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The Economic Impact of Poor Road System on Agricultural Value Chain in Rivers State, Nigeria

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A R T I C L E I N F O

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A B S T R A C T

The purpose of this research was to examine the economic impact of poor road system on agricultural value chain in Rivers State. This study utilized a survey methodology to collect data from the whole population of Rivers state. A total of 355 people from the three senatorial districts filled out the survey, and the researcher used the Taro Yamane formula to determine that a sample size of 400 was appropriate. With a mean criteria of 3.0, the Statistical Package for the Social Sciences (SPSS) were used to analyze the study's research topics. Reviewing the results of the economic impact of poor road network on agricultural value chain in Rivers State are; damage of perishable goods as a result of long hours spent in transporting the goods from farm to market, etc. The study concluded that good road system is one of the factors to achieve food sufficiency in the Rivers State and recommended that government of the state should assists farmers in conveying their farm produce to urban market where they are sold for better price by providing vehicles for them, create good road network that connect farmlands to modern market in urban areas of the state among others.

INTRODUCTION

Thus, transportation facilitates the movement of products, concepts, and information that lead to higher production. The majority of Nigeria's infrastructure is made up of roads, which also contain areas with starkly different climatic conditions and vegetation that impede the advancement of agriculture. Currently, achieving self-sufficient food production is one of the top priorities for the majority of developed nations, including Nigeria. Additionally, there is a chance that this issue will only get worse with time. Nigerian food is heavily dependent on transportation distribution, hence it follows that a broad range of Nigerian foods would not be accessible without the intricate transportation network system that supports the country's major food sector. Thus, farm produce depends on facilities for transportation. For the reason mentioned above, the impact as additionally, the value of the road transportation infrastructure cannot be overstated, particularly when it comes to agricultural products. Nigeria, and especially Rivers State Agriculture, has faced constraints due to issues with poor road connectivity in rural areas. In light of this, government and transportation policy makers ought to step up their efforts to enhance the nation's transportation infrastructure, particularly the road network, which serves as the primary and most well-liked means of transit. Their combined and/or individual efforts should be focused on combating hunger, as well as on providing the essential transportation infrastructure and services and participating in relevant decision-making that can help to assume the supply of food distribution to clients and its enhancement. Nwokoye (1981). For farmers, who are primarily found in rural locations, basic infrastructure amenities like roads, pipe-borne water, and communication are critical to their well-being (Yusoff et al., 2011). But over time, the roads connecting rural farms to the towns' and villages' marketplaces have deteriorated to such an extent that they have caused farmers' pain and financial losses. This frequently results in minimal vehicle traffic, subpar rural transportation, and a high degree of farmer vulnerability to rising poverty. According to Crossley et al. (2009), transport operations are a fundamental part of supply chains for agricultural inputs and produce since they have the power to make or break a farm or business. action. Farmers are finding it more difficult to get their produce to markets due to transportation issues. Farmers may be forced to produce at a low level and make little profit as a result. Farmers are also more vulnerable to post-harvest losses from bruises, which are caused by mechanical damage to produce on bad roads, and perishable produce from vehicle breakdowns on bad roads, which delay the delivery of agricultural items to markets. Farm earnings and farmer adoption of new technology are still being hampered by rural infrastructure, especially roads and transportation services (Banjo et al., 2012). Poor quality, non-durable rural feeder roads are frequently provided as regular practice, despite significant investments made over the years by successive governments in road construction and transportation enhancement. Inadequate pavement causes splitting, abrasion, vibration, and compression in addition to plantain quality during

distribution is frequently impacted by late delivery (Adesope et al., 2004; Akinyemi et al., 2010). Furthermore, there is a discernible decline in farming activities in the most prominent rural farming communities due to the high cost of transportation services, which impairs farmers' productivity and lowers the interest of younger farmers in farming. This puts the nation and state at danger for famine, food insecurity, and social instability in a country where economic growth is slow and population is growing. According to Banjo et al. (2012), people are unable to engage in social or commercial activities if they are unable to transfer their items. Because they make up the bulk of the country's farming population, rural residents are therefore more vulnerable to low crop yields, low farm income, and inadequate social and economic well-being.

The agricultural sector contributed roughly 21% of Nigeria's GDP in the second quarter of 2023. (NBS). Crop production accounted for around 19 percent of GDP, making it the largest contributor. After oil, agriculture is the second most important industry in Nigeria's economy, contributing significantly to its GDP. However, many Nigerians depend on agriculture for their living, while just a small portion of the country's population benefits from oil revenue. The latest statistics show that approximately 41% of Nigerians own or care for livestock, and 70% of the country's population engages in crop farming. Agriculture employs a larger proportion of the population in rural than in urban areas. In Nigeria, fishing is less common than farming, although it is about as common as farming in

Rivers State is located in Nigeria's South South region. Providing enough food for citizens has become a major priority for most governments, particularly those in Nigeria. This is because doing so will prevent social unrest that could arise in the event of a hunger crisis and foster an environment that is favorable for strategic economic development by meeting one of the most basic physiological needs of the working population. New patterns of consumption as well as new systems of production and distribution have resulted from the agricultural markets' growing internationalization. By guaranteeing an effective optimization of agricultural practices, modern agriculture aims to minimize issues related to agricultural loss, waste, and production underutilization. every connection made possible by the "Value-Chain" idea between the producer and the final customer. A value chain's fundamental feature is market-focused collaboration, in which many firms cooperate to successfully and efficiently manufacture and market goods and services. This approach enables businesses to adapt to market demands by connecting production, processing, and marketing.

actions aimed at satisfying market demands. The goal of agricultural-food value chains is to boost competitiveness by bringing together producers, processors, marketers, food service providers, retailers, and auxiliary organizations including shippers, research teams, and suppliers in a joint venture. The notion of the Agricultural Value Chain revolves around the

differentiation of the entire agro system and the specialization of each component to maximize the system as a whole. The success of the agricultural value chain within the villages, local government area, and state will be based on how well-developed the road network is in Rivers State.

Chris A. Out and Tumba Henry James (2015) state that in certain regions, the majority of the roads necessary for transporting products from farmers to markets are frequently impassable throughout the year. The majority of these feeder roads are tiny, poorly drained, unsurfaced, and meandering, making it difficult to get to the hinterland where most farmers are situated. Even in cases where these roads are in a passable state, issues with poor maintenance, insufficient execution capability, inadequate supply of appropriate materials, and management arise. All of these elements are responsible for Rivers State's low agricultural output. In order for agriculture to meet the increasing needs of the rural population, it will be required to incorporate

A well-designed rural infrastructure, including a road network to lower transportation costs for agricultural commodities, information, and various rural services, would enable it to significantly contribute to overall economic growth. This will facilitate the increased input and output flow from rural to urban regions, which will necessitate additional maintenance of the rural road network. In Nigeria, one of the biggest issues facing communities and farmers is the lack of essential infrastructure, such "motorable" roads. For the farmers in these areas who toil diligently must make ends meet, this is impeding their access to markets. The state of Rivers continues to have low agricultural output as a result of a lack of infrastructure, among other reasons. Because of Farmers are forced to grow only what they can eat or what they can carry on their heads to neighboring markets due to the appalling condition of the roads. The majority of the time, the excess spoils and is damaged while being transported through the villages or during storage because of the long hours or days required to reach the food to its destination because of poor roads. Thus, the study aimed to investigate the economic effects of a substandard road network on the agricultural value chain in Rivers State.

LITERATURE REVIEW

Conceptual Clarification

Road System

According to Oxford advance dictionary, a road is a hard surface built for vehicles to travel on. The road system consists of a network of interconnected paved carriageways which are designed to carry buses, cars and goods vehicles; the road network generally forms the most basic level of transport infrastructure within urban areas, and will link with all other areas, both within and beyond the boundaries of the urban area. A road network can be divided into parts such as: intersections, controlled or uncontrolled intersections, roundabouts, urban

roads, rural roads, motorways, bicycle lanes, footpaths and pedestrian areas, pedestrian crossing, bridge & tunnels.

Agricultural Value Chain

Food and Agriculture Organization (FAO) of the UN, (2005) "A 'value chain' in agriculture identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product."

Evan Tarver (2020) define value chain as the process in which business receive raw materials, add value to them through production, manufacturing, and other processes to create a finished product, and then sell the finished product to consumers. Value chain is a chain of activities by which goods and service is produced, distributed, and marketed.

THEORETICAL FRAMEWORK

Brett Frischmann's theory

Brett Frischmann's theory of infrastructure was adopted to situate the discourse within an appropriate body of knowledge. The theory explains the importance of public accessibility to infrastructure. Frischmann (2007, 2005) argued that public access to infrastructure would generate values for a society. A major thrust of the theory is the fact that opens access to infrastructure would generate significantly positive results for a society. The theory also stipulates that infrastructure should be utilized productively to promote development because it is critical to the fabric of a society. In line with Frischmann's theory of infrastructure, the state is generally responsible for the provision of infrastructure through diverse revenues' sources including state resources and tax from citizens and organizations. Though private provision of infrastructure is not unknown, the state is often responsible for welfare services to the majority (Adejumobi et al. 2013). The classical social contract theorists argued that the state must guarantee law and order, human dignity and social welfare. Similarly, the issue of social welfare featured in both liberal and Marxist theories of the state. The liberal theory stipulates that "the state is required to perform some functions such as law and order, administration of justice and erection and maintenance of public works which may be beneficial to the society but which the private sector finds uneconomical". Extending this assertion, Kelleher and Wolak (2007) focused on the division of the state functions across different levels of governance. They argued that citizens' confidence in state institution depends on political processes.

LITERATURE REVIEW

Nathan Udoinyang (2023) investigate the impact of population dynamics on agricultural value chain in Rivers State, Nigeria. The population of the study consist of the total population of Rivers State. With the aid of Taro Yamane formulae, a sample size of 400 were generated. 400 questionnaires were strategically distributed to two local government area from each of the three (3) senatorial districts that made up Rivers State. The research questions of the study were analyzed using statistical tools of mean deviation in Statistical Package for Social Sciences (SPSS) with a mean criterion of 2.50. The findings review that the impact of population dynamics on agricultural value chain in Rivers State are: decrease in the availability of farmlands, destruction of farmlands, pollutions, illegal food importation in River State etc. The study concluded that agricultural value chain problems is not caused only by population dynamics, but by the absence of effective public policy design to reduce these problems. That as long as policies are in place that control the rate of child birth, human population and their impacts on the products and services people make and use, agricultural sustainability can and will permeate everyday decision-making of residents, indigene, non-indigene and government of Rivers State thereby leading to sustainable and friendly agricultural environment.

Emily O. Iduseri, Josephat U. Izunobi & Oyewole A. Oyelami (2022) investigate sustainable development goal 2 (SDG-2) and the challenges of transporting agricultural produce: a case study of Esan-West local government area of Edo State, Nigeria. The SDG-2 action plan is predicated on eradicating poverty and hunger, globally. It underpins the significance of agriculture a source of raw materials, sustenance and income for many. Notably, transportation is a crucial part of distribution and pertinent to the success of agriculture. Herein, problems associated with transporting agricultural produce in rural areas are examined; with Esan-West Local Government Area (Edo State, Nigeria) as a case study. It evaluated the mode of transportation and concomitant effects on the market and distribution of produces. Two hundred questionnaires were analyzed and two hypotheses tested, using Pearson's product–moment correlation and Likert scale. The data indicate that the transportation of agricultural products is significantly constrained and impacts on development and sustainability.

Udeuhele, Godwin Ikechukwu & Eze, Anayochukwu Victor (2022) examine rural access roads and the quest for agricultural development: an appraisal of the conditions in south-east in Nigeria. Specifically, the study investigated the impact of the condition of the three types of rural access roads, namely, bush-paths, gravel-surfaced roads, and tarred roads on the quantity of food crops produced by smallholder farmers, their income levels, and contribution to agricultural GDP. The study adopted the quantitative research method and cross-sectional survey design. The questionnaire was validated and pre-tested. The reliability test performed on the questionnaire showed a Cronbach's Alpha Index of 0.823. Five (5) sample units comprising five chapters

of the All Farmers Association of Nigeria (AFAN) in Abia, Anambra, Ebonyi, Enugu and Imo States were used to select 328 stratified random respondents. Descriptive statistics consisting of frequency counts, and percentages were used in analyzing the data. Three hypotheses were put forward for test using Simple Linear Regression and ANOVA. The findings show that bush-paths as rural access roads did not significantly increase the quantity of food crops produced by rural farmers, that gravel-surfaced roads as rural roads never increased the income level of rural farmers; and that tarred roads as rural access roads did not contribute significantly to total agricultural GDP. The study recommends that government and other major stakeholders like international agencies and other development partners should prioritize and embark on massive rural road construction and regular maintenance.

Abdo Wudad, Sultan Naser, & Latamo Lameso (2021) examine The impact of improved road networks on marketing of vegetables and households' income in Dedo district, Oromia regional state, Ethiopia. For the study, two kebele were selected and data were collected from randomly selected 176 households from two kebele in the district. In addition to this, key informant interviews and focus group discussions were also conducted. Data were analyzed by multiple response tests and multiple linear regression models on statistical packages of the social sciences (SPSS). Study found that, from the total annual income of households; 58.5% of income was earned from vegetable production and it takes a lion share of households' annual income in the study area. Regression results revealed that independent variables in the study had an insignificant influence on rural household annual income ($p < 0.05$). The multiple correlation coefficient measure ($R = 0.845$) also indicates that the relationship between rural household annual income and independent (set of explanatory) variables was strongly correlated. Findings also expose that high transportation costs incurring, spoilage of the product, deprived extension, service and market information, and reduction of household income are among the major impacts of road infrastructure in the district. Therefore, study suggested that rural households must have gained road access and federal and local road authorities should give attention to rural area road infrastructural development.

Abdulraheem M.I, Adefare T.E, Okpakhalu L.D, Iderawumi M.A, Ajetunmobi Adeyeye R.I, et al. (2021) examine the Impact of Transportation on Agricultural Practice and Production in Rural Areas: Implication for Sustainable Food Security. The method of investigation used was questionnaire designed for the farmers. Emphasis was laid on the causes and effects of poor roads network caused by lack of provision for maintenance of roads, flooding during raining season which lead to the high cost of transportation from the farm to the markets and therefore reduce the farmers' income and quality of goods available in the markets. From the data collected some effects were identified, militating against the effective and productive practice of agriculture in the study area. However, some recommendations were made to assist in solving the problems.

Oluwatoyin J. Oluwasusi & Abolade O. Adeyemo (2021) investigate the Effects of Road Infrastructure on Plantain Production among Farmers in Ekiti Southwest Local Government Area of Ekiti State, Nigeria. Multistage sampling procedure was used to select 103 respondents for the study; data were collected using structured interview schedule. Data on respondents' personal characteristics, perceived contribution of road infrastructure to plantain enterprise and constraints to plantain production and marketing were analyzed with descriptive statistics, Chisquare and Pearson Product Moment Correlation statistical tools. Majority (75.7%) of the respondents were males, large percent (70.8%) were ageing (50-70years), 71.8% cultivated 4-6 acres with a majority (79.6%) having more than 20years of farming and marketing experience. Almost half (47.6%) of the respondents earned between #31,000-#40,000 monthly and majority (78.6%) indicated that their farms to the market were far and not motor able. About (65%) indicated that poor road infrastructure had negative implication on production and marketing of plantain. Educational level ($\chi 2=14.13$), farm size ($\chi 2=0.932$), monthly income ($\chi 2=7.938$), farming experience ($\chi 2=11.831$), marketing experience ($\chi 2=10.609$), farmers age ($r = -0.375$) and constraints to production and marketing ($r = 0.261$) were significantly related to effects of road infrastructure on plantain production. Hence, it is recommended that government should ensure quality rural feeder roads linking urban areas for sustainable farming practices, reduction of postharvest losses and efficient plantain marketing.

Ali, Alphonsus Nwachukwu & Asogwa, Samuel Okechukwu (2017) investigate road transportation network constraints on food crop production in Uzo-uwani local government area of Enugu State, Nigeria. Data for this study were obtained from questionnaire and interview of random survey of 160 farmers. Data were also obtained from field observations and current secondary data sources. Data collected were analyzed using Graph Theoretic Techniques and Multiple Correlation Analysis. The results of the analyses showed low road network connectivity and accessibility in Uzo-Uwani LGA. The coefficient of multiple determination ($R1.2352) = 0.822 = 0. 67$. Thus, 67 percent of the variations in total crop yield is determined by the combined variations in the independent variables of road density, road quality, nodal accessibility and farmers distance from house to farm at 0.05 significance level; while 33% of the variations of total crop may be attributed to other factors as such a soil type, climate, farm size, and farming methods. The study further discovered that most of the agricultural activities are carried out mainly under subsistence basis with yam, cassava and rice comprising the major grown food crops which are mostly sold in the rural community markets known for low level of buyers mainly during period of surplus harvesting. The research concludes by suggesting that government should intensify efforts in the provision of road facilities and agricultural aids in the area while the communities should jointly ensure proper road maintenance and also be ready to accept innovation in their agricultural activities.

From the above literature reviewed, it can be seen that none of the researcher look into the economic impact of poor road network on agricultural value chain, based on this premise the researcher sought to carry out this study.

METHODOLOGY

The study adopts the survey research design to examine the economic impact of poor road system on agricultural value chain in Rivers State. Primary and secondary data were employed in the study. The population for this study consists of all the local government that make up Rivers State. There are twenty-three local governments that make up Rivers State. Its total population was estimated at 5,198,716 as of 2006 census, and was projected as 7,303,900 by national bureau of statistics as at 2016 making it one of the largest states in Nigeria. With the use of Taro Yamane the population size was reduce to 400. The research instrument adopt for this study is a self-structured questionnaire titled the economic impact of poor road system on agricultural value chain (E.I.P.R.S.A.V.C). It enabled the researchers obtained relevant data for the research. The descriptive statistical tools of: tables, percentages, averages and more were used for data presentation. On the other hand, 5 Linkert scale with the use of Mean and Standard Deviation in Statistical Package for Social Science (SPSS) were used in analyzing the two research questions. The research questions were analyzed using a mean criterion of 3.0 for the research questions, an aggregate mean below 3.0 means the respondents disagree with the stated research question while an aggregate mean of 3.0 and above means the respondents agree with the stated research questions.

The questionnaire was designed to elicit information from the respondents, and to suit the need and purpose of the study. The questionnaire was designed in three (3) sections. The first section looked at demographic data of the respondents such as; gender, age, occupation, state of origin. The second analyse the impact of renewable energy on sustainable economic development in Rivers State. Finally, the third section analyses research question three which is the challenges facing renewable sources of energy in Rivers State. The questionnaire adopted a 5-point Likert scale of Strongly agreed (SA), Agreed (A), Undecided (U), Strongly Disagreed (SD), and Disagreed (D). The instrument is made up of a total of 9 items. Purposive sampling techniques were adopted for the study. For the purpose of clarity, six (6) local government out of the twenty-three (23) Local Government Areas in Rivers State were purposively selected as the sample of this study. The choice of using Purposive sampling techniques in this research work is that it provides non-probability samples which receive selection based on the characteristics which are present within a specific population group and the overall study. It also helps the researcher to identify the extreme perspectives that are present in each population group as well. Base on purposive sampling technique, two local government areas were selected from each of the three (3) senatorial district that made up Rivers State making it a total of six (6) local government areas and they are as follows: Etche; Ikwerre;

Ahoada East, Ahoada West, Eleme and Khana local government areas of Rivers State.

Table 1 Sectorial Distributions of the Questionnaires

Senatorial District	**No. of L.G.A**	**Names of L.G.A**	**No. of L.G.A**	**Names of Selected L.G.A**
Central Senatorial District	8	Emohua Ikwerre Etche Omuma Port Harcourt Obio/Akpor Ogu/Bolo Okirika	2	Etche Ikwerre
West Senatorial District	8	Bonny Degema Asari-Toru Akuku Toro Ogba/Egbema/ Ndoni Ahoada East Ahoada West Abua/Odual	2	Ahoada East Ahoada West

South East Senatorial District	7	Andoni Opobo/Nkoro Gokana Khana Eleme Oyigbo Tai	2	Eleme Khana

Source: author's compilation 2024

DATA PRESENTATION

In line with the study's aims, data were analyzed. The data was analyzed at three different levels: primary, secondary, and tertiary. Participants were characterized by certain demographic variables in primary analyses. All demographic factors, such as age, gender, marital status, academic qualifications, etc., were summarized using percentages. Means, standard deviations, and logistic regression were used for descriptive statistics in the secondary analyses.

Table 2 Distribution and Retrieval of Questionnaires

S/N **Regions/LGAs**	**Questionnaire Distributed**	**Questionnaire Retrieved**	**Questionnaire Not Retrieved**
Central Senatorial district			
Etche	70	66	4
Ikwerre	66	59	7
Sub-Total	136	125	11
West Senatorial district			
Ahoada East	66	55	11
Ahoada West	66	57	9
Sub-Total	132	112	20

South/East Senatorial district			
Eleme	66	58	8
Khana	66	60	6
Sub-Total	132	118	14
TOTAL	400	355	45

Source: Author Computation, 2024.

Each of Rivers State's three senatorial districts has two LGAs that received the survey. The senatorial district's agricultural/farming areas were the sites of questionnaire distribution throughout the chosen LGAs. Out of 400 questionnaires that were given, 355 were collected and filled out in full, accounting for 88.75% of the total.

According to Table 2, a total of 66 questionnaires were delivered to each of the two local government areas, with the exception of Etche LGA which received 70 surveys because it's the food basket of the state. With 125 fully completed and returned surveys, the central senatorial district had the highest response rate of 91.91%. Among the six LGA, Etche LGA in Rivers Central senatorial districts has the highest respondents with 94.29% while Ahoada East LGA in Rivers West senatorial districts has the lowest respondents with 83.33%.

Table 3 Socio-demographic characteristics of the respondents

Socio-Demographic Characteristics	**Frequency**	**Percentage**
Gender		
Male	152	42.8
Female	203	57.2
Total	355	100
Marital Status		
Single	124	34.9
Married	231	65.1
Total	355	100

Age Range		
21-30 years	44	12.4
31-40 years	85	23.9
41-50 years	100	28.2
51 years and above	126	35.5
Total	355	100
Occupations		
Retired/Active civil Servant	71	20.0
Farmers	193	54.4
Traders	36	10.1
Students	55	15.5
Total	355	100
Highest Educational Qualification		
FSLC/WAEC	137	38.6
NCE/ND	79	22.3
HND/BSC	106	29.9
MSC/PHD	33	9.2
Total	355	100
Total	355	100

Source: Survey, 2024.

In Table 3, we can see a synopsis of demographics of the respondents. Among the 355 respondents, a high percentage are married men and women, accounting for 65.1% of the total. The gender breakdown was found to be 203 females (57.2% of the total) and 152 males (42.8% of the total). In terms of age, the most respondents were 51 and above, with 126 (35.5%), while the youngest were 21-30 (12.4%). Similarly, when asked about their educational background, those with a FSLF/WAEC had the most respondents, while those with an MSC/PHD had the fewest. The study also revealed that out of all the respondents, 71 (or 20.0% of the total) are retied/active civil servants, 193 (or 54.4% of the total) are

farmers, 36 (or 10.1% of the total) are traders and 55 (or 15.5% of the total) are students.

Table 4 Respondents' Perceptions on the Economic Impact of Poor Road System on Agricultural Value Chain in Rivers State.

/N	Factors	Mean	Standar Deviation	Decision
	Long hours of waiting for vehicle to covey farm product to the market led to damage of most perishable goods in the farm.	**461**	**4.16**	**Agreed**
3	Farm lands and road network are being destroyed by heavy machines that assess these farm road as a result of construction of building for the timing population. Bad road predisposes farm product to bruises and reduces the profitability value.	**4.43** **3.99**	**3.98** **3.54**	**Agreed** **Agreed**
	Long distance of farm to the market leads to product sales at poor price.	**3.94**	**3.58**	**Agreed**
	Transportation cost determines the price of products.	**4.42**	**4.02**	**Agreed**
	Selling of produce on the farm leads to reduction of farmers' profit.	**3.90**	**3.55**	**Agreed**
7	Selling to retailers reduce profit margin of the farmers.	**4.21**	**3.78**	**Agreed**
8	High travel cost on farm product leads to high sales of farm product.	**3.14**	**3.05**	**Agreed**
9	Identification with market leaders and taking the farm product to the market facilitates good sales.	**4.89**	**3.98**	**Agreed**
10	Group funding of travel expenses of farm product to the market increases profit margin.	**3.60**	**3.33**	**Agreed**
11	Inadequate processing techniques for increased shelf life leads to little or no profit on farm product.	**3.94**	**3.61**	**Agreed**
12	Good road creates competitive market.	**4.42**	**3.98**	**Agreed**

13	Good road stimulates economic growth of farming community.	**3.99**	**3.54**	**Agreed**
14	Transportation cost is influenced by the state of the road.	**3.33**	**3.16**	**Agreed**
15	Rising transportation cost on product to the market limits level of crop production.	**4.14**	**3.79**	**Agreed**
16	Poor road provides those involved in farming alternative to diversify into other livelihood activities.	**3.80**	**3.57**	**Agreed**
17	Taking farm product to the secondary market in urban centers results in untold hardship.	**3.14**	**3.05**	**Agreed**
18	Poor road network restrains farmers to limited farm size.	**4.43**	**3.98**	**Agreed**
19	Poor road network restricts access and sources to improve farm products of yield and resistant to diseases.	**4.42**	**4.02**	**Agreed**
	Aggregate Mean	**4.04**	**3.67**	**Agreed**

Source: Survey, 2024.

From table 4 above it can be seen that all the respondents anonymously agreed on the impact of poor road system on agricultural value chain in Rivers State which brought about an aggregate mean of 4.04 which is above the mean criterion of 3.0.

DISCUSSION OF FINDINGS

Items 1 through 19 in Table 4 aimed to address the financial impact of Rivers State's inadequate road system on the agricultural value chain. As the accompanying table illustrates, all of the item means are higher than the 3.0 mean criterion. Furthermore, a standard deviation of 3.67 was derived from the total number of replies, resulting in a mean aggregate of 4.04. According to Emily O. Iduseri, Josephat U. Izunobi & Oyewole A. Oyelami (2022), good roads spur economic growth for sustainable development, and Nathan Udoinyang (2023) concluded from the empirical literature that heavy machinery is destroying farm lands and the road network as a result of building for the timing population Sultan Naser, Abdo Wudad, Oluwatoyin J. Oluwasusi & Abolade O. Adeyemo (2021) stated that a poor road network had a negative impact on the production

and marketing of farm products. & Latamo Lameso (2021) and Abdulraheem M.I., Adefare T.E., Okpakhalu L.D., Iderawumi M.A., Ajetunmobi Adeyeye R.I., et al. (2021) stated that high transportation costs lead to spoilage of farm products, reduction of farmers revenue/income, and quality of goods available in the markets.

RECOMMENDATIONS AND CONCLUSION

With the use of selected LGA's in Rivers State to examine the economic impact of poor road system on agricultural value chain, the study concluded that good road system is one of the major key to achieve efficient and sustainable food sufficiency in the state.

The following recommendation were made to government of Rivers State:

I. assists farmers in conveying their farm produce to urban market where they are sold for better price by providing vehicles for them.
II. create good road network that connect farmlands to modern market in urban areas of the state and
III. finally encourage farmers to engage in mechanized and co-operate farming so as to attract loan and other assistance from the state government.

FURTHER STUDY

Good road network is one of the key for food sufficient in Rivers State and Nigeria as a whole. Study like this need to be review at least every 4 years' interval to know the current impact of good road network on agricultural value chain in Rivers State and Nigeria.

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