



## IMPACT OF ROAD TRANSPORTATION ON ECONOMIC GROWTH IN CROSS RIVER STATE

### ABSTRACT

*In today's economy and the rising cost of living, we attempt to investigate the impact of road transportation investment and its resultant effect on economic growth in Cross River State. Primary method of analysing and estimating the specified equation were employed. The result from the estimated analysis revealed that a positive and significant relationship between road transportation investment and the delivery of agricultural outputs in Cross River State. The result further revealed that a positive and significant relationship between unemployment and road transportation in Cross River State, Based on the findings, the study recommended that the government should put in place measures to rehabilitate, reconstruct and repair bad roads both in urban and rural areas. By so doing, this will help the movement of agricultural products freely from rural to urban areas thereby making agricultural produce cheaper and affordable for all. The study also recommended that the government should put in place measures aimed at developing and adding more innovations and creativity to the road transportation sector. By so doing, this will reduce unemployment and reduce youth restiveness especially in the rural areas.*

**Key Words:** *Transportation, Road, Economic Growth and Development.*

### **The Introduction:**

From the historical perspective of road transport development in Nigeria dates back to the period before 1910 when the existing bush paths were developed into motorable routes. According to Stanford Research institute (1963), the growth of road transport in Nigeria was a later development which did not evolve through the stage of animal carts. The institute maintained that roads were not developed until the advent of motor vehicles in the 1920's and 1930's. The end of the Second World War (1945) actually marked the period when the country was served with adequate network of all season roads for lorry and passenger car traffic.

One of the key factors that play a major role in a region or State economic growth is the presence of an accessible and efficient transport system. This is so because, good road network provides access to the region which promotes economic activities of that region or State. Transportation is key to development, it is a critical factor for economic growth. And with the Super highway that is to come, it will open the Cross River market, it will aid in the distribution of food products, boost the Agriculture potentials of Cross River State, provide good and quality education for our people, improve the medical and infrastructural facilities of the Cross River People.

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Road transport helps to provide and add value to goods by making them available to consumers where they are needed. Most goods would be of no use to consumers if they are not made available at the places where they are needed for sale, purchase and or consumption. Hence, the need for producers and marketers or business entrepreneurs to put in place an effective and efficient transport system for timely delivery of goods and services to adequately deliver satisfaction to the society is a necessary evil that can never be overemphasized (Pradhan, 2010).

According to Onakomaiya (2008), roads were designed to serve two major objectives. First, they were meant to extend the commercial hinterlands opened up by the government railways by linking up the nearest urban centers with the major railway stations. The second was to reduce the strains thrown on the inland provinces in the provision of porters for the British Colonial Officers. The adequacy of road transport infrastructure determines a country's success and another; failure in diversifying production, expanding trade, coping with population growth reducing poverty, or improving environmental conditions. A good road transport infrastructure raise productivity especially in the agricultural sector of the economy and lowers production costs, in Nigeria the link between where the major production activities take place and where it is needed for final consumption need good road transportation that will bridge the gap, although the precise linkages between infrastructure and development are still open to debate.

In Cross River State the transport infrastructure, especially road determines State's success and failure in diversifying production, expanding trade, coping with population growth reducing poverty, or improving environmental conditions. A good road transport infrastructure in the State has helped raise productivity especially in the agricultural sector of the economy and lowers production costs. Most Agricultural products which are harvested in the rural communities needs to be distributed to where they are needed. Therefore, the link between where the major production activities take place and where it is needed for final consumption needs good road transportation that will bridge the gap, although the precise linkages between infrastructure and development are still open to debate. However, according to the World Development Report, 1994 infrastructure capacity grows step by step with economic growth.

Cross River State has experienced an infrastructural renaissance since the beginning of new political dispensation in 1999 (CRS, 2020). Data has shown that in Cross River State, road transportation has contributed to Nominal GDP in Q2 2022 and was 2.79 percent, greater than the 1.60 percent contribution in the first quarter of 2022 and up from the 2.09 percent reported in the same period of 2021. This increase in the gross domestic product indicates that the economy of the state has witnessed a massive transformation especially in the area of Agricultural development, hence; granting access for goods and services to be moved most especially from the rural areas to urban areas and from the urban areas to the rural areas.

### ***The Problem:***

Until the 1940s the major highway of communication in the Cross River Basin of Nigeria was the Cross River. The need to construct roads in the area arose from the dwindling importance of water transport. The Cross River was navigable only in the rainy season, and inland ports and the seaport of Ikot Abasi had been blocked by sand bars. Efforts made by the British to develop road transport in the region after 1940 were motivated largely by imperial economic interests rather than concern for development. Roads were constructed to aid the exploitation of the region's natural resources and to develop economic enterprises to enhance the expansion of the metropolitan economy. They were a conscious attempt by the colonial government to open up new market and business outlets in the interior of Calabar and Ogoja Provinces. Today the Trunk B roads and feeder roads constructed during the colonial period in the Cross River Basin

are still extant though in a deplorable condition. The development of the region is being hampered by lack of a good road network

Transportation problem in Cross River state has become critical due to the increase in vehicular volume and human activities. The problem of serious concern include inadequate terminal facilities, which creates traffic problems and urban mobility to stand still. The effect of adequate maintenance and renewal of equipment and facility is another problem visible in the state. This includes inadequate maintenance and rehabilitation of deplorable roads resulting in environmental degradation and association traffic problems of increased cost and increased level time among others (Asian Development Bank, 2002).

However, the Cross River State government's commitment to addressing the road infrastructure deficit has not translated into success. The state continues to face a burden of road. Infrastructural deficit as the roads across the state portend dangerous death traps for the users (Aderogba and Adegboye, 2019). In Cross River State, only 60,000km out of road network of 195,000km are paved. The remaining 135,000km are either unpaved, disrepair, or poorly maintained. The situation of poor road infrastructure has been attributed to the government's misplaced priorities and diversion of budgetary allocation meant for road infrastructure development (*CRS Statistical Bulletin*).

### ***The Literature***

According to Olakunori (1992) Road transportation is the movement of people and goods from one location to the other through road. It is a means by which goods (raw material, production equipment, operating inventories, semi-finished goods and finished goods) as well as people are able to get to or be made available where they are needed for commercials or non-commercial purposes, as at when desired. The mobility (transportation of people and materials) is therefore one of the greatest needs that have to be adequately satisfied in any society if any meaningful level of social interaction, co-operation, production activities, economic and other types of development, and the enhancement of human welfare is to be achieved. This is the reason why road transport is popularly referred to as the engine and wheel of the society it helps the world to go round and function actively.

According to Pradhan (2010) road transportation provides the essential activities of time and place. Utility of time entails making things available when they are needed. One of the industries where time utility is of a major essence is that of the daily newspapers. This industry greatly depends on road transport to ensure that its vendors and papers get to customers early in the morning when the news they carry is still regarded as fresh. As day wear on, the news becomes stale and lose its values and prices. Road transport helps to provide and add value to goods by making them available to consumers where they are needed.

### ***Economic growth***

Economic growth according to Todaro and Smith (2009) means the steady process through which the productive capability of the economy is increased long term to foster a rise in the levels of national output and income. Economic development can also be defined as consistent improvement in the various aspects of the life of the entire population of a country. This improvement according to Kalu (2001), manifest in the greater ability of the people to solve their problems. Important components of economic growth with regards to Todaro and Smith (2009) are as follows;

- i. Capital accumulation, which includes a new investments in land, machineries and human resources via health improvements, education and job skills.
- ii. Population growth and thus subsequent growth in labor force.
- iii. Technological progress-new ways of tasks accomplished.

On Capital accumulation Todaro and Smith (2009) emphasized that investing in human resources can improve its quality and thereby have the same or even a more powerful effect on production as an increase in human numbers. They stressed further that formal schooling, vocational and on-the-job training programs, adult skill enhancement and other practices of informal education may all be made effective in augmenting human capital as per direct investment in buildings, machineries and materials. They further saw population growth and the associated upsurge in labor force as a factor capable of stimulating economic boom. As a larger labor force translates to more productive workers and a large overall population upturns the size of the markets. Given the aptitude of the economic system to rivet and productively employ the productive work force. Also a third component of economic growth- Technological progress accordingly results from new and improved ways of getting traditional task done such as growing crops, making cloths etc. They highlighted three basic classifications of technological process: natural, labor saving and capital saving. Natural technological progress ensues when higher output levels are realized using the same quantity and combinations of factor inputs. Also the application of computers, automated systems, high speed electrical drills, tractors and mechanical plough can result in labour saving. Thus these are categorized as labour saving technological progress.

### ***Problems and Overview of Road Transportation System in Nigeria***

Olakunori, (2006) opined that a lot of problems are associated with operation of road transport service and road transportation in Nigeria. Most of these problems arose as a result of poor management of roads on the part of the government as well as poor attention to customers on the part of the operators of road transportation service. Some of these problems are as follows: Recklessness of motor vehicle drivers; inadequate number of transit vehicles; inadequate road Nigeria has become increasingly dependent on the road system to meet virtually all its inland transport needs as the rail, pipeline and inland waterway systems have deteriorated. At the same time, the road network itself has suffered from continuing lack of maintenance and investment by the three levels of government, Federal, State and Local. Nigeria has a total of 193,200 km of roads, made up of 34,123km of Federal roads, 30,500km of state roads and 129,577km of local government roads. As provided for in the Constitution, the different tiers of government have independent responsibilities for the planning, financing and maintenance of their roads. Three major issues affect the road network: Misuse particularly as a result of axle overloading causing damage to roads; Neglect of periodic and routine maintenance and an absence of emergency maintenance and inadequate design and construction. The above diagnosis reveals that: There is an urgent need to ensure an adequate and efficient maintenance of the existing road network.

The Government will continue to contribute to the funding of road construction and maintenance, and attract additional funding by promoting private sector investment in the upgrade and maintenance of roads and management of tolls through PPPs. In this way, performance risk will be passed to the private sector and there will be a strong discipline for efficient delivery of services. A road study undertaken in 1998 indicates that N300 billion will be required over the next 10 years to bring national road network into a fairly good condition. After the recovery, an average of N24 billion will be required each year for subsequent maintenance and N32 billion per year for road rehabilitation. Further neglect of these roads implies a loss of network value of N80 billion per year and additional operating cost of N53 billion per year. Except roads and bridges are kept in good conditions they cannot support the desired socio- economic development of the country. Network; Bad roads, Menace of highway robbery and inadequate maintenance of transit vehicles.

### ***The Impact of Road Transportation on Local Economic Growth in Nigeria***

The Nigerian economy is a developing one. The inter-connection between her road transport system and her local economy has long been recognized as it has impacted her severally. The process of development requires goods, services and people to be moved for one reason or the other and from one place to another. As the people move, they help to generate economic activity which enhances economic development. This assertion is justified by Ighodaro (2008) who affirmed that the potential significance of road development for investment, trade, growth and poverty alleviation has long been recognized. Not only does road transport infrastructure facilitate the direct provision of services to consumers, it also provides intermediate inputs that enter into the production of other sectors and raise factor productivity. This is exemplified by the opening of many residential areas across the nation as a result of road construction or improvement.

Road transport services facilitate and help to maintain an economic balance through the distribution of resources (such as labour, equipment and raw materials) and finished goods across the nation. According to Carapetis et al (1984), adequate, reliable and economic transport is essential for the social and economic development of rural areas especially in developing world.

An efficient transport system lowers the cost and reduces the time of moving goods and service to where they can be used more efficiently. Since roads penetrate more into such areas (with relative greater flexibility) their development adds value and spurs growth. Overtime, this process has resulted in increasing the size of market which is a pre-condition for realizing economies of scale. Good road projects have clearly contributed to poverty reduction in the country by improving the living conditions of people and by augmenting the opportunities available for trade and employment. The economic development of Nigeria has reflected the development of her transport systems. This is particularly true of the road transport system, which is by far the most widely used mode of transport in the country. Of all commodity movements to and from the sea-ports, at least two thirds are now handled by road transport while up to 90% of all other internal movement of goods and persons take pleads (Onakomaiya).

### ***The Empirical Literature***

Ehigghebolo and Akokhia(2023) empirically examined the relationship between transportation sector and economic growth in Nigeria from 1981 to 2020 using the Eagle granger Co-integration and error Correction Model(ECM) on the time series data. The result showed that in the long run, road and air transportation sub sector positively and significantly impacted on gross domestic product in Nigeria while water and rail/pipeline transport sub sector had a negative but significant impact on growth. Findings from the study showed that road transportation sector has the greatest impact on gross domestic product. The study recommended that government should address the challenges in the road

Amadi and Amadi, (2013) examined public spending on transport infrastructure and economic growth in Nigeria. The study employed the Ordinary Least Square (OLS) regression method to analyze the data collected. The data analyzed showed that public spending on transport infrastructure is negatively related to growth and insignificant. Rudra and Tapan (2013) using Vector Error Correction Model (VECM),examined the effect of transportation (road and rail) infrastructure on economic growth in India over the period 1970 to 2010.The paper found bidirectional causality between road transportation and economic growth. It also found bidirectional causality between road transportation and capital formation, bidirectional causality between gross domestic capital formation and economic growth, unidirectional causality from rail transportation to economic growth and unidirectional causality from rail transportation to gross capital formation.



Loto (2006) studied the impact of infrastructure on economic growth from 1970 to 2018 using co-integration and error correction model also found that infrastructure, when measured in physical sense, impacts positively on economic National development encompasses social, political as well as economic development which is defined as the attainment of a number of ideals of modernization such as a rise in productivity, social and economic equity, improved institutions and values. Economic development is thus an important aspect of general development in any nation (Falodunet al, 2010).

Lakshmanan (2011) argued that a transportation investment lowers costs and increases accessibility because transportation improvements modify the marginal costs of transport producers, the household's mobility and demand for goods and services. Such changes propagate through the market mechanisms employment growth from within, output and income in the short run.

Jelilov and Kachallah (2017) examined the impact of road transport as well as the trend and pattern of the length of federal roads in Nigeria between from 1995 to 2014. The results of the study indicated positive relationship between economic growth and road transportation. This implies that road transport has impacted positively on the real sector of the economy like manufacturing and agriculture and thus, road transport is assumed to have direct impact on economic growth. The study recommended that the government should ensure possible ways to increase the welfare of citizens through the construction of more motorable roads.

Marvelous, Siibu and Iginoba (2015) examine the economic impact of road transportation system in Nigeria using the multiple Regression of Ordinary least Squares was used in analyzing the secondary data. The economic variables used in estimation were Gross Domestic Product which was a function of the amount of Road transportation in GDP (ROT), capital utilization (CUR), Government Expenditure on road transportation (GENOT), Exchange Rate (EXCHR), and External Reserves (EXTR). The result indicated that there is a positive and significant relationship between the dependent variable (Gross Domestic Product) and the independent variables. The research findings suggests that road transportation has a positive impact on economic growth in Nigeria. From the findings one of the challenges of road transportation system in Nigeria is poor funding and management of the facilities across the nation. Also government's attention to road transportation system and even the entire transportation sector is inadequate, monies meant for the maintenance of old projects and development of new projects are often diverted. The study recommended that Nigeria should be revitalized and government should put more attention to the sector by ensuring that funds allocated for the purpose of developing the road transportation system are judiciously applied to enhance sustainable economic growth in Nigeria.

Awujola, Ugbaka and Ogwuche (2015) Investigates the causal relationship between transportation and economic growth and transportation and employment in Nigeria. By applying techniques of co-integration and Hsiao's version of Granger causality, the results infer that economic growth causes total transportation. Economic growth also leads to growth in road transportation, while on the other hand; neither economic growth nor rail transportation affects each other. However, air transportation leads to economic growth. The implications of the study are that transportation development policy regarding road transportation would not lead to any side-effects on economic growth in Nigeria. However, transportation policy in the case of rail and air transportation should be adopted in such a way that it stimulates growth in the economy and thus expands employment opportunities.

Boopen (2006) analyses the contribution of transport capital to growth for a sample of 38 Sub-Saharan African countries using both cross-sectional and panel data analysis. In both sample cases, the analysis

concludes that transport capital has been a contributor to the economic progress of these countries. Result of Seethepalli (2008) also proves that infrastructure is important for promoting growth in East Asia.

Siyan Eremionkhale and Makwe (2015) examined the impact of road transportation on economic growth in Nigeria. Both primary and secondary data were used as sources of data. Probit model was used to analyze the primary data while multivariate model was used for analyzing the secondary data to determine the long run relationship between growth and road transportation in Nigeria. The result shows that the transport sector positive impact on the economic growth in Nigeria. Based on the findings, it was suggested that the government should come up with sustainable and implementable road development and maintenance policies that will ensure good access and flow in Nigeria. Also, economic growth in Nigeria depended on the level of good and accessible road transportation and facilitates business activities.

### ***The Framework***

The economic theory of transportation was popularized by economist Frischmann (2005). Frischmann's transportation theory provides a theoretical foundation for examining a country's transportation network's contribution to economic growth and the social consequences in developing countries. Frischmann argued that allowing the public open access to transport networks would create an economic return for the society and lead to social change. Frischmann's economic theory of transportation has focused on the demand side of an economy and searches for how transportation infrastructure such as network of roads can create value for a wider public. The central premise behind this theory is value creation. Since analysis of transportation infrastructure and its relationship to economic growth is multidimensional, many researchers have posited that such an analysis must consist of many components including GDP, population size, degree of utilization, traffic density and level of economic growth. Applying Frischmann's economic theory of transportation to this study, it is expected that allowing the public access to network would significantly impact economic growth by improving the standard of living of the masses and would result in social change.

### **Charles Horton Cooley's theory of Transportation**

Transportation, according to Cooley, is a spatial and physical mode of communication. He also offers an integrationist theory of valuation, articulating how communication and interaction shape and transform value as a goal of action. These findings show that transportation as mode of communication will alter and grow economic society by altering personal needs and values resulting in behavioral changes. According to Cooley's theory, for studying the subjective side of transportation phenomena, an interactionist approach is useful. Cooley's transportation theory has been viewed from a variety of perspectives.

### **Wilson's Theory of Transportation**

The work by Wilson (1970, 1974) is center-pieces in the literature. Later Wilson, Jebbin, Maclean Felix (1977) established a 1977-state-of-the-art in their rather comprehensive work on "Models of Cities and Regions" applied to the City of Leeds. The model system constituted a system, which was comprehensive in terms of scope but slightly less refined in terms of its linkage to human behavior and economic mechanisms. Among its sub model was a relative term advanced population forecasting model which applied "accounts based models" and "transition rate models". Another component of the system was a model to locate people and services. This was a slightly altered version of an original model suggested by Lowry (1964) and consisted of two gravity models with constraints related to land use accounts and minimum size of service establishments. From a financial standpoint, the Lowry tradition is artificial,

meaning, demand is modelled without any price-equilibrium mechanism. This is one of the system's major flaws of Wilson's model for Leeds. However, other limitations exist, which primarily is concerned with the ability to capture heterogeneity or disaggregated behavior. The fact that gravity models assume identical independent distributed entries puts a serious limitation on the model flexibility. For instance, the substitution pattern between alternatives will be relative simple and will usually correspond to that of a simple logic model. The model works fine for aggregated smooth quantities but have serious limitations when considering disaggregate data.

### **Solow-Swan Growth Theory**

Trevor Swan and Robert Solow first proposed the neoclassical growth hypothesis in 1956. Solow's (1956) growth model is an exogenous economic growth model that examines variations in the amount of output in an economy over time as a result of changes in population growth, savings rate, and technical development rates. The core premise of Solow's paradigm is that it relates aggregate production function or input to productivity or output. Solow describes the marginal utility to be gained from productivity, capital investment and labor, and argues that technological progress in developed nations will rise at a certain time and finally fall. Solow argued that the common price of production will rise in a developed nation. He viewed transportation infrastructure planning, investment and implementation as different from the planning economic growth process, while the opposite occurred in the developing nation due to continued increase in marginal utility of labor and capital investment. Solow's theory supports the notion that investment is to be made in transportation network.

A typical Solow's model predicts that economies will converge to their steady state equilibrium in the long run, and that the only way to achieve permanent growth is through technical advancement. Solow's concept has an important implication which is that poor countries should expand quicker and eventually catch up to affluent countries. Baumol tested this theory empirically and discovered a close link between a country's initial wealth and its output growth over a lengthy period of time (1870-1979). Delong later disputed Baumol's conclusions, claiming that both the non-randomness of errors for estimates of real income per capita in 1870 and Baumol's findings were skewed. According to Delong, there is little evidence to back up the theory.

### **Harrod Domar Growth Theory**

The Harrod Domar growth hypothesis is used to describe the pace of economic growth in terms of savings and capital. It claimed that there is no natural cause for a country's economy to grow in a balanced manner. Roy F. Harrod and Evsey Domar each formulated this hypothesis in 1939 and 1946, respectively. Neoclassical economists contended that the Harrod-Domar theory had flaws, specifically the instability of its solution, which sparked an academic debate in the late 1950s that led to the development of Solow-Swan theory. Solow expanded on the Harrod-Domar model by including labor as a factor of production and non-fixed capital-output ratios. Increasing capital intensity may now be recognized from technological advancement thanks to these advances. The constant proportions production function, according to Solow, is a fundamental assumption in the Harrod-Domar model's instability conclusions. His own work extends on this by delving into the implacability of the human condition. One major critique is that Harrod's original paper did not focus on economic growth and did not employ a fixed proportions production function explicitly.



### ***The Research Design***

The research is flexible and qualitative in nature, it is a casual research to theoretically investigate the impact of road transportation on economic growth in Cross River State. The causal research design is appropriate for the study because of the nature of the research which tend to investigate the nature and extent of causes, effect and relationship between some set of variables says a dependent and independent variable, to achieve the aim of the study, the study would also make use of the econometric techniques for the data estimation, Thus the time series data (mean, median and mode) would be use alongside the ordinary least square (OLS) which is assumed to be the Best Linear Unbiased Estimate (BLUE) with minimize errors.

The research method would also used a mixed method (quantitative and qualitative. it would also make use of non probability sampling for the direct interview and survey.

### ***The Study Area***

Cross River state is a coastal area in South-South, Nigeria. It is located in the Niger delta region. Cross River State occupies 20,156 square kilometers. It shares boundaries with Benue to the north, Enugu and Abia States to the west, to the east by Cameroon Republic and to the South by Akwa Ibom and the Atlantic Ocean. Cross River state is the nineteenth largest in area and 27<sup>th</sup> most populous with an estimated population of 38 million people. The people of cross river state are engaged in Agriculture as their major source of livelihood. They are engaged in the cultivation of crops such as cocoyam, rubber, oil palm, yam, cocoa, cashew and plantain crops along with fishing.

### ***The Sources and Method of data collection.***

The data collected were both quantitative and qualitative, during analysis, data was triangulated to increase its validity and reliability, both primary and secondary data were collected. Due to insufficient management and recurrent insecurity challenge primary data were obtained through informal key informant interview. The methods that will be used in the collection of data include questionnaire and observation. The survey and observational methods of sourcing for primary data will be used to ensure reliability and validity of the study.

### ***The Scoring meethod***

All information obtained from the questionnaire was coded using a predetermined key, the items on the conceptualized variables in the study were scored using a four (4) point liked type scale with the following keys:

- Strongly Agree (SA)..... 4 point
- Agree (A)..... 3 point
- Strongly Disagree (SD)..... 2 point
- Disagree (D)..... 1 point.

### **3.9 Data analysis technique**

Data analysis will be undertaken using qualitative as well as quantitative techniques. It is expected that a major segment of the information collected during the survey will be qualitative and may not be easily quantified. Descriptive statistics such as frequencies, percentages etc. will be employed in most of the analyses in summarizing them. The data collected will be analyzed with relevant statistical tool such as the chi-square statistic. Final presentation will take the form of description, tabulation and illustrations. The study will also make use of tables for presentation as appropriate. The basic formula for chi-square statistic is stated thus:

$$\underline{X^2 = \sum (Of - Ef)^2}$$

**Of**

**Where;**

$X^2$  = Chi-square statistic

$\sum$  = Summation sign

Of = Observed frequencies

Ef = Expected frequencies

The degree of freedom for chi-square is computed as  $df = (R-1) (C-1)$

Where  $df$  = degree of freedom

C = Column

R = Row

### Decision rule

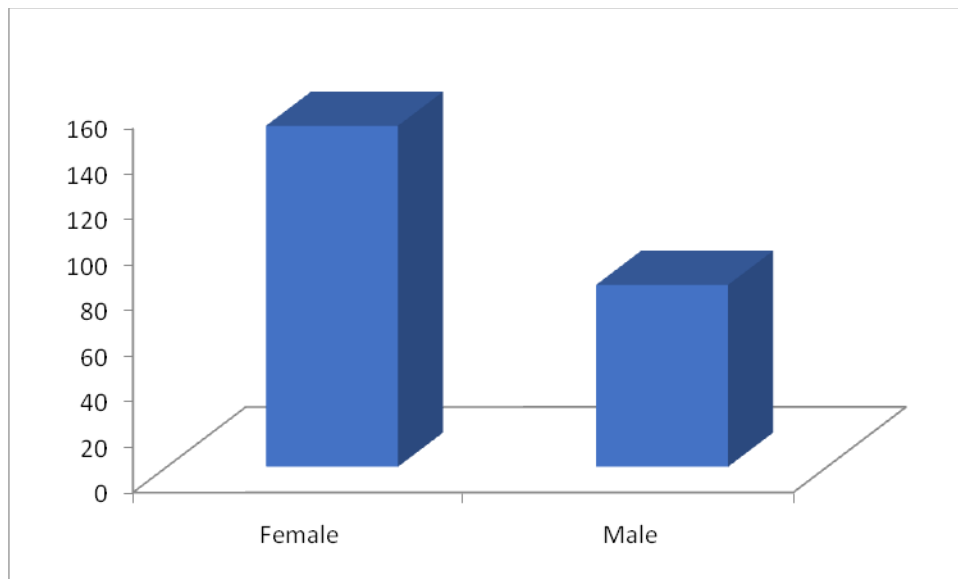
The chi-square ( $x^2$ ) test represents the difference between the given frequencies and the expected frequencies obtained. If for instance the calculated value of ( $x^2$ ) is greater than the ( $x^2$ ) value given in the table, there is association between the variable being measured. Thus, confirming the **alternate** hypothesis. But if the calculated value of chi-square ( $x^2$ ) is less than  $x^2$  **given in** the table, there is no association between the variables in the **hypothesis**, thus, accepting the null hypothesis. The rejection of the null **hypothesis** means acceptance of the alternate hypothesis.

The study was made up of different collections of people who were beneficiaries and. The demographic data of beneficiaries that were surveyed from the field are presented in the tables and figures below as follows:

**Table 4.1: Showing Gender of beneficiaries**

Response		Frequency	Percent
Valid	Female	150	65.2
	Male	80	34.7
	Total	230	100

*Source: Author's Field Survey, 2024*



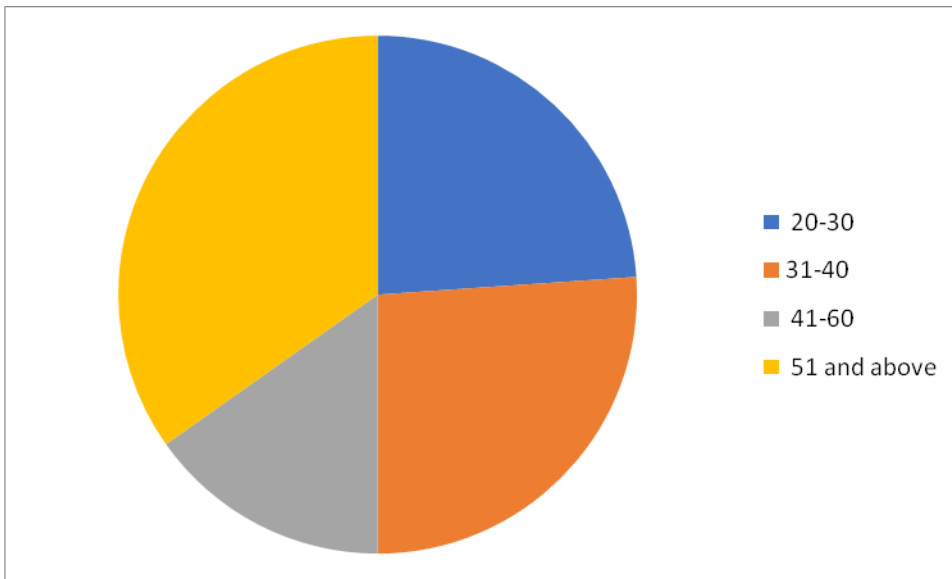
**Fig 1: Bar Graph of Beneficiaries Responses Based on Gender**

The result in table 4.1 and fig. 1 provides information of beneficiaries based on gender. The result showed that 150 beneficiaries representing 62.5 percent are female respondents, while 80 beneficiaries representing 34.7 percent are male that live in Cross River State that are involved in road transportation business in Cross River State.

**Table 4.2: Showing the ages of beneficiaries**

Response	Frequency	Percent
Valid 20-30	55	23.9
31-40	60	26.0
41-60	35	15.2
51 and above	80	34.7
Total	230.0	100

*Source: Author’s field Survey, 2024*



**Fig 2: Pie chart of Beneficiaries Responses based on ages**

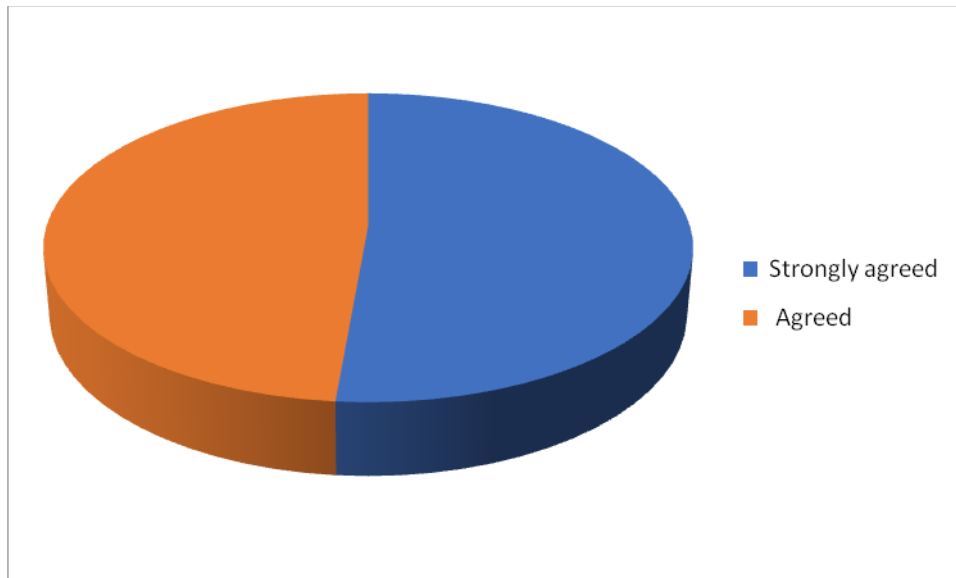
The result in Table 4.2 and figure 2 above is gives an information of beneficiaries based on their ages. The result as given reveals that 55 beneficiaries representing 23.9 percent are 20-30years, 60 beneficiaries representing 26.0 percent are 31-40 years and above, 35 beneficiaries representing 15.2 percent are 41-60 years, while 80 beneficiaries representing 34.7 percent are 51 years and above. From the information presented on the pie chart, beneficiaries from 31-40 years of age were found to be the highest involved in the implementation of road transportation activities in Cross River State.

**Table 4.3: Showing beneficiaries based on marital status**

Response	Frequency	Percent
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Valid	Married	90	39.1
	Single	140	60.8
	Total	230	100

*Source: Author's field Survey, 2024*



**Fig 3: Bar Graph of Beneficiaries Responses Based on their marital status.**

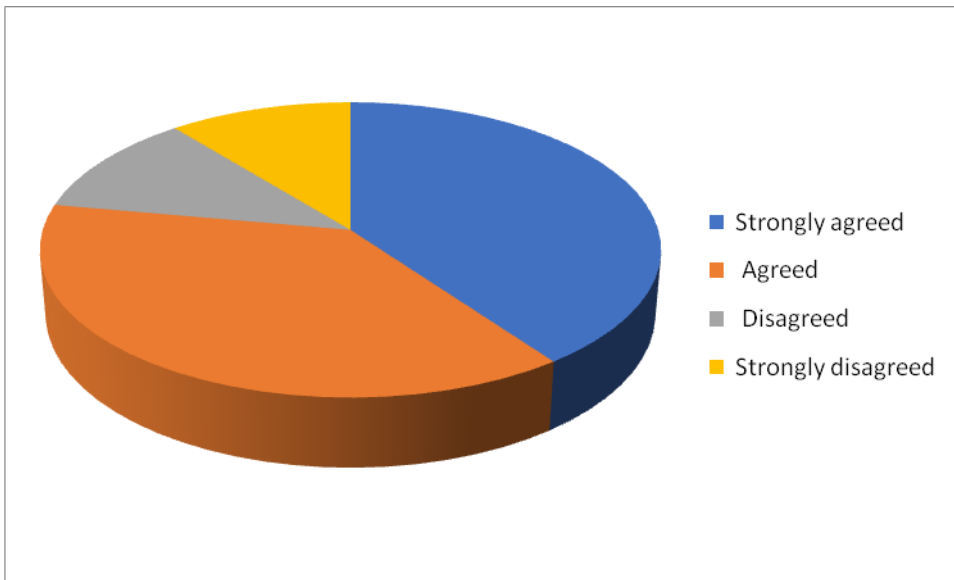
The result in Table 4.3 and figure 3 above is the information of beneficiaries based on their marital status. The result as presented showed that 90 beneficiaries representing 39.1 percent are married, and 140 beneficiaries representing 60.8 percent are single in the Cross River State. From the information presented on the pie chart above, there are more single people made up of youths in the community who were found to be involved in road transportation activities in Cross River State.



**Table 4.4: Showing beneficiaries based on Qualification**

Response		Frequency	Percent
Valid	FSLC	95	41.3
	WASSCE/GCE/NAPTEB	100	43.5
	HND/BSC DEGREE	34	14.8
	POST GRADUATE	1	0.43
	Total	230	100

**Source: Author’s Field Survey, 2024**



**Fig 4: Pie chart of Beneficiaries Responses based their qualification**

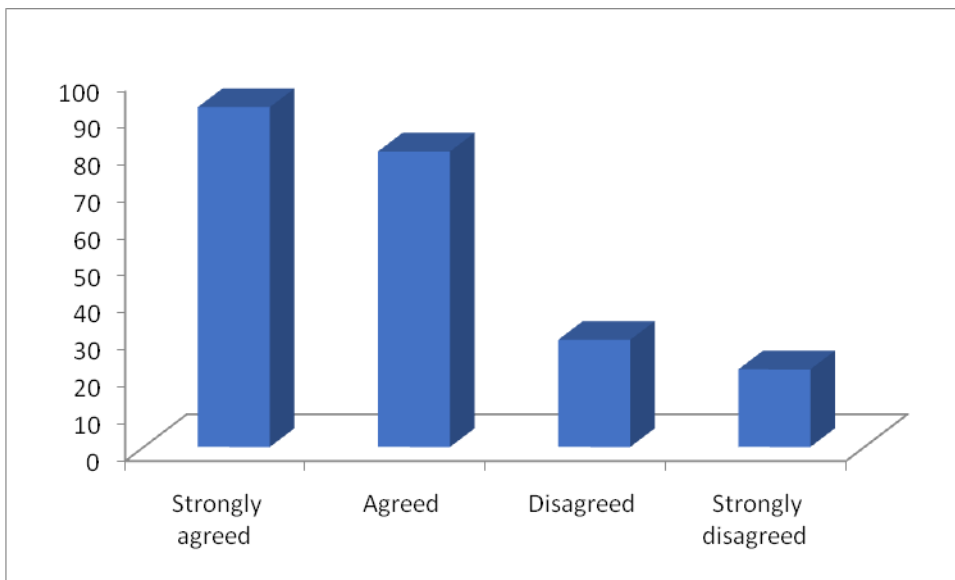
The result in Table 4.4 and figure 4 above is the information of beneficiaries based on their academic qualification. The result as given reveals that 95 beneficiaries representing 41.3 percent had FSLC, 100 beneficiaries representing 43.5 percent obtained WAEC/GCE/NAPTEP, 34 beneficiaries representing 14.8 percent had HND/BSC DEGREE and 1 beneficiary representing 0.43 percent had a post graduate degree. From the information presented on the bar chart, WAEC/GCE/NAPTEP was the highest degrees obtained by involved in the activities of road transportation in Cross River State.

**SECTION B**

**Table 4. 5: Showing how road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities**

Response	Frequency	Percent
Valid Strongly agreed	92	40
Agreed	80	34.7
Disagreed	29	12.6
Strongly disagreed	21	9.1
Total	230	100

*Source: Author’s Field survey 2024*



**Figure 5: Bar Graph of Beneficiary Responses based on how road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities**

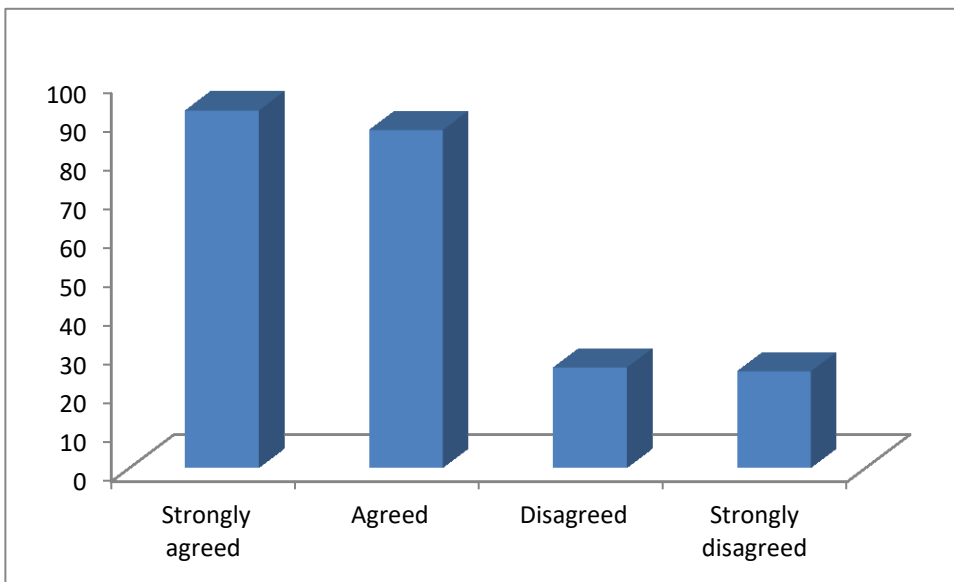
Table 4.5 and figure 5 showed that 92 beneficiaries representing 40 percent strongly agreed that road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities, while 80 beneficiaries representing 34.7 percent agreed that road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities, 29 beneficiaries representing 12.6 percent disagreed that road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities and 21 representing 9.9 percent which

strongly disagreed that road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities.

**Table 4.6: Showing how the prices of agricultural produce are high and unaffordable due to bad roads network in the state.**

Response	Frequency	Percent
Valid Strongly agreed	27	11.7
Agreed	35	15.2
Disagreed	80	34.8
Strongly disagreed	88	38.2
Total	230	100

*Source: Author’s Field Survey 2024*



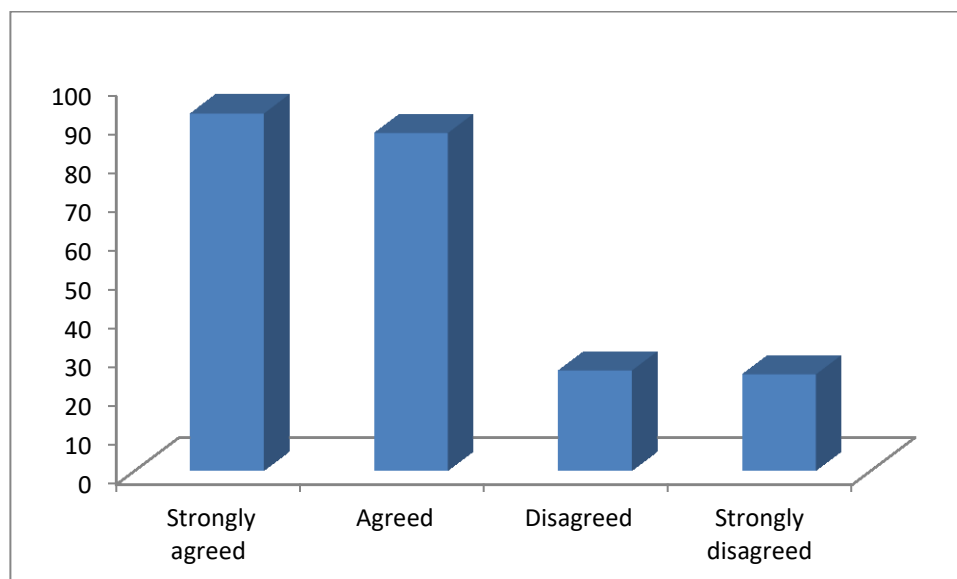
**Figure 6: A bar graph showing beneficiaries response showing on how the prices of agricultural produce are on the high and are unaffordable due to bad roads network in the state.**

Table 4.6 and figure 6 showed that 27 beneficiaries representing 11.7 percent strongly agreed that prices of agricultural produce are on the high and are unaffordable due to bad roads network in the state, 35 beneficiaries representing 15.2 percent agreed that prices of agricultural produce are on the high and are unaffordable due to bad roads network in the state, while 80 beneficiaries representing 34.8 percent disagreed that the prices of agricultural produce are on the high and are unaffordable due to bad roads network in the state and 88 beneficiaries representing 38.2 percent strongly disagreed that the prices of agricultural produce are on the high and are unaffordable due to bad roads network in the state.

**Table 4.7: Showing how the prices of agricultural produce are cheap and affordable due to good road network in the state.**

Response		Frequency	Percent
Valid	Strongly agreed	99	40.0
	Agreed	90	39.1
	Disagreed	30	13.0
	Strongly disagreed	11	4.7
	Total	230	100

**Source: Athor’s Field survey 2024**



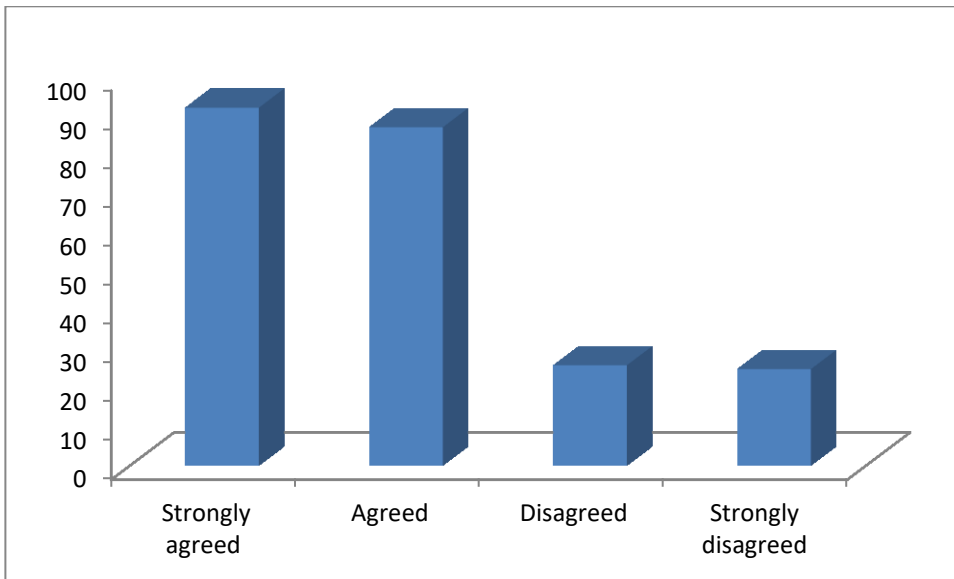
**Figure 7: A bar graph showing beneficiaries responses on how the prices of agricultural produce are cheap and affordable due to good road network in the state.**

Table 4.7 and figure 7 showed that 99 beneficiaries representing 43.0 percent strongly agreed that the prices of agricultural produce are cheap and affordable due to good road network in the state, 90 beneficiaries representing 39.1 percent agreed that the prices of agricultural produce are cheap and affordable due to good road network in the state, 30 beneficiaries representing 13.0 percent disagreed that the prices of agricultural produce are cheap and affordable due to good road network in the state and 11 beneficiaries representing 4.7 percent strongly disagreed that the prices of agricultural produce are cheap and affordable due to good road network in the state.

**Table 4.8: Showing how Farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively in Cross River State**

Response	Frequency	Percent
Valid Strongly agreed	80	34.8
Agreed	75	32.6
Disagreed	35	15.2
Strongly disagreed	40	17.3
Total	230	100

*Source: Author’s Field Survey 2024*



*Source Author’s Field survey 2024*

**Fig 8: Showing how Farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively.**

Table 4.7 and figure 7 showed that 80 beneficiaries representing 34.8 percent strongly agreed that Farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively. 75 beneficiaries representing 32.6 percent agreed that farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively, 35 beneficiaries representing 15.3 percent disagreed that farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively, and 40 beneficiaries representing 17.3 percent

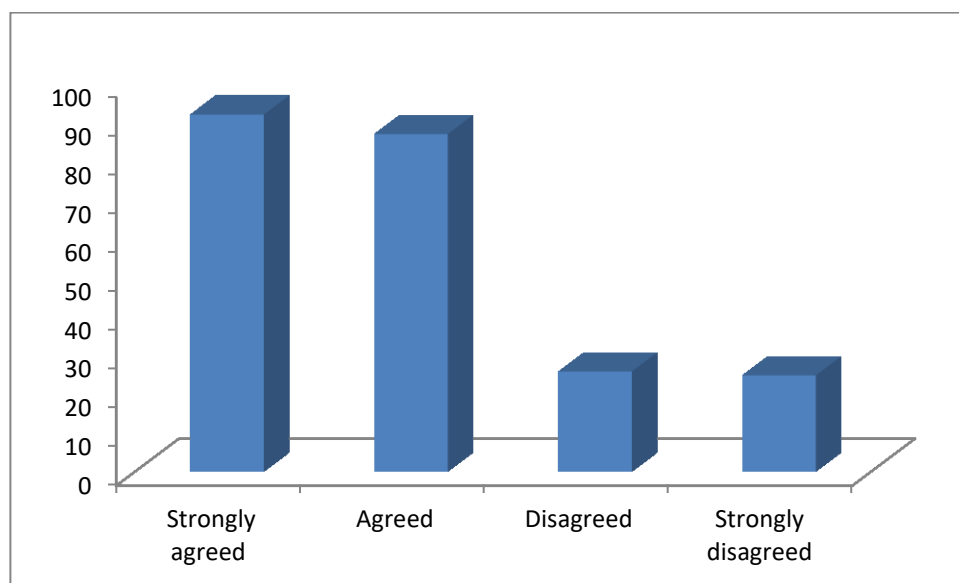


strongly disagreed that Farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively.

**Table 4.9: Showing how people prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product.**

Response		Frequency	Percent
Valid	Strongly agreed	86	86.0
	Agreed	82	82.0
	Disagreed	40	40.0
	Strongly disagreed	22	22.0
	Total	230	230

Source: Author’s field Survey Survey 2024



**Table 4.9: Showing how people prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product. Cross State.**

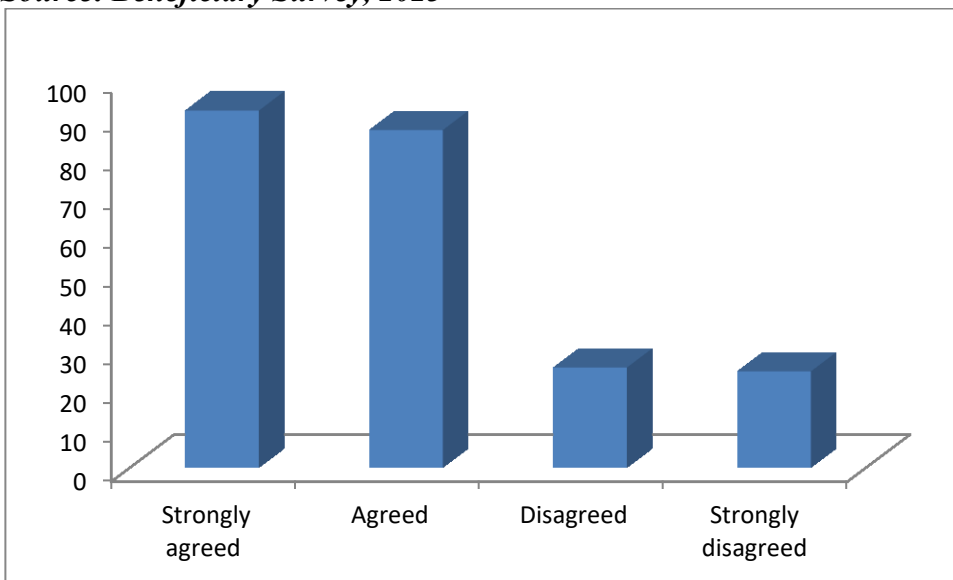
Table 4.9 and figure 9 showed that 86 beneficiaries representing 86 percent strongly agreed that People prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product , 82 beneficiaries representing 82 percent agreed that People prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product, 40 beneficiaries representing 40 percent disagreed that People prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product and 22 beneficiaries representing 22 strongly disagreed that People prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product.

**SECTION B.**

**TABLE 4.9: Showing how road transportation has engaged many unemployed Youths through increasing their driving skills in Cross River State.**

Response		Frequency	Percent
Valid	Strongly agreed	92	40
	Agreed	85	36.9
	Disagreed	23	10
	Strongly disagreed	30	13.0
	Total	230	100

Source: Beneficiary Survey, 2023



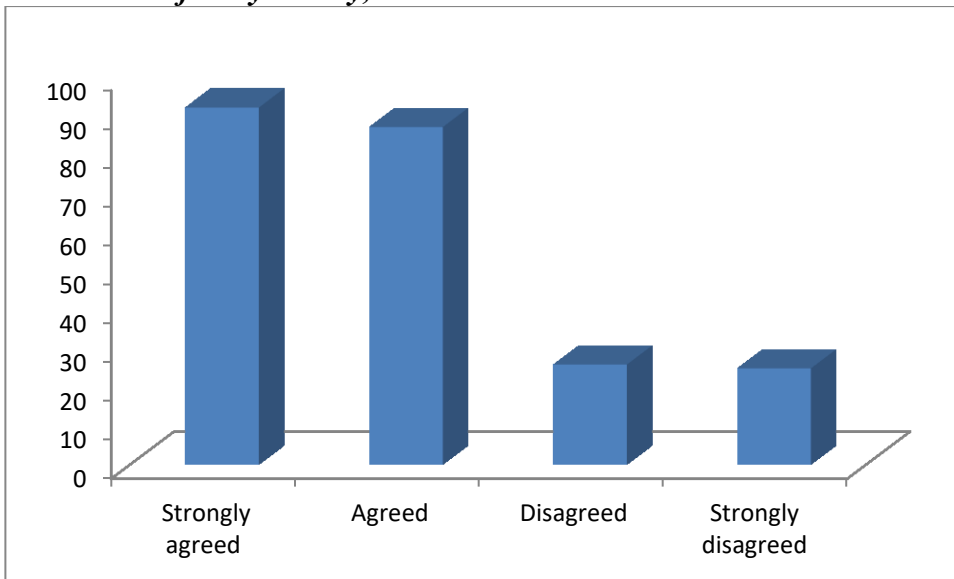
**Figure 9: Bar Graph of Beneficiary Responses on how road transportation has engaged many unemployed Nigerian Youth through increasing their driving skills.**

Table 4.9 and Figure 9 above showed 92 beneficiaries representing 40 percent strongly agreed that road transportation has engaged many unemployed youth through increasing their driving skills, while 85 beneficiaries representing 36.9 percent agreed that Road transportation has engaged many unemployed Nigerian Youth through increasing their driving skills in Cross River State have increased their bargaining power to attract more projects for rural development and 23 beneficiaries representing 10 percent disagreed that road transportation has engaged many unemployed Nigerian Youth through increasing their driving skills and 30 beneficiaries representing 13.0 percent strongly disagreed that road transportation has engaged many unemployed Nigerian Youth through increasing their driving skills in Cross River State.

**Table 4.10 Analysis of beneficiary’s response on how the level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving.**

Response		Frequency	Percent
Valid	Strongly agreed	92	40
	Agreed	87	37.8
	Disagreed	26	11.3
	Strongly disagreed	25	10.8
Total		230	100

**Source: Beneficiary Survey, 2023**



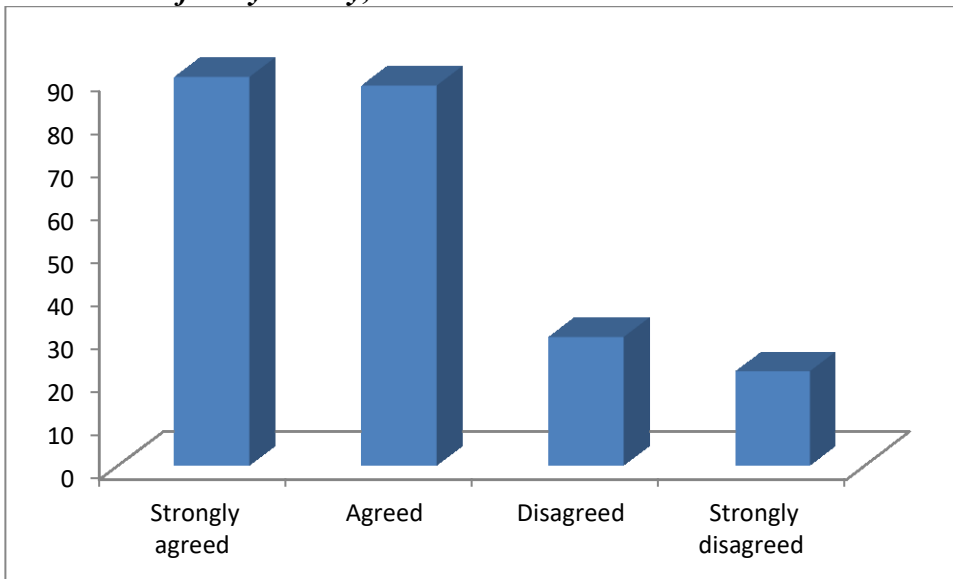
**Fig 10: Bar chart of beneficiary’s response showing how the level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving**

The result in Table 4.10 and figures 10 above shows that 92 beneficiaries representing 40 percent strongly agreed that the level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving, 87 beneficiaries representing 37.8 percent agreed The level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving, while 26 beneficiaries representing 11.3 percent disagreed that the level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving and 25 beneficiaries representing 10.8 percent strongly disagreed that the level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving .

**Table 4.11: Showing how road for vehicular movement has guarantee businesses to open up especially in the rural areas hence reducing unemployment and increasing sales**

Response	Frequency	Percent
Strongly agreed	87	37.8
Agreed	79	34.3
Disagreed	33	14.3
Strongly disagreed	31	13.4
Total	230	100

Source: Beneficiary Survey, 2023



**Fig 11: Bar graph showing how that due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales.**

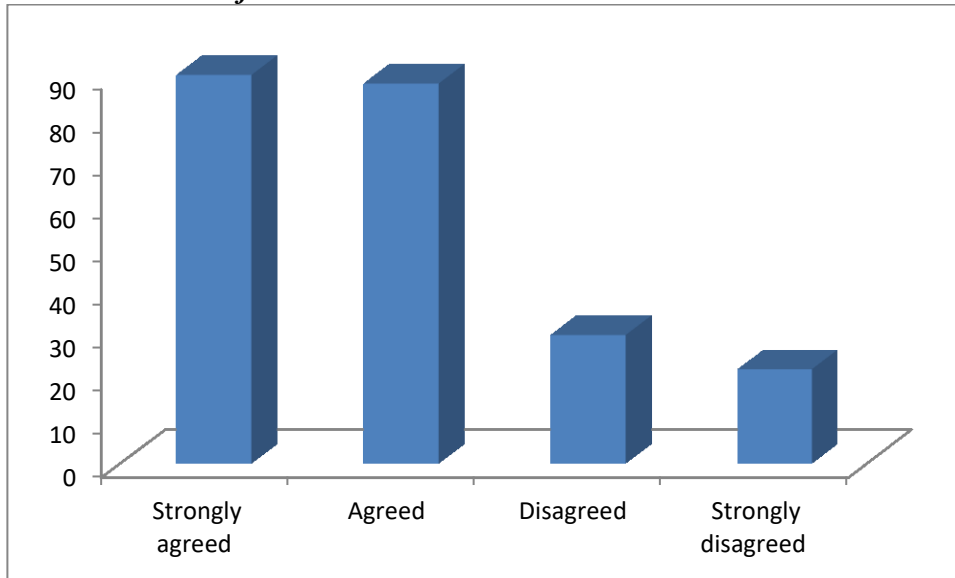
The result in Table 4.9 and fig 9 showed that 87 beneficiaries representing 37.8 percent strongly agreed that due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales, 79 beneficiaries representing 34.3 percent agreed that due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales, while 33 beneficiaries representing 14.3percent disagreed that Due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales and 31 beneficiaries representing 13.4 percent strongly disagreed that Due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales .

**Table 4.12: Showing that Due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State**

Response	Frequency	Percent
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Valid	Strongly agreed	99	43.0
	Agreed	91	39.6
	Disagreed	20	8.7
	Strongly disagreed	20	8.7
	Total	230	100

**Source: Author’s field work 2024**



**Fig 12: Bar graph showing how beneficiaries responses based on the availability of road transportation there is mass poverty reduction amongst youth in Cross River State**

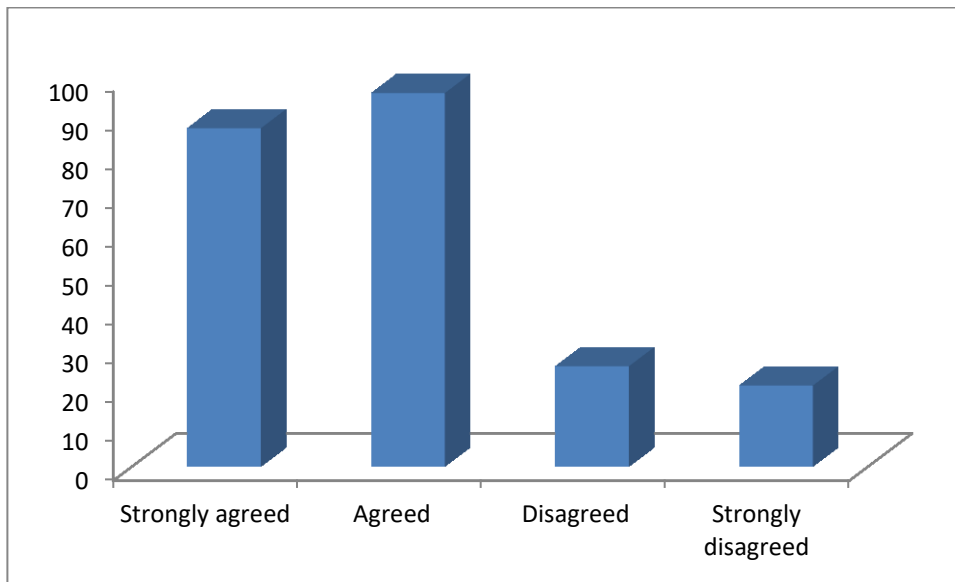
The result in Table 4.12 and fig 12 showed that 99 beneficiaries representing 43.0 percent strongly agreed that Due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State, 91 beneficiaries representing 39.6 percent agreed that Due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State, while 20 beneficiaries representing 8.7 percent disagreed that Due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State and 20 beneficiaries representing 8.7 percent strongly disagreed that Due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State.

**Table 4.13: Showing how the availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness.**

Response	Frequency	Percent
Valid Strongly agreed	87	37.8
Agreed	84	36.5
Disagreed	21	9.1
Strongly disagreed	38	16.5
Total	230	100

**Source Author’s field Survey 2024**





**Fig 4.13: Bar graph showing how the availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness.**

The result in Table 4.13 and fig 13 shows result showed that 87 beneficiaries representing 37.8 percent strongly agreed that the availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness, 84 beneficiaries representing 34.5 percent agreed that the availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness., while 21 beneficiaries representing 9.1 percent disagreed that The availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness, and 38 beneficiaries representing 16.5 percent strongly disagreed that the availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness.

#### **4.2.1 Analysis of Research Question**

**Research Question 1:** What is the impact of road transportation in efficient delivery of agricultural products to and from the rural and urban in Cross River State?

Table 4.19  
Sample Size (n=230)

S/N	Statement	SA	A	D	SD	Mean	Remark
1	Road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities	92 (92%)	80 (80%)	29 (29%)	29 (21%)	6.95	Strongly Agreed
2	The prices of agricultural produce are on the high and unaffordable due to bad roads network in the state.	27 (27%)	35 (35%)	80 (80%)	88 (88%)	4.61	Agreed
3	The prices of agricultural produce are cheap and affordable due to good road network in the state.	99 (64%)	90 (21%)	30 (13%)	11 (2%)	7.37	Strongly Agreed
4	Farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively.	80 (84%)	75 (6%)	35 (6%)	40 (4%)	5.75	Strongly Agreed
5	People prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product.	86 (86%)	82 (82%)	40 (40%)	22 (22%)	6.92	Strongly Agreed

Source: Author’s Field Survey 2024

- Notes:** (1) SA= Strongly Agreed;  
 A= Agreed;  
 D= Disagreed;  
 SD= Strongly Disagreed.  
 (2) Mean Score Decision Rule:  
 SA=3.50-4.00;  
 A=2.50-3.49;  
 D=1.50-2.49; and  
 SD=0.00-1.49.

**Table 4.19** shows respondents’ opinions to research question one: What is the impact of road transportation in efficient delivery of agricultural products to and from the rural and urban in Cross River State?

With the mean scores of 6.95 in statement one, respondent strongly agreed that road transportation has helped in the effective delivery of perishable agricultural product quickly from rural to urban cities. With the mean score of 4.61 in statement 2 respondents strongly agreed that the prices of agricultural produce

are on the high and unaffordable to bad roads network in the state. In statement 3, with the mean scores of 7.37 respondents strongly agreed that the prices of agricultural produce are cheap and affordable due to good road network in the state.

Furthermore, in statement 4, with the mean score of 5.75 respondents strongly agreed that farmers agricultural produce and farmers are attacked respectively especially in pot hole spots due to governments poor commitment in tackling bad roads and highway robbery respectively. Lastly, with the mean scores of 6.92 in statement 5, respondent strongly agreed that People prefer the use of road transportation because of its ability to access nooks and crannies in the delivery of Agricultural product in Cross River State.

### 4.3 Test of Hypotheses

The hypotheses of the study are tested using Chi-square test technique. The method was adopted because it is a non-parametric test suitable for statistical significance of survey (primary) data. The Chi-square calculated value ( $\chi^2_{\text{cal}}$ ) is obtained using the formula:

$$\chi^2_{\text{cal}} = \sum \left( \frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}} \right)$$

Where Observed = Observed frequencies and Expected = Expected frequencies. The responses from the questionnaires will represent Observed, while Expected for a “one-way sample Chi-square table” is determined using the following formula:

$$E_{ij} = \frac{(\text{Row Total} \times \text{Column Total})}{\text{Grand Total}}$$

The critical value (table value) for the Chi-square ( $\chi^2_{\text{table}}$ ) obtained from the Chi-square table is determined at 5% (=0.05) level of significance, with degree of freedom (df) using the following formula:  $\chi^2_{\text{table}} = \chi^2_{0.05, \text{df}} = 12$ .

The decision rule for the acceptance or rejection of hypotheses is given as follows:

- (i) If the calculated Chi-square is greater than the critical value, we reject the null hypothesis.
- (ii) If the critical value is greater than the calculated Chi-square, we fail to reject the null hypothesis.

**Table 4.20**

***Results of the observed and expected frequencies on the relationship between road transportation and efficient delivery of agricultural products to and from the rural and urban in Cross River State?***

S/N	SA	A	D	SD	Total
1	92	80	29	29	230
2	27	35	80	88	230
3	99	90	30	11	230
4	80	75	35	40	230
5	86	82	40	22	230
<b>Total</b>	<b>384</b>	<b>362</b>	<b>214</b>	<b>190</b>	<b>1150</b>

To calculate the expected frequency for each cell is to multiply the row total by the column

Total for the cell and divide product by the grand total

$\frac{230 \times 384}{1150} = 76.8$	$\frac{230 \times 362}{1150} = 72.4$	$\frac{230 \times 214}{1150} = 42.8$	$\frac{230 \times 190}{1150} = 38$
$\frac{230 \times 384}{1150} = 76.8$	$\frac{230 \times 362}{1150} = 72.4$	$\frac{230 \times 214}{1150} = 42.8$	$\frac{230 \times 190}{1150} = 38$
$\frac{230 \times 384}{1150} = 76.8$	$\frac{230 \times 362}{1150} = 72.4$	$\frac{230 \times 214}{1150} = 42.8$	$\frac{230 \times 190}{1150} = 38$
$\frac{230 \times 384}{1150} = 76.8$	$\frac{230 \times 362}{1150} = 72.4$	$\frac{230 \times 214}{1150} = 42.8$	$\frac{230 \times 190}{1150} = 38$

**Table 4.21: Contingency table**

Row Column	Observed Frequency	Expected Frequency	Fo-Fe	(Fo-fe) <sup>2</sup>	$\frac{Fo-Fe)^2}{Fe}$
1,1	92	76.8	15.2	231.4	3.013
1,2	80	72.4	7.6	57.76	0.797
1,3	29	42.8	-13.8	190.44	4.449
1,4	29	38	29	841	22.13
2,1	27	76.8	-49.8	2,480	32.29
2,2	35	72.4	37.4	1398	19.30
2,3	80	42.8	37.2	1383	32.31
2,4	88	38	50	2500	65.79
3,1	99	76.8	22.2	492.8	6.416
3,2	90	72.4	17.6	309.76	4.278
3,3	30	42.8	12.8	163.84	3.828
3,4	11	38	27	729	19.18
4,1	80	76.8	3.2	10.24	0.133
4,2	75	72.4	2.6	6.76	0.093
4,3	35	42.8	7.8	60.84	1.421
4,4	40	38	2	4	0.105
5,1	86	76.8	9.2	84.84	1.104
5,2	82	72.4	9.6	92.16	1.266
5,3	40	42.8	2.8	7.84	0.183
5,4	22	38	16	256	6.737
100					<b>X<sup>2</sup> =224.823</b>

The calculated value is  $X^2 = 224.823$

$$Df = (R-1)(C-1)$$

$$(5-1)(4-1)$$

$$4 \times 3 = 12$$

$$X^2 = 224.823 > 16.92$$

**Research Question One**

Since the calculated Chi-square value of **224. 823** is greater than the Chi-square tabular value of 16.92 at 5% level of significance, we therefore reject the null hypothesis ( $H_0$ ) and accept the alternative hypothesis and conclude that road transportation has an impact on economic growth in Cross River State.

**Analysis of Research Question**

**Table 4.22:** What is the effect of road transportation in the reducing unemployment in Cross River state?

Sample Size (n=230)

S/N	Statement	SA	A	D	SD	Mean	Remark
1	Road transportation has engaged many unemployed Nigerian Youth through increasing their driving skills.	92 (92%)	85 (85%)	23 (23%)	30 (30%)	6.99	Strongly Agreed
2	The level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving	92 (92%)	87 (87%)	26 (26%)	25 (25%)	7.06	Agreed
3	Due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales	87 (87%)	79 (79%)	33 (33%)	31 (31%)	6.82	Disagreed
4	Due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State	99 (99%)	91 (91%)	20 (20%)	20 (20%)	7.29	Strongly Agreed
5	The availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness.	87 (87%)	84 (84%)	21 (21%)	38 (38%)	6.8	Strongly Agreed

**Notes:** (1) SA= Strongly Agreed; A= Agreed; D= Disagreed; SD= Strongly Disagreed.  
 (2) Mean Score Decision Rule: SA=3.50-4.00; A=2.50-3.49; D=1.50-2.49; and SD=SD=0.00-1.49.

**Table 4.22:** What is the effect of road transportation in the reducing unemployment in Cross River state?

With the mean scores of 6.99 in statement one, respondent strongly agreed that Road transportation has engaged many unemployed Nigerian Youth through increasing their driving skills. . With the mean score

of 7.06 in statement 2 respondent agreed that the level of crime rate has reduced amongst youths especially those in the rural areas due to their engagement in driving In statement 3, with the mean scores of 6.82 respondents strongly agreed that due to good access road for vehicular movement, there high guarantee for businesses to open up especially in the rural areas hence reducing unemployment and increasing sales

Furthermore, in statement 4 with the mean score of 7.29 respondents strongly agreed that due to the availability of road transportation there is mass poverty reduction amongst youth in Cross River State. Lastly, with the mean scores of 6.8 in statement 5, respondent strongly agreed that the availability of road transportation has increased the availability of road transportation companies within the state hence; reducing youth restiveness.

**Test of Hypotheses**

The hypotheses of the study are tested using Chi-square test technique. The method was adopted because it is a non-parametric test suitable for statistical significance of survey (primary) data. The Chi-square calculated value ( $\chi^2_{obs}$ ) is obtained using the formula:

$$\chi^2_{obs} = \sum \left( \frac{(\text{Observed} - \text{Expected})^2}{\text{Expected}} \right)$$

Where Observed = Observed frequencies and Expected = Expected frequencies. The responses from the questionnaires will represent Observed, while Expected for a “one-way sample Chi-square table” is determined using the following formula:

$$E_{ij} = \frac{(\text{Row Total} \times \text{Column Total})}{\text{Grand Total}}$$

The critical value (table value) for the Chi-square ( $\chi^2_{table}$ ) obtained from the Chi-square table is determined at 5% (=0.05) level of significance, with degree of freedom (df) using the following formula:  $\chi^2_{table} = \chi^2_{0.05, df=12}$ .

The decision rule for the acceptance or rejection of hypotheses is given as follows:

- (i) If the calculated Chi-square is greater than the critical value, we reject the null hypothesis.
- (ii) If the critical value is greater than the calculated Chi-square, we fail to reject the null hypothesis.

**Table 4.23**

*Results of the observed and expected frequencies on the relationship between transportation and unemployment in cross river state*

S/N	SA	A	D	SD	Total
1	92	85	23	30	230
2	92	87	26	25	230
3	87	79	33	31	230
4	99	91	20	20	230
5	87	84	21	38	230
<b>Total</b>	<b>457</b>	<b>426</b>	<b>123</b>	<b>144</b>	<b>1150</b>

To calculate the expected frequency for each cell is to multiply the row total by the column Total for the cell and divide product by the grand total

$$\begin{array}{cccc}
 \frac{230 \times 457}{1150} = 91.4 & \frac{230 \times 426}{1150} = 85.2 & \frac{230 \times 123}{1150} = 24.6 & \frac{230 \times 144}{1150} = 28.8 \\
 \frac{230 \times 457}{1150} = 91.4 & \frac{230 \times 426}{1150} = 85.2 & \frac{230 \times 123}{1150} = 24.6 & \frac{230 \times 144}{1150} = 28.8 \\
 \frac{230 \times 457}{1150} = 91.4 & \frac{230 \times 426}{1150} = 85.2 & \frac{230 \times 123}{1150} = 24.6 & \frac{230 \times 144}{1150} = 28.8 \\
 \frac{230 \times 457}{1150} = 91.4 & \frac{230 \times 426}{1150} = 85.2 & \frac{230 \times 123}{1150} = 24.6 & \frac{230 \times 144}{1150} = 28.8
 \end{array}$$

**Table 4.24: Contingency table**

Row Column	Observed Frequency	Expected Frequency	Fo-Fe	(Fo-fe) <sup>2</sup>	$\frac{(Fo-Fe)^2}{Fe}$
1,1	92	91.4	0.6	0.36	0.003
1,2	85	85.2	0.2	0.04	0.004
1,3	23	24.6	1.6	2.56	0.104
1,4	30	28.8	1.2	1.44	0.05
2,1	92	91.4	0.6	0.36	0.003
2,2	87	85.2	1.8	3.24	0.038
2,3	26	24.6	1.4	1.96	0.079
2,4	25	28.8	3.8	11.70	40.62
3,1	87	91.4	4.4	19.36	0.211
3,2	79	85.2	6.2	38.44	0.451
3,3	33	24.6	8.4	70.56	2.868
3,4	31	28.8	2.2	4.84	0.168
4,1	99	91.4	7.6	57.76	0.631
4,2	91	85.2	5.8	33.64	0.394
4,3	20	24.6	4.6	21.16	0.860
4,4	20	28.8	8.8	77.44	2.688
5,1	87	91.4	4.4	19.36	0.211
5,2	84	85.2	1.2	1.44	0.016
5,3	21	24.6	3.6	12.96	0.526
5,4	38	28.8	9.2	84.84	2.945
	100				<b>X<sup>2</sup> = 52.87</b>

The calculated value is  $X^2 = 52.87$

$$Df = (R-1)(C-1)$$

$$(5-1)(4-1)$$

$$4 \times 3 = 12$$

$$X^2 = 52.87 > 16.92$$

### Research Question two

What is the effect of road transportation in the reducing unemployment in Cross River state?

Since the calculated Chi-square value of 52.87 is greater than the Chi-square tabular value of 16.92 at 5% level of significance, we therefore reject the null hypothesis ( $H_0$ ) and accept the alternative hypothesis and conclude that there is a positive relationship between factors that attract the attention of various government agencies for rural development in Cross River State

### The Summary

The study was undertaken to examine the impact of road transportation on economic growth in Cross River State. Two objectives and were set to examine the effect of the study. Three null hypotheses were stated. Both empirical and theoretical literatures were also reviewed in the study. Descriptive statistics such as frequencies, percentages were employed in most of the analyses to aid in summarizing them. Data collected were analyzed with relevant statistical tool such as the Chi-square statistic. The outcome of the result as analyzed showed that road transportation has a positive and significant impact on economic growth in Cross River State. The result also obtained showed that there a positive and significant impact between road transportation and unemployment in Cross River State.

### The Conclusion

The study was carried out to investigate the impact of road transportation and economic growth in Cross River State. According to Onakomaiya (2008), roads were designed to serve two major objectives. First, they were meant to extend the commercial hinterlands opened up by the government railways by linking up the nearest urban centers with the major railway stations. The second was to reduce the strains thrown on the inland provinces in the provision of porters for the British Colonial Officers. The adequacy of road transport infrastructure determines a country's success and another; failure in diversifying production, expanding trade, coping with population growth reducing poverty, or improving environmental conditions. A good road transport infrastructure raise productivity especially in the agricultural sector of the economy and lowers production costs, in Nigeria the link between where the major production activities take place and where it is needed for final consumption need good road transportation that will bridge the gap, although the precise linkages between infrastructure and development are still open to debate. To conclude, findings from the results as analyzed showed that road transportation has a positive and significant impact on economic growth in Cross River State. The result also obtained showed that there a positive and significant impact between road transportation and unemployment in Cross River State.

### The Recommendations

1. The positive relationship existing between road transportation and efficient delivery of agricultural products its calls for the government to put in place measures to rehabilitate, reconstruct and repair bad



roads both in urban and rural areas. By so doing, this will help the movement of Agricultural products freely from rural to urban areas thereby making agricultural produce cheaper and affordable for all.

2. The positive relationship which existing between road transportation and unemployment calls for the government to put in place measures aimed at developing and adding more innovations to the road transportation sector. By so doing, this will reduce unemployment and reduce youth restiveness especially in the rural areas.

## REFERNCES

- Amadi C. & Amadi .N(2013). Public Spending on Transport Infrastructure and Economic Growth in Nigeria. *Journal of Sociological research* 89, 917-1030
- Boopen (2006). "Transport infrastructure and economic growth: evidence from Africa using dynamic panel estimates". *The Empirical Economics Letters*, 5(1):37-52.
- Carapetis, S., Beenhakker, H., Howe, J. (1984). *The Supply and Quality of Rural Transport Services in Developing Countries*.
- Frischmann, B. M. (2005). *An economic theory of infrastructure and commons management*. Minnesota Law Review, 89, 917-1030
- Jelilov. G and Kachallah. B. (2017). The Nexus Among Road Transport and The Economic Growth in Nigeria. *The Journal of Middle East and North Africa Sciences*, 3(9), 22-29.
- Kalu, I. E. (2001). *Issues in problems and policies of development*. Development Economics, Mimeograph Series Number 1. Lagos, Techno Consult Ltd.
- Loto M. A (2006). The State of Infrastructural Facilities and its Implications for Private Investment-Led Growth in Nigeria. *The National Economic Empowerment and Development Strategy*, 474-487,
- Marvelous, Siibu and Iginoba (2015) The impact of road transportation on economic growth in Nigeria. *International Journal of Education and Research*. 3(9), 23-56
- Okakunori, O.K. (2006). *Transportation Management*. Enugu: Grovani Publishers.
- Olakunori, K. (1992). *Business and Government Policy*. New York: McGraw Hill Book Company.
- Onakomaiya, S.O. (2008) "Transport Research and Capacity Building in Nigeria: Ebenezer by a Poor Teacher Turned Professor". *Valedictory Lecture at Olabisi Onabanjo University, AgoIwoye*.
- Poverty Reduction in Developing Economics: The Case of Nigeria. *Modern Economy*, 10, 2430-2449
- Pradhan, R. P. (2010). Transport Infrastructure, Energy Consumption and Economic Growth Triangle in India: Cointegration and Causality Analysis. *Journal of Sustainable Development*. 3 (2), 167-173.

- Rudra and Tapan (2013).Effect of transportation infrastructure on economic growth in India: The VECM approach. *Research in Transportation Economics*, 38(1) 139-148
- Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70(1), 65-94.10.
- Standford Research Institute (2003) The Economic Coordination of Transport Development in Nigeria Prepared for Town Planning Committee, National Economic Council Federation of Nigeria, Menlo Park, California.
- Todaro, M. P., & Smith, S. C. (2009). Economic development. Boston: Pearson Addison Wesley.