

## THE RELATIONSHIP BETWEEN FEEDER ROAD NETWORK AND AGRICULTURAL PRODUCTION IN KIRUHURA DISTRICT SOUTH WESTERN UGANDA.

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**Abstract:** This study was set to find out the relationship between Feeder Road Network and Agricultural Production in Kiruhura District Western Uganda.

A case study design was used in this study. A mixed design method was used where qualitative and quantitative data was collected by use of questionnaire and interview. The population composed rural community members technical staff and local leaders involved in feeder road networks and community economic development of rural communities which was represented by a sample size of 60 people.

For quantitative data, SPSS version 20 was utilised to output descriptive statistics presented in form of mean and standard deviation. Person correlation was also run to find out the magnitude of the relationship between feeder road network and agricultural production in Kiruhura district. Qualitative data from the interview was analysed by the use of thematic content analysis and was presented alongside the quantitative findings.

From the present study, the findings revealed that there is a positive and strong relationship between feeder road network and agricultural production in Kiruhura district ( $r=0.742$ ,  $P < 0.01$ ). The study recommends that feeder roads should be given a priority at both District and sub county levels in the budgeting process and the feeder road network committee needs to be consulted at the time of budgeting for proper implementation towards the good of the road network in order to realise better agricultural outcomes for the development of the economy.

**Key words:** Feeder Road Network, Agriculture, community economic development, UNRA.

### I. STUDY BACKGROUND.

World over, road network is the driving force for all operations that take place across and among countries without which some businesses would be on a standstill. Therefore, it is very important for every community to have a road network. According to (Kwarteng et al., 2020), road network globally helps in the smooth running of all sectors' operations. Feeder road network has also facilitated countries to share resources for the economic development in the whole world (Morgan & others, 2019) additionally agricultural output is easily accessed by the less privileged countries through the help of the road network available (Morgan & others, 2019).

In African countries, feeder roads contribute a lot towards facilitating the transportation of the man power to work on the farms in addition to availing the market for the readily produced products. According to (Tunde & Adeniyi, 2012) transportation of all agricultural products would not have been easier without the influence and presence of the feeder roads within a given economy. Roads facilitate movement of both the raw materials and the finished goods across countries (Okoko, 2011). Poverty among the African countries like Uganda has been declining due to the availability of feeder roads which are able to create ready market for the agricultural products, this has eventually contributed much towards the economic development of the country (Sieber & Allen, 2016).

Uganda has been one of the east African countries that have impressed feeder road construction across the communities in all the regions of the country, this has been done in order to uplift the financial status of the natives as they can now easily trade their agricultural products at ease. (Kiriti, 2012) talks about the social economic development being caused by the existence of feeder roads within the community. (Kamwaka Basoona, 2021) highlighted on the fact that feeder roads availability fosters economic development in a given community. This means that the existence of feeder roads is paramount as concerns the development of a given economy.

## II. STATEMENT OF THE PROBLEM.

Operating an effective and efficient road network makes a significant contribution to the delivery of sustainable economic growth. Efficient and reliable connections enhance Uganda's image and reputation as an attractive investment destination. The National Road Network is therefore essential to the growth, wellbeing, and balance of the country's economy. By enabling the efficient movement of people and goods, the National Road Network helps create the conditions for growth through enabling businesses. Kiruhura District in Uganda is one of the Districts that have embarked of the feeder road network in order to create market for its agricultural produce as well as ensuring community economic development however the reports of the district community development officer have continuously showed no great change directed towards economic development (report 2018, 2019 and 2020) additionally no single study has been made in Kiruhura district mainly to dig deep into this matter hence the researcher was bothered to find out the relationship between Feeder Road Network and Agricultural Production in Kiruhura District South Western Uganda.

### Purpose of the Study

The study purposed to find out the relationship between feeder road network and Agricultural production in Kiruhura District, South Western Uganda.

## III. REVIEW OF LITERATURE

### Theoretical framework

The study was underpinned by the theory of modernisation to development. This theory is used to explain how a society is transformed from a traditional, pre-modern ways to modernity which in most cases is termed as development. The theory was developed in 1846 by the Germany socialist Max Weber. The theory was later developed by Harvard sociologist Talcott Parsons (1902–1979). This theory was very relevant to this study since it looked at how the feeder road network influenced the agricultural production market towards economic development. Economic development means a positive transformation towards modernity in the contemporary economy (IRITANI, 2020) seconds the fact that feeder roads clearly lead to the transformation of a given community in the modern way.

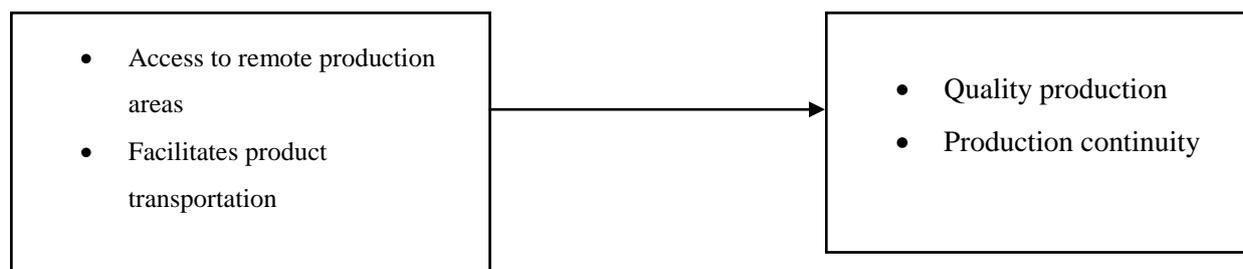
In relation to the study, modernization theory guided the study in a way that modernity of the feeder roads within the community of Kiruhura district contributes positively towards the economic development since it has been inferred that feeder roads allow agriculture produce to easily get to the market as well attracting other profitable ventures near by the road.

### Conceptual Framework

The conceptual framework showing the relationship between Feeder Road network and Agricultural production.

#### Feeder Road Network

#### Agricultural Production



Adapted from (Adeniyi, 2014) and developed by the researcher 2022.

The conceptual framework above portrays how the two variables are related that is the independent variable as feeder road network and Agricultural production as the dependent variable.

### Empirical literature

Feeder road network is very fundamental in the development of a given economy with all the economic activities taking place agriculture inclusive. (KIHARA, 2019) commends that the quality of roads plays a great role towards the smooth running of the available economic activities within a given community. This has also been supported by (Morgan & others, 2019) who says that agricultural products are in position to get the required market through transportation using the available good road network.

Most economies are in position to be more innovative due to the availability of avenues to access the requirements to foster the innovations because with the road network being clear, it gives a chance to the native to explore all the available opportunities for development (Oluwasusi & Adeyemo, 2021). And according to (Aparna et al., 2017), most households have been able to improve their standards of living because of accessibility to the market for the products hence they are able to receive the money at ease towards the economic development of the

community. Additionally (Tunde & Adeniyi, 2012) says the development of agriculture cannot be inevitable without the presence of the feeder roads which are used basically to transport the produce to the places of their demand.

The planning of road construction by the concerned personal can not be taken for granted for it helps the farmers most to access better improved method for practice farming towards the production of quality agro-produce and ensuring the continuity of the production so that there are no cases of production stoppages. According to (Stifel et al., 2016) stresses that feeder roads are more of economic importance than any other thing in a given economy. (Adeniyi, 2014) clearly shows that accessibility of agro in puts by the farmers is largely geared by the road network availability.

Feeder roads in a society not only facilitates agricultural production in a given community but also economic development leading to modernisation of the economy at large for the better of everyone. (Kwarteng et al., 2020) says accessibility of road network reduces on the challenges that the natives would be facing at the time of getting market for their products.(Naazie et al., 2018) commends that bad roads affects the economic development of a given area. The livelihoods of people have been in position to get improved according to (Phaipasith, 2016). Therefore, one can infer that road network grantee economic development since it act as one of the economic development indicators according to (Cook et al., 2017), most scholars continue to support the fact that road network improves agricultural operations within an economy (Naazie et al., 2018), (Okoko, 2011) and (AGUNBIADE, 2015).

#### IV. RESEARCH METHODOLOGY

The study used a case study research design was used. A case study design is defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context (Mugenda, 2003). A research design is a plan and structure of investigating in order to obtain answers to research questions and hypotheses stated (Kothari, 2009). A case study research design was used. A case study design is defined as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context (Mugenda, 2003).

The design was chosen because it enabled the researcher to obtain information needed for the study; also, it helps the researcher to focus on a single unit of study. It also helped the researcher in getting a deeper knowledge of a wide problem with Limited resources. Case study design was to establish factors associated with certain occurrences, outcomes, conditions or types of behaviour. This method enabled the researcher to have in-depth understanding of the real issues from the perspective of a cross-section of stakeholders.

The method was also very appropriate because of limited time and resources, as it is impossible to investigate all the respondents.Both quantitative and qualitative approaches were used. Quantitative data was collected using questionnaires and qualitative data was gathered using interviews and observations. Quantitative data was managed using statistical package for social scientists (SPSS version 20) where as qualitative data was managed and analysed using thematic content analysis and was presented a long side the quantitative data. Validity and reliability of the study was considered very for both quantitative and qualitative instruments of data collection and the summary is here tubulated below;

**Table 1: Validity and Reliability Statistics**

Variable	CVI	Cronbach's Alpha	N of Items
The effect of feeder road networks on agriculture production	0.8	0.797	4

**Source: Primary Data 2022.**

The results from table 1 above satisfies the research methodology rule to ensure a Cronbach Alpha Coefficient of at least 0.7 and Content Validity Index of 0.8. This therefore meant that the data that was used for the study was reliable.

To ensure the validity and reliability of qualitative data collected by interview guide, the test-retest technique was applied where the instruments was applied on ten respondents and then re-applied on the same ten respondents in a space of seven days to see if they were able to give similar responses and thus test the reliability of the instruments.

#### **Ethical Considerations**

The researcher sought consent of potential respondents and explained to them the purpose and nature of the study, to ensure that participation is voluntary.

The researcher also avoided asking embarrassing questions that could cause psychological harm to respondents and concealing research findings after completion of the research. The researcher did not practice vulgarism and was sensitive not only on how information is protected from unauthorized observation, but also notified respondents of any unforeseen findings from the study that they may or not want to know.

## V. RESEARCH FINDINGS

Quantitative findings are tabulated here below expressed in form of mean and standard deviation;  
**Table 2: Showing the Effect of Feeder Road Networks on Agriculture Production**

Opinion issues of feeder road networks on agriculture production	SA N (%)	A N (%)	N N (%)	D N (%)	SD N (%)	Mean	Std Deviation
Feeder road networks have improved NAADS and Operation Wealth Creation (OWC) program implementation	17(42.5)	11(27.5)	0(0.00)	10(25)	2(5)	3.45	1.25
Feeder road network have improved agricultural production	18(45)	8(20)	8(20)	4(10)	2(5)	3.8	1.34
Feeder road network have led to increased investment opportunities and security services	17(42.5)	13(32.5)	4(10)	4(10)	2(5)	3.98	1.19
Feeder road network have led to increased agricultural collection centers and improved transport means	17(42.5)	9(22.5)	6(15)	6(15)	2(5)	3.63	1.15

**Source: Primary Data 2022**

The results in table 4.9, majority (42.5%) of the respondents strongly agreed that feeder roads have improved NAADS and operation wealth creation program implementation followed by (27.5%) respondents who also agreed to the statement put before them concerning the subject matter (mean=3.45, standard deviation= 1.25). this clearly indicates that with the existence of feeder roads in Kiruhura district, the government programs like NAADS and OWC have been run with ease.

The chairman LC5 in an interview supported these quantitative findings by saying;

*“Without feeder roads, it would not be easy for us as leaders to extend these government programs to the natives of Kiruhura district. Therefore, we strongly credit the existence of feeder roads towards the success of most government programs”*

From the study findings above, it is clearly indicated that majority of the respondents to the tune of 45% strongly agreed that the road network in Kiruhura district has improved agricultural production in the area followed by 20% respondents in agreement with this statement (mean = 3.8, standard deviation = 1.34). this clearly confirm that agricultural production is largely dependent on the existence of road network in Kiruhura district.

*“In an interview, the community member of Kitura subcounty Kiruhura district agreed feeder roads greatly affect agriculture and production in a way that whatever that is produced is transported to the potential customers/users through these feeder roads. Therefore, they contribute a lot to the agriculture sector specifically in our area here”.*

The study findings further reveal that 42.5% of the respondents strongly agreed that feeder road network has led to increased investment opportunities and security services in the community. More of the respondents to the tune of 32.5% were also in agreement with the statement and only 5% of the respondents disagreed with the statement. This however, shows that the majority were in agreement with (mean =3.98, standard deviation = 1.19). this indicates that its true investment opportunities in a given community can be realized only when the road network is available to allow opportunists to discover more investment opportunities.

From the statistical findings above, majority of the respondents (42.5%) strongly agreed that Feeder Road network has led to increased agricultural collection centres and improved transport means (mean = 3.63, standard deviation = 1.15). this is very clear for the fact that all agricultural produce can easily be collected to one Centre by use of the available road network.

Findings from observation method showing how feeder road network is related to agricultural production are here below indicated in plates.

Plate 1: Showing Matooke Selling Market



Source: Primary Data 2022

Plate 1 above shows matooke vendors in a market selling matooke. This has been enhanced by feeder road networks in place hence community economic development. Most matooke sellers are able to transport their matooke to the market as a result of feeder road networks in the area.

**Plate 2:** Showing Cattle Market

**Source: Primary Data 2022**

Plate 2 shows the existence of cattle market that has flourished in Kiruhura District as a result of better feeder road networks in the area hence enabling community economic development. Cattle markets are flourishing in the area due to feeder road networks in place.

**Table 3: Correlation results on the relationship between Feeder Road network and Agricultural production in Kiruhura District.**

		Feeder Road Network	Agricultural production
Feeder Road Network	Pearson Correlation	1	.742
	Sig. (2-tailed)		0.01
	N	28	28
Agricultural Production	Pearson Correlation	.742	1
	Sig. (2-tailed)	0.01	
	N	28	28

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Source: Primary Data 2022.**

Results from table 3 above indicates a strong positive relationship between Feeder Road network and agricultural production in Kiruhura district ( $r=.742$ ,  $P<0.01$ ). this is very evident to show that feeder road network influences agricultural production highly in a positive manner to the tune of 74.2%. therefore, the Road network committee in Kiruhura district needs to prioritise the road network sustainability in order to boost agriculture for purposes of economic development of the community.

These findings conquer with the qualitative data from the chairman Road network committee Kiruhura district who had this to say;

*“It is very true that without the road network in our community here, then our farmers would not have ready market for their product and this would compromise the production but because the road network is good, our firms know very well that their products have market from both within and outside this community and this has encouraged massive and quality production of agro- products”.*

## VI. DISCUSSION OF FINDINGS

Findings obtained from the study about the Relationship between Feeder Road Network and Agricultural production in Kiruhura district revealed that there is a strong positive relationship between feeder road network and agricultural production. The findings prove that agricultural production in Kiruhura district greatly depend on the availability of feeder roads. This is because the agriculture inputs are easily accessed by the farms and additionally the farmers are capable of producing for a ready market. These findings are in agreement with (Tunde & Adeniyi, 2012) who carried out a study on the impact of road transport on agriculture development in Nigeria and concluded that road network plays a significant role as concerns agriculture and economic development. (Oluwasusi & Adeyemo, 2021) conducted a study on the effect of road infrastructure plantain production among farmers in Ekiti and found out that farmers are able to produce greater quantities with availability of good road infrastructure. This was in support of the present study findings. Additionally, the findings of this study conquer with (Morgan & others, 2019) in their study about the effect of road transport accessibility on agricultural produce, marketing and livelihood of farmers in the Kasena – Nankana west district of Ghana and concluded that the accessibility of road network facilitates the productivity and marketability of agricultural produce and hence improving the standards of living for the farmers as well as ensuring economic development.

## VII. CONCLUSION

The study concluded that there is a strong positive relationship existing between feeder road network and agricultural production in Kiruhura district. Meaning that when road network in the community is given a special consideration, the production is confirmed to be of quality and massive for the economic development of the community.

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