[a] | 2 | .031 |
| Likelihood Ratio | 7.691 | 2 | 0.21 |
| N of Valid Cases | 107 | | |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.31

From the Chi-Square test, the p-value (labeled Asymp. Sig) is .031. Since it is less than .05 (the significant level of this study), manufacturing and financial accessibility are not independent of each other. Therefore, there is a statistical significant relationship between them. Hence, the null hypothesis ($H_{01}$) is rejected and the alternate hypothesis ($H_{A1}$) is accepted.

- The relationship between Manufacturing and Government policy/ implementation is examined and the null hypothesis is given by;

$H_{02}$: There is no relationship between manufacturing and government policy/ implementation while the alternative hypothesis is;

$H_{A2}$: There is relationship between manufacturing and government policy/ implementation. This relationship is examined using the manufacturers rating of government support to their activities. Table 23 shows the observed and expected frequencies of manufacturers' rating for government support.

Tables 23: Government Support Rating * Respondents' line of Manufacturing Crosstabulation

| **Government Support Rating** | **Respondents' Line of Manufacturing** | | | **Total** |
|---|---|---|---|---|
| | **Metal Products** | **Wooden Products** | **Leather Products** | |
| Count | 0 | 1 | 0 | 1 |
| Very Good Expected Count | .3 | 3 | 4 | 1.0 |
| Count | 3 | 3 | 9 | 15 |
| Good Expected Count | 4.6 | 3.8 | 6.6 | 15.0 |
| Count | 3 | 4 | 16 | 23 |
| Fair Expected Count | 7.1 | 5.8 | 10.1 | 23.0 |
| Count | 4 | 5 | 2 | 11 |
| Very Poor Expected Count | 3.4 | 2.8 | 4.8 | 11.0 |
| Count | 23 | 14 | 20 | 57 |
| Poor Expected Count | 17.6 | 14.8 | 25.0 | 57.0 |
| Count | 33 | 27 | 47 | 107 |
| Total Expected Count | 33.0 | 27.0 | 47.0 | 107.7 |

Table 24 shows the result of the Chi-Square test.

Table 24: Chi-Square Tests

| Chi-Square Test | Value | df | Asymp.Sig (2-sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) | Point Probability |
|---|---|---|---|---|---|---|
| Pearson Chi-Square | 17.191[a] | 8 | .028 | .018 | | |
| Likelihood Ratio | 17.242 | 8 | .028 | .030 | | |
| Fisher's Exact Test | 16.076 | | | .022 | | |
| Linear-by-Linear Association | 7.202[b] | 1 | .007 | .007 | .004 | .001 |
| No of Valid Cases | 107 | | | | | |

a. 8 cells (53.3%) have expected count less than 5. The minimum expected count is 25.

b. The standardized statistic is -2.684.

From the result of the Chi-Square test, 8 cells (53.3%) have expected count less than 5. As a result of that, Fisher's Exact Test is used. The resulting p-value (labelled Exact Sig.) is .022. Since it is less than .05 (the significance level of this study), manufacturing and government policy/ Implementation are not independent of each other. Therefore, there is statistical significant relationship between them. Hence the null hypothesis ($H_{O2}$) is rejected and the alternate hypothesis ($_{HA2}$) is accepted.

- To examine the relationship between manufacturing and human capital development, the null hypothesis is;

$H_{03}$: There is no relationship between manufacturing and human capital development. The alternative hypothesis is;

$H_{A3}$: There is relationship between manufacturing and human capital development. This relationship examined using the manufacturers' attendance of self-improving training on managing their manufacturing outfit. Table 25 shows observed and expected frequencies of manufacturers' attendance of self-improving training – management.

Tables 25: Attendance of Self Improving Training - Management * Respondents' line of Manufacturing Crosstabulation

| **Attendance of Self Improving Training - Management** | **Respondents' Line of Manufacturing** | | | **Total** |
|---|---|---|---|---|
| | **Metal Products** | **Wooden Products** | **Leather Products** | |
| Count | 20 | 20 | 17 | 57 |
| No Expected Count | 17.6 | 14.4 | 25.5 | 57.0 |
| Count | 13 | 7 | 30 | 50 |
| Yes Expected Count | 15.4 | 12.6 | 22.0 | 50.0 |
| Count | 33 | 27 | 47 | 107 |
| Total Expected Count | 33.0 | 27.0 | 47.0 | 107.0 |

Table 26 shows the result of the Chi-Square test.

Table 26: Chi-Square Test

| Chi-Square | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10.929[a] | 2 | .004 |
| Likelihood Ratio | 11.208 | 2 | .004 |
| No of Valid Cases | 107 | | |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.62

The p-value (labeled Asymp. Sig) is .004 which is less .05 (the significance level of this study). Therefore, manufacturing and human capital development are not independent of each other. Hence, there is statistical significant relationship between them and so the null hypothesis ($H_{03}$) is rejected while the alternate hypothesis ($H_{A3}$) is accepted

- To examine the relationship between manufacturing and infrastructure development. The null hypothesis to test is;

$H_{04}$: There is no relationship between manufacturing and Infrastructure development. The alternative hypothesis;

$H_{A4}$: There is relationship between manufacturing and Infrastructure development. In carrying out this test, the relationship between manufacturers and two key infrastructures were examined. These infrastructures are road network and electricity.

The relationship between manufacturing and road network was examined using the rating of road networks for raw materials / finished product transportation by the manufacturers. Table 27 shows the observed and the expected frequencies of the manufacturers rating for road network.

Tables 27: Rating of Road Network * Respondents' line of Manufacturing Crosstab**ulation**

| **Government Support Rating** | **Respondent's Line 0f Manufacturing** | | | **Total** |
|---|---|---|---|---|
| | **Metal Products** | **Wooden Products** | **Leather Products** | |
| Count | 3 | 2 | 4 | 9 |
| Very Good Expected Count | 2.7 | 2.3 | 4.0 | 9.0 |
| Count | 1 | 3 | 8 | 12 |
| Good Expected Count | 3.6 | 3.1 | 5.3 | 12.0 |
| Count | 10 | 7 | 15 | 32 |
| Fair Expected Count | 9.7 | 8.1 | 14.2 | 32.0 |
| Count | 4 | 8 | 7 | 19 |
| Poor Expected Count | 5.7 | 4.8 | 8.5 | 19.0 |
| Count | 14 | 7 | 13 | 34 |
| Very Poo Expected Count | 10.3 | 8.7 | 15.0 | 34.0 |
| Count | 32 | 27 | 47 | 106 |
| Total Expected Count | 32.0 | 27.0 | 47.0 | 106.0 |

Table 28 shows the correspondence Chi-Square test result.

Table 28: Chi-Square Tests

| Chi-Square Test | Value | df | Asymp. Sig (2=sided) | Exact Sig. (2-sided) | Exact Sig. (1-sided) | Point Probability |
|---|---|---|---|---|---|---|
| Pearson Chi-Square | 8.330[a] | 8 | .402 | .413 | | |
| Likelihood Ratio | 8.559 | 8 | .381 | .435 | | |
| Fisher's Exact Test | 8.010 | | | .431 | | |
| Linear-by-Linear Association | 2.046[b] | 1 | .153 | .155 | .083 | .013 |
| No of Valid Cases | 106 | | | | | |

a. 6 cells (40.0%) have expected count less than 5. The minimum expected count is 2.29.

b. The standardized statistic is -1.430.

Since from table 28, 6 cells (40.0%) has expected count less than 5. Fisher's Exact Test is used. The resulting p-value (labeled Exact Sig.) is .431. This is higher than .05 (the significance level of this study). Hence manufacturing and road network are independent of each other. Therefore, there is no statistical relationship between them as there is no sufficient evidence to reject the null hypothesis of road network and manufacturer's relationship.

On the other hand, the relationship between manufacturing and electricity was examined using the rating of hours of electricity per day available to the manufacturers. Table 29 shows the observed and expected frequencies of the manufactures rating for electricity provision. while table 30 shows the correspondence Chi-Square test result.

Table 29: Rating of Electricity Provision Respondents' line of Manufacturing Crosstabulation

| Rating of Electricity Provision | Respondent's Line of Manufacturing | | | Total |
|---|---|---|---|---|
| | Metal Products | Wooden Products | Leather Products | |
| Count | 3 | 2 | 1 | 6 |
| Satisfied Expected Count | 1.9 | 1.5 | 2.6 | 6.0 |
| Count | 0 | 4 | 10 | 14 |
| Neither Expected Count | 4.3 | 3.5 | 6.2 | 14.0 |

| | | | | |
|---|---|---|---|---|
| Count | 16 | 11 | 11 | 38 |
| Dissatisfied Expected Count | 11.7 | 9.6 | 16.7 | 38.0 |
| Count | 14 | 10 | 25 | 49 |
| Very Dissatisfied Expected Count | 15.1 | 12.4 | 21.5 | 49.0 |
| Count | 33 | 27 | 47 | 107 |
| Total Expected Count | 33.0 | 27.0 | 47.0 | 107.0 |

Table 30 shows the correspondence Chi-Square test result.

Table 30: Chi-Square T**ests**

| **Chi-Square Test** | **Value** | **df** | **Asymp.Sig. (2-sided)** | **Exact Sig. (2-sided)** | **Exact Sig. (1-sided)** | **Point Probability** |
|---|---|---|---|---|---|---|
| Pearson Chi-Square | 13.483a | 6 | .036 | .033 | | |
| Likelihood Ratio | 17.703 | 6 | .007 | .011 | | |
| Fisher's Exact Test | 15.071 | | | .012 | | |
| Linear-by-Linear Association | .065b | 1 | .798 | .848 | .423 | .049 |
| No of Valid Cases | 107 | | | | | |

a. 5 cells (41.7%) have expected count less than 5. The minimum expected count is 1.51.

b. The standardized statistic is .256.

From the Chi-Square test result, 5 cells (41.7%) have expected count less than 5. Therefore, Fisher's Exact Test is used. The resulting p-value (labeled Exact Sig.) is .012 which is less than .05 (the significance level of this study). So, manufacturing and electricity are not independent of each other. Therefore, there is a statistically significant relationship between them. Since electricity, a key infrastructure, has statistic relationship with manufacturing, the null hypothesis ($H_{04}$) is rejected while the alternative hypothesis ($H_{A4}$) is accepted.

## 4. Conclusion

From the statistical analysis, there is relationship between manufacturing and financial accessibility. This agrees with the point that access to capital is an essential requirement that enables the stability and growth of manufacturing enterprises. The study also shows statistically that there is a relationship between manufacturing and government policy/implementation by rejecting the null hypothesis ($H_{02}$) and accepting the alternate hypothesis ($H_{A2}$). Manufacturing requires people with the requisite skill abilities and training to deliver qualitative production. This is statistically shown through the relationship between manufacturing and human capital development highlighted by this study. The statistical significant relationships between manufacturing and the factors that affect economic growth are possible as the p-value obtained from the results are less than the significant level of 0.05, indicating a strong evidence against the null hypothesis, so as to be rejected and the alternative hypothesis accepted.

Also, manufacturing requires equipment and infrastructure to operate effectively as supported by the study's acceptance of the alternative hypothesis ($H_{A4}$). Financial accessibility, government policy/ implementation, human capital development and infrastructure development that have statistical relationship with manufacturing are all factors that affect economic growth, and they are known to influence the economic growth and development of a country. Therefore, there is relationship between manufacturing and economic growth in line with Economic evidence from 131 developing countries in 2000—2005 that suggested that economic growth is correlated with manufacturing value-added growth (UNIDO,2009).

From this study, Nigeria manufacturers have many challenges to overcome. These have led to the low-level development and poor performance of the manufacturing industry. As a result, the manufacturing industry has contributed very little to the country's GDP. At the same time, since econometric evidence from 131 developing countries in 2000-2005 suggests that economic growth correlated with manufacturing value-added growth, Nigeria's poor economic growth and underdevelopment can invariably be attributed to the associated low level of her manufacturing industry development and performance. For relative improvement, there should be increased manufacturers' access to find continuous manufacturers development, their technical and managerial skills to meet the manufacturing sector; creation of facility / equipment as pinots for manufacturing clusters. Furthermore, all existing and proposed manufacturing clusters should have electricity provision 24 hours a day. In conclusion, the more improvement in financial accessibility, human capital development, government policy/implementation and infrastructural development, the higher will be the rate of economic growth in Nigeria

## 5. Reference

[1]. Adeyeye, A. (2016): Engines of Growth. Revisiting actions and policies in Nigeria's manufacturing sector. Available online at https://www.ntusbfcas.com/african-business-insight/content/engine-of-growth-revisiting-actions-and-policies-in-nigeria-s-manufacturing-sector

[2]. Anyaechie, M. and Areji, A. C. (2015): Economic Diversification for SustainableDevelopment in Nigeria. Open Journal of Political Science, 5(2), Pp. 87 - 94. Doi: 10.4236/ojps;2015.52010

[3[. Alina-Petronela, H. (2012): Concepts of Economic Growth and Development: Challenges of crisis and of knowledge. Economy Transdisciplinarity cognition, 12(0), Pp. 66 - 71. Retrieved from http://www.ugb.ro/etc/etc2012no1/009fa.pdf

[4]. Bamalli, U.S, Moumouni, A. and Chaanda, M.S. (2011): A Review of Nigerian Metallic Minerals for Technological Development. Natural Resources, 2 (0), Pp.87 - 91 doi: 10.4236/nr.2011.2201. Available online at http://file.scirp.org/journal/nr

[5] Boldbaatar, M. and Lee, C. L. (2015): Financial Accessibility and Economic Grow

[6]. Carpenter, J. W, {2021): The Main Oil Producing Countries in Africa. Available online at www.investopedia.com

[7] Chadha, J. (2015). Economic growth and factors affecting economic growth.Available online at http://www.slideshare.net/sanjitacabby/economic-growth-factors-affecting-economic-growth

[8] Chand, S. (2016). Factors that Influence the Economic Development of a Country: Available online at http://www.yourarticlelibrary.com/economics/factors-that-influence-the-economic-development-of-a-country/5942/

[9]. Isola and Alani, (2012): Human Capital Development and Economic growth. Empirical Evidence from Nigeria: Available online at https://search.proquest.com/openview/14f3e5c574cbdf10b2e6e22e5b4/1?pq-origsite=gscholar&cbl=1786341/.

[10]. Obioma, B. K., Anyanwu, U. N. and Kalu, A. O. U. (2015): The Effect of Industrial Development on Economic Growth: An Empirical Evidence in Nigeria 1973-2003: European Journal of Business and Social Sciences, 4(02), Pp.127 - 140.

[11]. Sanjita, C. (2015). Economic Growth and Factors Affecting Economic Growth. Available online at http://www.slideshare.net/sanjitacabby/economic-growth-favtors-affecting-economic-growth

[12]. Statisticshowto, (2017) Chi-Square Statistic: How to calculate it /Distribution. Available online at http//statisticshowto.com/probability-and-statistics/chi-square/

[13]. Suberu O. J., Ajala O. A., Akande, M. O. and Olure-Bank, A. (2015): *Diversification of the Nigerian Economy towards a Sustainable Growth and Economic Development.* Available online at http://article.sciencepublishinggroup.com/pdf/10.11648.j.ijefm.20150302.15.pdf

[14]. UNDP. (2016): Human Development Index (HDI): Available online at http://undp.org/en/content/human-development-index-hdi

[15]. UNIDO. (2013). Sustaining employment growth; the Role of Manufacturing and Structural Change: Available online at https://www.unido.org/fileadmin/user_media/Research_and_Statistic/UNIDO_IDR_2013_main_report.pdf.

[16]. United Nation (2015): World Economic Situation and Prospects Report. Available online at https://www.un.org

[17]. Wilson, R. A. and Briscoe, G. (2003): The Impact of Human Capital on Economic Growth: A Review: Available online at http://warwick.ac.uk/fac/soc/ier/publications/2003/wilson_and_briscoe_2003.pdf

[18]. World Bank. (2007). World Development Report 2008: Agriculture for Development. Available online at https://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf

[19]. World Bank (2015): World development indicators: Available online at https://databank.worldbank.org