Research Article

The Conditions of Infrastructure and the Development of Rural Communities in Imo State, Nigeria

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Abstract: The quests for sustainable development of diverse sectors tend to rank very high in the global and national agenda of the 21st century. Within Nigeria and Imo State in particular, the rising scenarios of insecurity in have posed serious challenges to the socio-economic and agricultural development in some rural communities. This study elucidates the patterns and intriguing relationships between the conditions of infrastructure and the level of socio-economic development of the rural communities in Imo State. A multi-stage sampling technique was used in selecting the rural areas and the respondents. A total of 44 rural communities were randomly selected and a total of 613 respondents were selected for study. Using structure questionnaire, oral interview and field observation data were generated and analyzed both qualitatively and quantitatively. The results of the qualitative and quantitative assessments revealed that: (i) the conditions of infrastructure (road, school and hospital) were mostly poor across the three zones in Imo State. (ii) Significant relationships exist between and among the conditions of infrastructure and the level of development in rural communities Imo State as validated by a coefficient of determination of 0.934. (iii) The deplorable conditions of most rural roads impede the timely evacuation of farm products and people to the markets (urban centers). This study recommended for strategic planning, funding, restructuring, empowerment and rehabilitation of infrastructure through collaborative efforts of the Federal and State Governments for sustainable development as well as full implementation of financial autonomy of the Local Government Areas.

Keywords: Infrastructure, Rural Communities, Roads, Health, Security, Sustainable Development

1. Introduction

It is usually agreed among geographers and development analysts that the growth and development of any Nation irrespective of location, partly depend on the availability, accessibility and affordability of appropriate infrastructure [1]. The infrastructure such as water, electricity, road and health are often considered as strong indicators of improved standard of living if the rural poor can afford. Hence, there is need for infrastructural development in rural areas in order to improve the populace standard of living and reduce rural-urban migration [2, 3]. According to [4-6], infrastructure is an umbrella term for many activities often referred to as social overhead capital. Also, Ogbazi [7] refers to infrastructure as physical, social and institutional form of capital which aid rural residents in their production, distribution and consumption activities as well as enhance the quality of rural life.

The Concept "infrastructure" represents the basic structure and facilities necessary for rural people to function efficiently or an element in the package of basic needs which a community would like to procure for better living (Ukpongson et al. and Begeron cited in [3]. The perspective suggests that availability and accessibility of vital infrastructure such as good road networks, supply of potable water, uninterrupted power supply (electrification), storage and processing facilities, standard health and educational facilities, communication centers, fire and security services, credit and financial institutions, agricultural research facilities in the rural communities is a panacea to sustainable development.

Within the Southern Nigeria, [5] observed that rural infrastructure is better understood as those specialized elements in the development process that bring about

improvement in the socio-economic welfare of the rural dwellers. The study concluded that rural infrastructure are catalysts and key indicators of the levels of development. Similarly, Wanmali [8] identified serious lack of infrastructure in the small holder farming region of southern Africa as an outstanding constriction to rural development.

The need for rural development to be clearly designed to increase sustainable production and researches are among the major agenda in the 21st century. It recognizes that improved food supplies and nutrition, together with basic services such as health and education tend to improve the physical well-being, equality of life of the rural populace, and also indirectly enhance their productivity and their ability to contribute to the national economy [4]. The frantic efforts of the present Government of the Federal Republic of Nigeria in providing enable environment such as loans, grants and allied inputs to help rural dwellers is quite recommendable.

Idike [9] stressed that rural development constitutes a process of planned change in which one approach or the other is adopted for improved and/or transformation of the pattern and structure of the rural populace. He further adds that rural development is in fact the most pragmatic and long overdue means of bringing government facilities and services to the door steps of the Nigerian teeming population in the rural areas.

Although infrastructural facilities and services are among the central catalyst that induce urbanization, population agglomeration and growth seem to be poorly developed and distributed. The inadequate provision of such services as potable water, electricity, schools, roads, health facilities and markets militates against the prospect for better living condition and employment opportunities [2, 3].

The concentration of basic Infrastructure in the urban centers, for example, has led to disparity in the national economic development and intensified poverty in the rural areas. This scenario can be likened to the core (developed nations) - the periphery (less developed nations) concept, where the periphery is exploited to develop the core leaving the less developed poorer and impoverished. This polarization of development has encouraged the massive movement of the people from the less developed (periphery) to the developed (core) countries [10].

This study tends to establish whether there is any significant relationship between infrastructure and development among rural communities in the LGAs in Imo State. The hypothesis put for testing states that there is no significant relationship between infrastructure and development among rural communities in the L.G.As in Imo State.

2. Methods and Materials

The study area (Imo State) is located within latitude 4°4' and 7° 15' North of Equator and longitude 6° 50' and 7°25' East of Greenwich Meridian as depicted in Figure 1. It is one of the States in the Southeast Nigeria. It has a total land area of 5100 km^2 with 27 Local Government Areas (LGAs) encapsulated in three senatorial zones namely; Okigwe, Owerri and Orlu as presented in Figure 1.
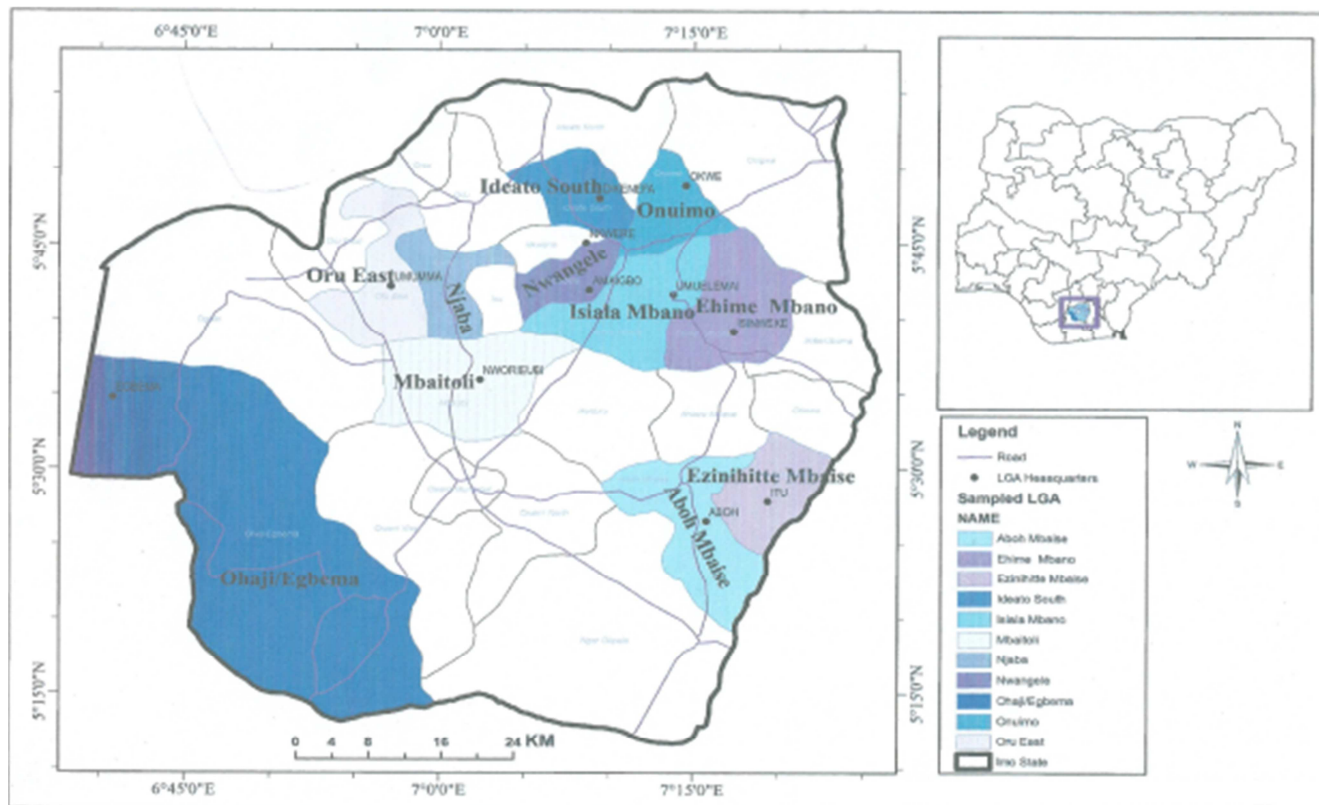

***Figure 1.** Imo State showing the Sampled Local Government Areas.*

The population of the 44 communities in the 11 sampled LGA based on the 1991 census figure projected to 2013 at 3 percent annual growth rate is the targeted population and the result gives a total of 925,135 [11]. Using Yamane's [12] formula, a sample size of 627 was arrived at with the decision level e, as 0.04 for this study. This study is delimited to infrastructure and rural development. Therefore, highly urbanized LGAs comprising Okigwe, Orlu, Owerri Municipal, Owerri North and Owerri West were excluded from the study because they were highly developed in terms of infrastructure, leaving 22 LGAs as depicted in Table 1.

A total of 11 LGAs were selected from the 22 LGAs by selecting the ones that fell under odd numbers in alphabetical order of their names. The sampled LGAs comprised Ehiime-Mbano, Isiala-Mbano and Onuimo within the Okigwe Zone; Ideato South, Njaba, Nwangele, Ohaji/ Egbema and Oru East within the Orlu zone and Aboh-mbaise, Ezinihitte-Mbaise and Mbaitoli in the Owerri zone as presented in Tables 1 and 2 respectively.

The communities within the sampled LGAs were selected using a random sampling technique called 'hat and draw' method. The names of all the communities in the sample LGAs were written on pieces of paper, rolled into balls and shuffled thoroughly in a black polythene bag. Four communities were drawn from each of the sampled LGAs and these yielded 44 communities from 117. The details of the LGAs and communities are summarized in Table 2.

The analytical survey method was employed in this study to ascertain the relationship between infrastructure and development of rural communities. Data were generated from primary and secondary sources using structured questionnaire, oral interview and recent literature. Data generated from distinct sources were analyzed using percentages, multiple linear regression model, Pearson product moment correlation co-efficient, and student t-test. A multi-sage sampling technique was employed in three stages involving the selections of Local Government Areas (LGAs'), communities and households (respondents) for instruments' administrations.

A multiple Linear Regression Model is used as a surrogate to evaluate the effect of variation and association existing between level of rural development (dependent variable) and the conditions of infrastructure (independent variables). ANOVA was employed as a basis for testing for variations among the group of variables in the hypothesis one while T-test was used to test for differences between two variables.

The multiple linear regression model is depicted in the mathematical equation thus:

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \ldots B_nX_n + E \qquad (1)$$

Where, Y is the dependent variable; X_1 to X_n are the independent variables; B_0 represents the constant value, while E symbolizes standard error associated with the model.

Table 1. *Compositions of Sampled LGAs and Communities in Imo State.*

S/N	List of Rural LGAs' by Zone	Number of Communities	List of Sampled LGAs'	Communities in Sample LGAs'
	OKIGWE ZONE			
1.	Ehime Mbano	12	Ehime Mbano	12
2.	Ihitte Uboma	15	-	-
3.	Isiala Mbano	16	Isiala Mbano	16
4.	Obowo	11	-	-
5.	Onuimo	4	Onuimo	4
	ORLU ZONE			
6.	Ideato North	13	-	-
7.	Ideato South	15	Ideato South	15
8.	Isu	5	-	-
9.	Njaba	7	Njaba	7
10.	Nkwere	6	-	-
11.	Nwangele	6	Nwangele	6
12.	Oguta	16	-	-
13.	Ohaji/Egbema	9	Ohaji/Egbema	9
14.	Orsu	9	-	-
15.	Oru East	9	Oru East	9
16.	Oru West	10	-	-
	OWERRI ZONE			
17.	Aboh Mbaise	11	Aboh Mbaise	11
18.	Ahiazu Mbaise	17	-	-
19.	Ezinihitte	15	Ezinihitte	15
20.	Ikeduru	14	-	-
21.	Mbaitoli	13	Mbaitoli	13
22.	Ngor Okpala	17	-	-
Total	22	250	11	117

Source: National Population Commission [11].

Table 2. Sample Distributions across Local Government Areas and Communities.

S/N	Sampled L.G.As.	Number of Communities	Sampled Communities	Questionnaires Administered (Sample Size)
OKIGWE ZONE				
1.	Ehime Mbano	12	4	29
2.	Isiala Mbano	16	4	66
3.	Onuimo	4	4	71
ORLU ZONE				
4.	Ideato South	15	4	51
5.	Njaba	7	4	30
6.	Nwangele	6	4	85
7	Ohaji/Egbema	9	4	64
8.	Oru East	9	4	72
OWERRI ZONE				
9.	Aboh Mbaise	11	4	75
10.	Ezinihitte	15	4	23
11.	Mbaitoli	13	4	61

3. Data Analyses and Results

The data generated through structured questionnaire and qualitative interview were analyzed and the results are presented in Tables 3 to 9 respectively.

Table 3. Condition of Primary Schools in each Community in the Sampled LGAs.

Primary Sch. Conditions	Okigwe Zone			Orlu Zone					Owerri Zone			Total	%
	Ehm	Ism	Onu	Ids	Nja	Nge	Ohe	Oue	Abm	Ezm	Mba		
Very poor	0	1	1	1	1	5	10	2	7	1	10	39	6.4
Poor	3	8	2	11	1	12	11	22	9	6	11	96	15.7
Average	17	40	40	38	18	47	27	38	32	14	17	328	53.5
Very good	9	17	26	1	8	13	14	9	24	3	12	136	22.1
Excellent	0	1	1	0	2	5	1	1	3	0	0	14	2.3
Total	29	67	70	51	30	82	63	72	75	24	50	613	100

Ehm=Ehime Mbano; Ism=Isiala Mbano; Onu=Onuimo; Ids=Ideato South; Nja=Njaba; Nge = Nwangele; Ohe = Ohaji/Egbema; Oue = Oru East; Abm=Aboh Mbaise; Ezm=Ezinihitte Mbaise; Mba=Mbaitoli.

Table 4. Conditions of Health Centers in the Study Area.

Condition of Health Facilites	Okigwe Zone			Orlu Zone					Owerri Zone			Tot	%
	Ehm	Ism	Onu	Ids	Nja	Nge	Ohe	Oue	Abm	Ezm	Mba		
No drugs	2	13	9	9	7	13	8	13	5	2	13	94	16.0
Doctors are not always there	7	29	24	14	13	45	27	26	38	9	28	260	44.4
Insufficient beds for the patients	3	1	1	4	5	2	6	2	12	4	4	44	7.5
They use out-dated equipment	1	0	3	6	0	5	1	5	2	2	5	30	5.1
The health centers are well equipped	4	18	25	9	3	11	8	18	8	4	5	113	19.3
The buildings are dilapidated	1	1	0	0	1	2	9	3	7	2	1	27	4.6
The buildings have modern structures	4	1	3	0	0	2	6	1	1	0	0	18	3.1
Total	22	63	65	42	29	80	65	68	73	23	56	586	100
Percentage	3.8	10.8	11.0	7.2	4.9	13.7	11.0	11.6	12.5	3.9	9.6	100	

Table 5. Contributions of Water Supply to the Development of Communities.

Contribution of Water	FREQUENCIES ACROSS THE SAMPLED LGAS											Tot	%
	Okigwe Zone			Orlu Zone				Owerri Zone					
	Ehm	Ism	Onu	Ids	Nja	Nge	Ohe	Oue	Abm	Ezm	Mba		
By reducing water- borne diseases	9	17	23	2	6	24	15	14	21	8	23	162	26.6
By attracting manufacturing industries to the areas	0	1	1	0	0	0	1	1	1	0	0	5	0.8
By having good water for domestic purposes	9	24	17	4	13	24	26	25	23	10	12	187	30.7
All of the above	3	17	10	8	7	16	11	11	20	4	6	113	18.6
None of the above	7	5	16	36	4	19	9	19	9	1	17	142	23.3
Total	28	64	67	50	30	83	62	70	74	23	58	609	100
Percentage	4.6	10.5	11.0	8.2	4.9	13.6	10.2	11.5	12.2	3.8	9.5	100	

Table 6. Contributions of Road Infrastructure to the Development of Rural Communities.

Contribution of Roads	Frequencies Across Sampled LGAs in Imo State											Total	%
	Okigwe Zone			Orlu Zone					Owerri Zone				
	Ehm	Ism	Onu	Ids	Nja	Nge	Ohe	Oue	Abm	Ezm	Mba		
Enhancing the evacuation of farm products to the market	12	30	29	13	6	26	29	32	33	10	26	246	42.1
Increasing movement of people into the community	5	2	2	1	2	11	2	4	8	1	5	43	7.4
Reducing flooding when it rains	2	7	13	23	7	24	14	17	13	3	15	138	23.5
Attracting other socio-economic activities	3	21	20	2	9	16	14	12	14	6	5	122	20.8
Social interaction within the Community	0	2	4	12	2	4	3	2	4	3	0	36	6.2
Sum Total	22	62	68	51	26	81	62	67	72	23	51	585	100
(Percentages)	3.8	10.6	11.6	8.7	4.4	13.9	10.6	11.5	12.3	3.9	8.7	100	

Table 7. Contribution of Craft Industries to the Development of Rural Communities.

Main Contributions of Local Craft	Frequencies across LGAs in Imo State											Total	Percent
	Okigwe Zone			Orlu Zone					Owerri Zone				
	Ehm	Ism	Onu	Ids	Nja	Nge	Ohe	Oue	Abm	Ezm	Mba		
They have contributed little to the development of the community	10	11	10	4	16	25	24	16	32	5	22	175	40.6
They have attracted investors to the community	0	2	8	1	1	16	5	8	8	4	1	54	12.6
Increased the population of the community	0	0	4	0	0	1	4	2	4	3	0	18	4.2
Improved trade in the community	3	10	10	2	4	13	12	14	10	3	8	89	20.7
By reducing rural migration	2	4	6	3	1	6	4	3	1	1	5	36	8.4
By increasing the purchasing power of the indigenes	5	11	18	1	2	1	1	8	7	0	4	58	13.5
Sum Total	20	38	56	11	24	62	50	51	62	16	40	430	100
Percentage	4.7	8.8	13.0	2.6	5.6	14.4	11.6	11.9	14.4	3.7	9.3	100	

Table 8. The Correlation Models of Condition of Infrastructure and Rural Development.

Pearson Correlation	level of rural development	Condition of primary schools	Condition of secondary schools	Condition of community schools	Condition of private schools	condition of health facilities
LEVEL OF DEVELOPMENT	1.000	.729	817	.800	.792	741
Condition of Primary Schools	.729	1.000	930	.877	.927	840
Condition of Secondary Schools	.817	.930	1.000	.903	.972	.874
Condition of Commercial Schools	.800	877	.903	1.000	.906	.930
Condition of Private Schools	.792	.927	.972	.906	1.000	.867
Condition of Health Facilities	.741	840	.874	.930	.867	1.000
Contribution of Water Supply	.901	.733	.762	798	.748	.771
Effect of Power Supply	.835	.606	.674	.706	.645	.646
Contribution of Roads	.849	.784	850	.913	.852	.887
Contribution of Industries	.925	.824	.881	.877	.865	.795
State of Security	.843	.790	.855	.903	.854	.892

Table 9. Summary of Regression Model [b].

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.967[a]	.934	.933	.32081	.934	854.153	10	600	.000"

a. Predictors: (Constant), conditions _of _security, power_supply, primary_schools, water_ supply, health_facilities, industries, prlvate_schools, road_infrastructure, comm_schools, secondary_schools. b. Dependent Variable: level_of_development

4. Discussions of Findings

The Infrastructural facilities that are relevant in inducing development are many in this work. The conditions and contributions of facilities such as primary school, health facilities, water supply, road and industries were used in this study to investigate the relationship between infrastructure and development in rural areas of Imo state. The 44 communities covered have the information from them collated according to their respective LGAs.

4.1. Conditions of Primary Schools

The condition of primary schools as recorded by the respondents in Table 3 shows that 96 out of 613 respondents representing 15.7 percent admitted that the primary schools in their communities are in poor state, 53.5 percent says the schools are in average condition, while 22.1 percent claim that the schools are in a very good condition. A total of 39 out of 613 representing 6.4 percent opine that the schools are in a very poor condition. Those that indicated that the schools are in excellent conditions account for 2.3 percent of the respondents.

From the perspective of each LGA, 57.1 percent of respondents in Onuimo indicated average while 37.1 percent says they are in a very good condition. In Ideato South 74.5 percent assesses the primary schools to be in average

condition while 21.6 percent reported that the schools are in poor condition. Proportion of 34 percent of the respondents in Mbaitoli say the schools are in average condition, while 20 percent indicated that they are in a very poor state.

The data in Table 3 indicate that the highest frequency for average condition is recorded in all the sampled Local Government Areas. Onuimo and Aboh Mbaise have 37.1 and 32 percent of their respondents saying their schools are in very good condition. From the analysis all primary schools in the sampled LGAs seem to be in average condition.

4.2. Conditions of Health Centers

A close look at Table 4 shows that 260 out of 586 respondents representing 44.4 percent say that doctors are not always in the hospitals or health centers in the sampled communities. 113 or 19.3 percent indicated that the hospitals or health centers are well equipped while 94 or 16.0 percent of the respondents say drugs are not available in the hospitals or health centers. Those that indicated insufficient beds for patients account for 7.5 percent of the respondents; outdated equipment are recorded by 5.1 percent, dilapidated buildings are recorded by 4.6 percent and modern structures are indicated by only 3.1 percent of the respondents.

The highest frequency of the respondents from ten Local Government Areas affirm that doctors are not always there, except at the Onuimo LGA that has the highest frequency of 25 that say that health centers are well equipped. 60.4 percent of the respondents say that there are no drugs and doctors are not always available. The implication of the results is that the poor condition of the health facilities will force the ruralites to incur high cost for their health bills in terms of transport cost when they have to travel to cities for medical services.

4.3. Conditions of Water Supply

The assessment of the conditions of water supply in the rural communities of Imo State is presented in Table 5. The greatest contribution of water supply to the development of communities in the sampled LGAs is that water supply has helped to improve the standard of living of the people by enhancing the quality of water supply for their domestic purposes as indicated by 187 or 30.7 percent of the respondents, while 162 out of 609 respondents representing 26.6 percent say the presence of improved source of water such as boreholes and hand pumps has helped in reducing the incidence of water borne diseases such as cholera and dysentery. Only 0.8 percent of the respondents indicated attraction of manufacturing industries to the area as the contribution of water supply to the development of communities in the study areas.

In Onuimo LGA 34.3 percent of the respondents indicated reduction in water borne diseases while 25.4 percent says the provision of good source of water for domestic purposes is the main contribution of water supply to the development of the communities. A total of 15 out of 62 representing 24.2 percent of respondents in Ohaji/ Egbema indicated reduction of water borne diseases and 41.9 percent says it also provides good

source of water for domestic purposes. Ideato South is the only local government area where 72 percent of the respondents reported that water supply has not made any impact on the development of their communities.

From the data, it is clear that improved source of water for domestic purposes, which consequently leads to reduction in water borne disease, is the main contribution of water supply to the development of rural areas in Imo State.

4.4. Conditions of Road Networks

The data in Table 6 indicate that enhancement in the evacuation of farm products to the market in the communities is the greatest contribution of roads in rural development in Imo State. 246 out of 585 representing 42.1 percent of the respondents said so. It should be noted that without good roads in the rural areas, agricultural products for which the rural communities are noted for will not get to urban markets. The consequence may be scarcity of food stuff in urban areas. 138 or 23.5 percent say roads with good drainage system help in reducing flooding when it rains. Attracting other socio-economic activities into the communities is recorded by 20.8 percent of the respondents. Those that are of the opinion that road infrastructure increases movement of people in the community account for 7.4 percent while 6.2 percent says road infrastructure increases social interaction within the community. It can be inferred that the evacuation of farm products is seen by the ruralites in Imo State as the most valued role of roads.

In Isiala Mbano LGA, 48.4 percent of the respondents say enhancement in the evacuation of farm product to the market is the main contribution of roads in the development of their communities while 33.9 percent claims that roads bring other socio-economic activities into their communities. In Oru East, 47.8 percent indicated evacuation of farm product to the market while 25.4 percent of the respondents say that roads help in reducing flood when it rains. In Aboh Mbaise, 45.8 percent indicated enhancement in evacuation of farm products to the market while 19.4 percent says bringing in other socio-economic activities is the greatest contribution of road infrastructure to the development of rural communities.

The highest frequency for enhancing the evacuation of farm products to the market as the greatest contribution of road infrastructure to the development of rural communities is recorded by nine out of the eleven sampled Local Government Areas except in Ideato South that has its highest frequency of 23 or 45.1 for reducing flooding when it rains and Njaba LGA with its highest frequency of 9 or 34.6 percent for other socio-economic activities that are attracted into the community as the greatest contribution of road infrastructure to the development of their communities. The preceding discourses suggest that the greatest contribution of roads in rural development in Imo State is the enhancement in the evacuation of farm products and people to the markets (urban centers). Provision motorable rural roads can boost life quality due to increase in supplies to people outside the locality [7].

4.5. Conditions of Local Craft Industries

The data presented in Table 7 show that local craft industries have contributed little to the development of rural communities in the sampled local government areas. A total of 175 out of 430 representing 40.6 percent of the respondents indicated that local craft industries in their communities have contributed little to the development of their communities. However, 89 or 20.7 percent says improvement or increase in trade is the main contribution of local craft industries to the development of their communities. Increase in purchasing power of the indigenes is identified by 13.5 percent of the respondents as the main contribution of local craft industries to the development of the communities where they operate. It is expected that local craft industries in an area will attract visitors and investors and make the area to be lively, but surprisingly, only 12.6 percent identified it as such. It is also expected that the presence of local craft industry in a community, will help to provide jobs for the youths and community members, but only 8.4 percent indicated this variable as the main contribution of local craft industries in rural communities.

The data presented in Table 7 shows that ten out of the eleven sampled Local Government Areas stated that local craft industries have not helped much in the development of the communities except in Onuimo LGA where the highest frequency of 18 representing 32 percent indicated increase in purchasing power of the indigenes as the main contribution of local craft industries to their communities. The result contradicted the [3] emphasis of the role of industries in the community development.

4.6. Interrelationships Between the Conditions of Infrastructure and Rural Development

The interrelationships between the conditions of distinct infrastructure and rural development were sought using the correlation coefficient matrix and Pearson's Product Moment Correlation Coefficient Model. Results presented in Table 8 reveal very high positive co-efficient between rural development and the conditions of primary schools (0.729), secondary schools (0.817), commercial schools (0.800), private schools (0.729), health facilities (0.741), water supply (0.901), power supply (0.835), roads networks (0.849), local craft industries (0.925) and state of security (0.843).

The high positive co-efficient symbolizes that the level of rural development increases as the conditions of the independent variables increase. For instance, any improvement in the condition of primary schools with a coefficient of 0.729 or state of security with a coefficient of 0.843 in any rural community in Imo State stimulates a corresponding proportionate positive change in the level of development. Two independent variables with very high correlation coefficients above 0.9 are worthy of note. They are water supply with a co-efficient of 0.901 and contribution of industries with 0.925. The inference is that, for rapid rural development, a good strategy is to accelerate the provision of potable water and build cottage industries and/or big manufacturing industries as previously envisaged in [3].

4.7. Influence of Infrastructure on Rural Development

In Table 9, the summary or the collapsed Pearson's Correlation Coefficient of all relationships or associations among all the variables, R, is given as 0.967, and the coefficient of determination, R^2, as 0.934. These statistics further confirm the earlier analysis of very strong positive relationship between level of development and infrastructural facilities within communities in Imo State. The coefficient of determination of 0.934 means that infrastructure explains 93.4 percent of the variance, thus leaving a residual of 6.6 percent. This simply means that only 6.6 percent of the variables that induced rural development were not included in the list of relevant variables used in this study. A search for the variables to account for the unused variables in this study creates a gap for further research.

The Student's t-test is used as surrogate to test for variation between the sets of variables in the series as reflected in the null hypothesis. The information fed into the ANOVA model presented in Table 9. The result of the computation gives t-statistic as 367.696. Testing the null hypothesis at 95 percent significant level at 609 degrees of freedom gives the critical value of 1.645. Also at 99 percent and 99.9 percent confidence limits, the critical values are 2.326 and 3.090 respectively. At all these levels of significance, the t-statistic is greater than the critical values. With these results, the null hypothesis is rejected. It is therefore affirmed that there is a significant relationship between development and infrastructure among rural communities in the Local Government Areas of Imo State. This finding is well demonstrated at Awo-Omamma in Oru East Local Government where the '33' Brewery, producers of '33' Lager beer and Hi-malt, has transformed its host community into a growth center. Similarly, the health centers, a pharmaceutical company, and other development parameters now cluster in the neighbourhood of the factory. This authenticates the Pearson's Coefficient for the contribution of industries as a catalyst for rural development.

5. Recommendation and Conclusion

This study established that there is indivisible unity between the states of infrastructure and the development of rural communities across Local Government Areas in Imo State. Therefore, there is urgent need to restructure and integrate rural communities across LGAs to facilitate its sustainability as planning units.

The qualitative interview from the respondents reveal that funds made available for rural development projects are either inadequate or poorly monitored and inadequately implemented. The results of the qualitative and quantitative evaluation attest the poor conditions of the rural infrastructure impaired their development. The result suggests the need for the Federal and State government to partner and facilitate effective development of infrastructure in the rural areas.

Additional efforts should be directed towards reinforcing and rehabilitating existing ones through routineous and proactive maintenances, protection and services especially

security, industries, roads, power and water supply by the government, non-governmental agent and other stakeholders in a sustainable basis. As a matter of urgency, more industries that boost socio-economic development should be sited and adequate fund in the rural areas to avert rural-urban migration, create job to the teaming unemployed youths, boost socio-economic activities, and standard of living. It will also enhance revenue generation and economies of scale.

It is concluded that infrastructural facilities in rural communities of Imo state are enhancing rural development but the Imo State government and Federal government need to augment the people's communal effort through matching grants, loans or tax holidays to provide better conditions that are capable of revolutionizing even development of rural development.

Declaration

The authors declare that there is no conflicting interest in this article.

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