

GEOGRAPHIC ANALYSIS OF RURAL HOUSEHOLD EXPENDITURE ON TRANSPORT IN THE KANO REGION NIGERIA

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ABSTRACT

The study focused on the analysis of household income and expenditure on transport of rural households of the Kano Region, Nigeria. A total of four hundred and thirteen households were selected from twenty eight (28) study villages within the study area using a multi stage sampling techniques. Data were analysed using simple descriptive techniques involving tables and percentages. Analysis of the data shows that income from agriculture accounted for the larger proportion of income for most of the rural households in the region. Also the analysis reveals that spending on food accounted for the highest (6 in 10) household expenditure followed by expenditure on transport (2 in 10) followed by others such as education, health, ceremonies etc. The study recommended among others the need to empower the rural households in other areas of income earning activities in order for them to overcome the daily mobility challenges affecting them.

Key words: Geographic, Transport, Expenditure, Rural, Household

1.1 Background to the Study

Transport is an epitome of the complex relationships that exist between the physical environment, pattern of social and political activity and the level of economic development (Hoyle and Smith, 1998, Morrill, 1974). Transport has a special significance because of pervasive role of mobility in facilitating other objectives. Transport is a necessary ingredient of nearly every aspect of economic and social development. It plays a key role in production, in marketing agricultural commodities and in making forest and mineral wealth accessible. It is a significant factor in the development of industries, in the expansion of trade, in the

conduct of health and education programmes and in the exchange of ideas.

Mobility is the ability of the people to move themselves and their goods from one place to another (Barwell, 1995, Riverson and Carperatis, 1991). The movement is achieved in several ways ranging from the use of foot to the use of motor vehicle and a travel route is usually required to personal mobility (Nutley, 1998, Filani, 1988). Movements have definite points of origin, destination and purpose, and observe that more than half of the movements are work related such as commuting to work from home, making business, shopping and other social trips

(Mitchell, 1976). Hoyle (1988) opines that development of any kind is virtually impossible without movement and where to move to. Also Schroeder and Connerly (1996) view mobility as the ability to move between activity sites. This can be considered in two parts: the first relates to the amount of travel that is actually made in terms of number of trips by all the modes for all purposes; the second relates to the ease of movement.

Rural mobility involves many types of movement for a wide range of purpose both within and outside the village, a range of transport means, their associated infrastructure and also alternative non-transport solutions which include the location of important facilities and services (RTTP, 2001). Significant proportions of Nigeria's population live and work in the rural areas. With vast fertile land suitable for production of a variety of agricultural products, the rural areas provide food for the bustling urban population as well as raw materials for domestic industries and external markets. The rural areas also serve as major consumers of urban manufactured goods and suppliers of cheap labour for the urban centres. Transportation as an instrument for moving goods and services within an economy has integrative and developmental effects (Gana, 1990). As a basic infrastructure, Gana (1990) further noted that transport is often accorded highest priority not only because it facilitates the evacuation of agricultural produce and raw materials but also because of its capacity to integrate local economies into national and international economies.

There seems to be a consensus in the literature that improvement in transportation led to a number of benefits on agricultural production, income and access to services (Hine and Ellis 2002; Abaulkareem, 2002; John, 2001 Akanni and Solanke, 2000; Nutley, 1998; Barwell, 1995, Riverson and Carperatis, 1991 and Hine, 1982) For example

studies by Barwell (1995) in village areas of Uganda, Burkina Faso and Zambia had shown a positive relationship between the overall access level of community and household income.

In Nigeria, despite the crucial role of rural areas in the sustenance of the economy and the integrative role of transport towards the achievement of the goal of rural development, rural mobility is taking place with great difficulty. Perhaps the greatest ill of the Nigerian transport system is its relative neglect of the rural areas. Indeed, nowhere is the problem of transport more acute than in the rural areas of the country, where the most severe deprivation is found. (Muhammad and Umar, 2005, Nutley, 1998, Sumaila, 1989). Poor access to transport is a major constraint to economic and social developments. Poverty assessments in Sub-Saharan Africa (SSA) stress the close link between isolation and rural poverty (Calvo, 1998 and Chambers 1995). Also the World Bank (1996) noted that poverty in Africa is primarily a rural phenomenon with about 60% of the people in rural areas depending on rugged roads, tracks and paths to carry out their chores and productive activities. In Africa access to rural transport services is poor, and this inhibits rural people's visit to the world outside their immediate locality (Calvo, 1998 and Barwell, 1995). The rural poor suffer from high transport costs and poor service availability with the consequent impact on all features of economic and social well being (Hine and Ellis, 1999).

In Nigeria previous studies (Sumaila, 1998, 1992; KNARDA, 1994; Idachaba, 1985) on rural transportation at both local and regional levels mostly focused on the assessment of rural access/ feeder roads as the most effective ways of addressing the rural transport problem. Limited attention was devoted to the whole complex of rural access, mobility and household transport (Barwell, 1995). For example, a number of researches

(Hine, 2002 & 1982; Helden, et.al 2000; Calvo, 1998 & 1996, 1994; Hine and Ellis, 1998; Barwell, 1995, Riverson and Carperatis, 1991, Hine et al, 1991)) on rural transportation at the global level (and at national level (Davidson, 2006; Tijjani and Ismail, 2006; Muhammad and Umar, 2005; Filani, 2000 & 1988; Nutley, 1998, Sumaila, 1996, 1992, 1989; Gana, 1990, Ogunsanya, 1987; Mbagwu, 1987; Ogundana, 1972)), placed a lot of emphasis on rural roads as the solution to the rural transportation problem. Also where these studies focus on other aspects of rural mobility most of the researchers tend to ignore the how much the rural poor or households spend on transport in relations to other expenditures of the household and the implication of such on their daily mobility.

Most studies that focused on rural mobility, access and household travel, covered the whole of Sub Saharan Africa. In view of the diverse characteristics of rural areas even within the same region, these studies are too inadequate to permit generalizations to be made over the whole sub region. Therefore, there is a need to find out details of country and locale specific information on the pattern of rural household transport expenditure in the Kano Region. This study was designed therefore, to produce data which would lead to a better understanding of the rural household income and expenditure pattern within the Kano region. The study answered the critical question of how much rural people spend monthly on transport in relation to other household expenditure.

2.0 Study Area and Research Methods

2.1 The Study Area

The Kano Region, which is focus in this research, is the combined Kano and Jigawa

States of Nigeria. Located at the eastern margin of the Northwest Geo-Political Zone of Nigeria, it consisted of 71 Local Government Areas, 44 in Kano State and 27 in Jigawa State. The region is bounded in the west by Katsina State, in the southwest by Kaduna State in the east by Bauchi State, in the southeast by the Plateau State and in the north by Niger Republic. The region is located approximately between longitudes 7° 45' E and 10° 35' E, and between latitudes 10° 30' N and 13° 02' N and as such is a part of the Sudano-Sahelian zone of Nigeria (Olofin, 2008) (Fig. 1.0).

The Kano Region is characterized by rocks of the Basement Complex of pre-Cambrian age to the west and south, and the Chad Formation to the northeast. The two geologic structures are separated by a Hydro-Geological Divide. (Olofin, 2008). Olofin (2008) identified six different landforms in the region as follows: dissected hilly highlands, high plains with grouped hills, pediplains, sandy plains, dune fields and alluvial channel complexes. The Dissected Hilly Highlands consist of the Rishi Hills and constitute the most rugged topography in the Region. The Rishi Hills are part of the foothills of Jos Plateau which lies south of the Region. The rugged nature of the terrain poses a serious problem to the development of transport infrastructure. For instance, the location of Riruwai town within the ring complex makes it difficult for commuters to link it with the neighbouring villages by road. Indeed the only road linking the town is a narrow and winding one. The nature of the terrain also makes it difficult for the operation of means of transportation particularly the Intermediate Means of Transportation (IMT) such as bicycles, motor cycles and donkeys.

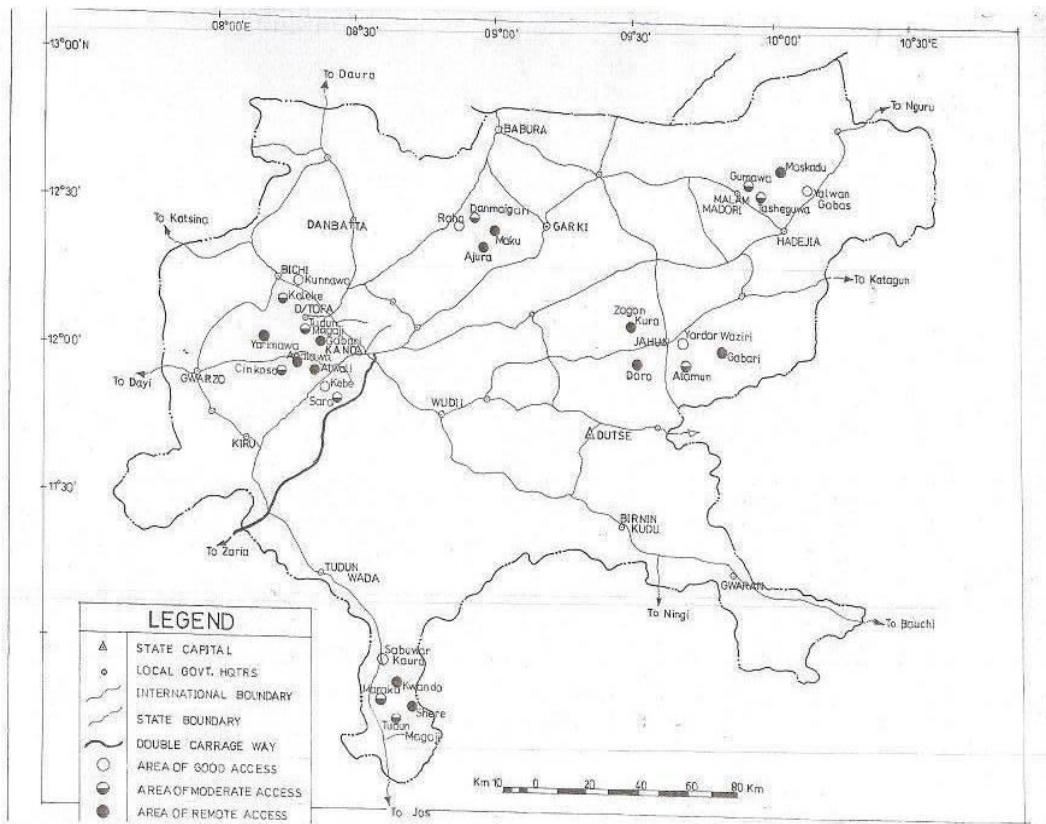


Fig 1.0 Kano Region the Study Area

The climate of the Kano Region is the tropical dry-and-wet type, classified by Koppen as Aw. The seasonal migration of the Inter-Tropical Convergence Zone (ITCZ), gives rise to two seasons, one dry and the other wet. During the wet and warm season (*damina*) transportation in many of the rural areas of the region is done with a great difficulty because of the poor condition of transportation infrastructure such as roads, bridges, culverts etc. Due to the poor condition of transport infrastructures some rural areas are inaccessible with 4 wheel motorized means of transport while access to places such as markets, hospitals, or urban centres becomes very difficult and tedious.

Transportation contributes to the basic structural framework around which activities are spatially arranged in the Kano Region. The following means of transportation are known

to exist within the region; these are road, rail, water and air transportation. The dominant means of transportation in the region is road transportation which ranges from foot/head portage to highway mode of transportation. Kano became accessible by road in 1906 (Falola 2000 cited in Fatima, 2008). It is the mode of transportation that has been in existence before the opening of railway in 1911. Kano Region is linked directly by roads to several states capitals, Abuja and neighbouring countries in Africa. Some of the trunk A roads are Maiduguri road, Katsina road, Zaria road, Hadejia road, Gwarzo road and Madobi road. The trunk A roads in Jigawa state comprise of the roads from, Hadejia to Ringim, Kafin Hausa, Hadejia to Nguru, Gumel to Gabasawa and Dundibis to Gaya, Kazaure to Daura, Dutse to Jamaare, Kwanar Huguma to Kare, Jahun to Ajingi, Babura to Kwanar

Dumawa (Fig. 2). Beside these, the region has secondary roads controlled by state governments and minor roads built and maintained by the local governments, so also are the foot paths normally within the rural areas of the region.

Within the region road passenger/freight transportation is the dominant mode with cars, trucks, buses, taxis, tricycles, and motor cycles. These are used for commuter's movement, usually in return for payment of fixed fare. There is also the Intermediate Means of Transportation (IMT) comprising of donkeys, animal drawn carts, bicycles, wheel barrow which are found along motorable and non motorable ways in the rural areas, for conveyance of people, farm products. However, the provision of transport infrastructure (Road) is to the detriment of the rural areas as they suffered from a long period of neglect and therefore majority of the rural

areas are hardly accessible with a four wheel transport.

Rail road reached Kano in 1911. It is the cheapest means of long distance freight movement. The rail line links many towns as it passes through Kano, Jogana, Dabi, Ringim, Taura, Majiya, Gagarawa, Kaugama, Malam Madori, Baramusa, Garun Gabas, Birniwa, Kirikasamma, Malam Madori and terminated at Nguru, Yobe state (Fig.1) Water transportation is also an important mode of transportation in the region. It is the cheapest of all other modes of transportation but very slow compared to other modes. Most of the rivers through which small boats and canoes carrying loads and people navigate are seasonal, thus are of limited navigation. However, some rivers are navigable all year round such as River Hadejia at Wudil. Ferry services though carried out on a low scale on rivers and dams is not without associated consequences.

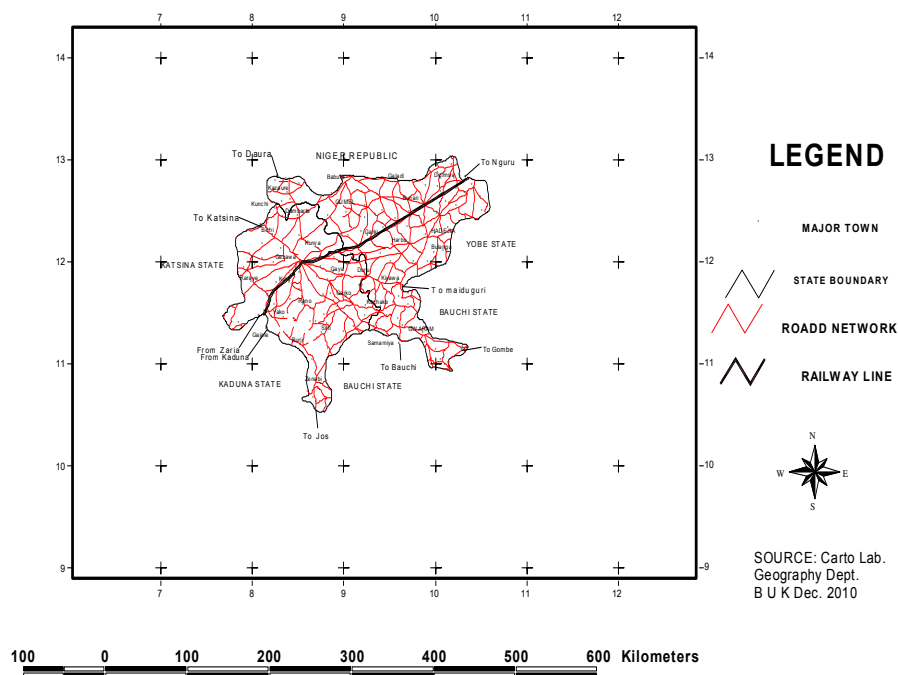


Fig: 2.Map of Kano Region Showing Transport Network

2.2 Research Methods

Based on the stated objectives of the study the following data were collected: Household demographic and socio economic data ; these include household size, age and sex composition, educational level, average earning and expenditure, Household ownership and access to means of transport, both motorized and non motorized means of transport. A structured interview schedule was carried out with the household's heads in the 28 study villages in order to collect the data listed. Documentary data relating to the map of Kano region were obtained from the Kano Agricultural and Rural Development Authority (KNARDA).

The data collection was carried out in the following stages: Pre reconnaissance activities, Reconnaissance activities, Pilot Study, Field Study and analysis of Data. The study villages were selected based on the followings:

- Rural areas have diverse characteristics, thus the need to select areas to reflect the wide range of diversities;
- Since accessibility influences the level of mobility the selection of the survey villages was done at three spatial scales: areas of good, moderate and poor (remote) access. The most important factor in the accessibility analysis is the selection of a measurement yard stick that may be used in the demarcation of accessible and inaccessible areas. Jefferson cited by Singh (2005) has arbitrarily taken 16km as the critical distance of an easy access to lines of communication. The Nagfur report in India as cited by Singh (2005) recommended that: areas lying within 4km from transport point as 'fairly accessible', beyond

8km as 'inaccessible' and beyond 16km as 'very inaccessible'. For this study an area was considered as having a good access if it is located along a Trunk A road or a major road network; an area of moderate access is one connected with an all weather road not up to 10 km from Trunk A or major road; a remote place is an area having poor access, located more than 10km from the main road and lack all weather access.

- For the purpose of this work rural settlement is considered to be an area with a population of less than 20,000 people and is not an administrative headquarter of a local government area.

Having set the basis for the selection of the survey villages, the next stage is to use the map of Kano region to select the study villages. This involved the imposition of squared grids on the map at an interval of 1 in 50 km. This yields a total of fifty two (52) complete grids from both Kano and Jigawa states. A total of 25 and 27 complete grids were recorded for Kano and Jigawa states respectively. Then, a total of 12.5 % of the squared grid from each state were selected. This yields a total of six grids for the whole study area with each state having three selected (Table 1). Then, villages were categorized on the basis of their accessibility characteristics outlined above. Then, within each category 12.5 % of the villages were selected for the main study yielding a total of 28 villages for both Kano and Jigawa States. Table 2 shows the location and access characteristics of the sampled villages and their local government areas.

Table 1: Areas Selected from the Map of Kano and Jigawa States

State	Grid no	LGAs
Kano	19	Dawakin Tofa and Tofa
Kano	27	Madobi
Kano	50	Doguwa
Jigawa	8	Mallam-Madori and Kirikasamma
Jigawa	12	Garki and Babura
Jigawa	23	Jahun

Source: Field work, 2007

A reconnaissance survey was conducted with the aim to identify and verify the actual ground location and accessibility characteristics of proposed survey villages for the main field work. Also the distance and location of the villages were obtained with the aid of the GPS and vehicle speedometer (Table 3). All the twenty eight (28) selected villages were visited for the purpose.

Table 2: Location and Access Characteristics of Survey Villages by State and Local Government Areas.

S/NO	Name of village	Access characteristics	Latitude	Longitude	State	LGA
1	Gabari	Remote	8°23.564'	12°02.824'	Kano	Dawakin tofa
2	Gabari	Remote	9°31.011'	12°02.293'	Jigawa	Jahun
3	Muku	Remote	8°54.441'	12°27.078'	Jigawa	Garki
4	Shere	Remote	8°44.464'	10°40.382'	Kano	Doguwa
5	Kwando	Remote	8°41.102'	10°42.458'	Kano	Doguwa
6	Zangon Kura	Remote	9°28.981'	12°06.060'	Jigawa	Jahun
7	Doro	Remote	9°26.880'	12°07.880'	Jigawa	Jahun
8	Ajura	Remote	8°56.462'	12°29.153'	Jigawa	Garki
9	Maskadu	Remote	8°05.660'	12°38.339'	Jigawa	Malam Madori
10	Yarimawa	Remote	8°21.815'	12°01.891'	Kano	Tofa
11	Alwali	Remote	8°19.885'	11°50.915'	Kano	Madobi
12	Cinkoso	Moderate	8°16.695'	11°48.494'	Kano	Madobi
13	Agalawa	Moderata	8°21.983'	11°52.933'	Kano	Madobi
14	Sara	Moderate	8°23.755'	11°52.232'	Kano	Madobi
15	Danmaigari	Moderate	8°54.734'	12°30.711'	Jigawa	Garki
16	Maraku	Moderate	8°41.212'	10°38.908'	Kano	Doguwa
17	Jikan Bawa	Moderate	8°40.739'	10°38.907'	Kano	Doguwa
18	Atuman	Moderate	9°29.819'	12°04.886'	Jigawa	Jahun
19	Gumawa	Moderate	10°09.501'	12°33.703'	Jigawa	Kirikasamma
20	Tasheguwa	Moderate	10°08.538'	12°32.885'	Jigawa	Kirikasamma
21	Kaleku	Moderate	8°19.574'	12°08.445'	Kano	Dawakin tofa
22	Tudun Magaji	Moderate	8°23.184'	12°03.154'	Kano	Dawakin tofa
23	Yalwan Gabas	Good	10°07.585'	12°33.810'	Jigawa	Malam madori
24	Yardar Waziri	Good	9°27.618'	12°03.393'	Jigawa	Jahun
25	Sabuwar Kaura	Good	8°34.475'	10°48.879'	Kano	Doguwa
26	Raha	Good	8°51.309'	12°27.049'	Jigawa	Babura
27	Kebe	Good	8°23.824'	11°53.292'	Kano	Madobi
28	Kunnawa	Good	8°19.985'	12°10.528'	Kano	Dawakin tofa

Source: Field Work, 2007.

Table 3: Total Number of Households in Survey Villages and the Proportion Interviewed

S/NO	Name of Village	Access Characteristics	Total Number of	12.50%
			households N= 3280	N = 413
1	Kebe	Good	64	8
2	Raha	Good	48	6
3	Sabuwari Kaura	Good	160	20
4	Yardar Waziri	Good	48	6
5	Yalwan Gabas	Good	200	25
6	Kunnawa	Good	152	19
	Sub Total			84
7	Tudun Magaji	Moderate	72	9
8	Sara	Moderate	120	15
9	Cinkoso	Moderate	126	17
10	Agalawa	Moderate	128	16
11	Danmaigari	Moderate	64	8
12	Maraku	Moderate	200	25
13	Jikan Bawa	Moderate	112	14
14	Atuman	Moderate	168	21
15	Gumawa	Moderate	56	7
16	Tasheguwa	Moderate	160	20
17	Kaleku	Moderate	96	12
	Sub Total			164
18	Doro	Poor	144	18
19	Gabari	Poor	96	12
20	Yarimawa	Poor	96	12
21	Muku	Poor	160	20
22	Alwali	Poor	120	15
23	Shere	Poor	168	21
24	Kwando	Poor	126	17
25	Gabari	Poor	100	13
26	Zangon Kura	Poor	80	10
27	Maskadu	Poor	96	12
28	Ajura	Poor	120	15
	Sub Total			165
	Grand Total			413

Source: Field Work, (2007)

The main field work covered a total of 28 villages in both Kano and Jigawa state. Survey covered 413 households representing 12.5% of the total households (3280) in the 28 study villages (Table

3). The breakdown of the households interviewed show that 84 are from areas of good access, 164 from areas of moderate access and 165 from remote locations. The data collected were analyzed using descriptive statistics such as percentages, frequencies and charts.

3.0 Results and Discussion

3.1 Household Monthly Income

Table 4 illustrates that an average monthly income of ₦32,331.00 is found for the whole region. Income from agriculture is the highest as it accounts for over half of the entire household income sources. This is followed by trading over accounting for over 2 in 10 of income sources, and service sector work

accounting for 15.73% of household source of income. Income from casual work, rent and remittances accounted for slightly higher than 1% which is very insignificant. This pattern is rather not surprising as the region has a dense rural population engaged mainly in agricultural production.

Table 4 : Average Household Income by Source

Income Source	Average ₦	% of Total
Agriculture	16,816.00	52.01
Trading	8,387.00	25.94
Service Sector Work	5,086.00	15.73
Public	1,248.00	3.86
Casual	314.00	0.97
Rent	27.00	0.08
Remittances	133.00	0.41
Pension	320.00	1.00
Total	32,331.00	100.00

Source: Fieldwork, 2007.

The income source was also studied on the basis of the access characteristics of the study locations. The analysis (Table 5) shows that the average monthly household income varies from ₦39,750.00 in remote areas, to ₦26,340.00 in areas of moderate access. This finding shows that areas of poor access recorded a much higher income than those of good and moderate access (Table 5). The higher income recorded in the remote locations is due to the fact that some of the survey villages like Kwando and Shere fall within the agricultural food basket of the Kano region, where income from agriculture is known to be very high. These areas are located in the southern most tips of the Region where there is a fertile volcanic soils and relatively higher rainfall. Agricultural

production is the major source of household income as it accounts for more than 5 in 10 of the household income in the remote and areas of good access and over 4 in 10 in areas of moderate access. This is followed by income from self employed trading accounting for an average of 19.2%, 34.44% and 28.2% in the remote, moderate and good access areas respectively.

Table 5 shows that the households in the moderate and well accessible areas have higher income from non-agricultural activities than the remotely located places as trading for instance is promoted by vehicles conveying goods in and out of locality. Self employed service sector works such as mechanics, vulcanizing, tailoring and other sources of household income such as pension, public

employment, casual work, and remittances contribute little to household income. The level of income has a profound effect on the pattern of household expenditure and mobility at the village level, as it determines,

to a large extent, where people go, the number of trips made and the ownership of means of transportation as found elsewhere (Nutley, 2000 and Helden, 1995).

Table 5: Household Major Source of Income by Access Characteristics

		Remote n= 165		Moderate n=164		Good Access n= 84	
S/No	Income From	Average ₦	% Total	Average	% Total	Average	% Total
1	Agricultural production	22,628	56.92	11,429	43.40	15,798	52.15
2	Trading	7,624	19.20	9073	34.44	8544	28.20
3	Self Employed service work	6,651	16.73	4271	16.21	3,603	11.89
4	Public employment	1695	4.26	1215	4.61	357	1.18
5	Casual work	387	0.97	70	0.27	621	2.05
6	Rent	66	0.17				
7	Remittances	15	0.03	282	1.07	551	1.82
8	Pension	684	1.72			821	2.71
	Total	39,750	100	26,340	100	30,295	100

Source: Fieldwork, 2007.

3.2 Household Expenditure on Transport

Closely related and dependent on income is the household monthly expenditure. The aim of finding household expenditure is to know the relative proportion of household expenditure on transport in relation to other basic needs of the households. It is remarkable that most of the household heads have a good picture of their daily spending most especially on food, transport, clothing and social expenses. Table 6 reveals that rural households in the region spend on items such as food, transport, social services, utilities, medical bills, clothing among others. Food appears to take almost 6 in 10 of the household expenditure. Expenditure on transport is second to food (about 2 in 10), ahead of expenditure on other items such as health, clothing, social and education etc.

Similar pattern is revealed for the villages based on their accessibility characteristics with transport expenditure maintaining its second position behind food. Households located in areas of better access spend more on transport than the remote places while areas of moderate access spend the least on transport. This is because of the fact that areas of good access have better access to transport services and therefore travel more frequently and even to more distant places than people in areas of remote and moderate access. It was found that households in the areas of better access travel on a daily basis outside the village to either the administrative centres or the state capital for trading or other purposes.

Table 6: Household Monthly Expenditure (N)

Expenditure	Remote n= 165		Moderate n=164		Good n= 84		Total N= 413	
	Average	% Total	Average	% Total	Average	% Total	Average	% Total
Food	17,794	62.53	13445	57.86	12,595	53.10	15,010	58.63
Rent								
Transport	5,636	19.80	3919	16.86	5,012	21.13	4,628	18.10
Utilities	391	1.37	271	1.17	296	1.25	311	1.21
Education	1,077	3.78	845	3.64	1319	5.56	1,066	4.16
Medical	1,200	4.22	1715	7.40	1414	5.96	1,698	6.63
Clothing	1,514	5.32	1632	7.02	1735	7.31	1,606	6.27
Remittances	280	0.98	415	1.79	386	1.63	355	1.38
Social	563	2.00	990	4.26	962	4.06	928	3.62
Total	28,455	100	23,232	100	23,719	100	25,602	100

Source: Field work, 2007.

4.0 Conclusion and Recommendations

The paper examined the household income and their expenditure on transport in relation to other households needs. The study found that income from agriculture accounted for the larger proportion of income for most rural households in the Region. The study also found a relatively higher level of income in remote areas of the region due to the fertile

nature of the soil and relatively higher level of rainfall. The study also found that a significant proportion of rural household expenditure goes to transport. The study recommends among others the need to empower the rural households in the areas of income earning activities so that they can overcome their daily transport challenges.

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