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TRANSPORTATION CHALLENGES IN THE MOVEMENT AND DISTRIBUTION OF AGRICULTURAL PRODUCTS IN IBADAN REGION

By

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Abstract

The study examined the movement and distribution of agricultural produce in Ibadan region. 228 transport operators were purposively sampled and served with structured questionnaire. Focus Group Discussion and In-depth Interview were also used to elicit information from different seller associations. Findings indicated that more than 95% of transport operators do not have more than secondary education while only 5.2% of them earn more than N10,000 monthly. Also, 86% of them work more than 12 hours per day. On the average, market sellers lose about N2,500 and N6,000 monthly during dry and rainy seasons respectively from agricultural produce waste due to crop rots. Deteriorating road condition, extortion by law enforcement agencies, fuel scarcity (diesel engine trucks) and the influence of road transport union were identified as problems militating against free flow of agricultural produce in the study area. The paper suggested the urgent need for efficient road maintenance through participatory approach, adequate enforcement of traffic laws as well as the need for government to develop appropriate rural transport policy to address the perennial problems of rural transportation in the country.

1.0 Introduction:

Transportation plays an important role in the movement and distribution of goods and services. It is an essential ingredient of development, since there is always a need to collect, assemble, move, transfer and distribute goods and services from spatially differentiated origins and destinations. Goods and services are produced in different geographical space of a nation, some in the rural areas and others in the urban centres and thus have led to the interdependence of regions, towns and villages in which transport bridges the gap. Transportation therefore, has been tagged as a catalyst to overall development.

The role of transport in development has been alluded to by various scholars (Smith, 1959; Munby, 1968; Adefolalu, 1980). Rural transport is particularly crucial in developing countries because the rural areas remain home to majority of the population; who more than 60% of the population are engaged in agriculture (Prowse and Speight, 2007) and over 75% of both passengers and freight traffic are moved by road transport (Brutsheth, 2005). In Nigeria for example, rural areas house over 65% of the population and agriculture employs more than 80% of the rural inhabitants (NBS, 2005). In spite of the significance of rural transport infrastructure and services to rural development and particularly food production as well as agricultural development, the rural areas still suffer mobility constraints and transport difficulties.

The ADB (2010) identified three folds of rural transport constraints namely; lack of road access for a large number of rural communities, poor mobility due to lack of organized public transport and a low vehicle ownership rate. As a result, rural dwellers face severe difficulties in marketing their agricultural products which in turn limit sales of agricultural products (ADB, 2010). Obot (1986) had earlier noted in Nigeria that poor and inefficient transportation services are some of the inhibiting factors in the rural areas and the agricultural economy. They prevent the inhabitants from flexile movements, from transporting their products out and transporting equipment into the area. This has in turn affected the overall transport cost for moving agricultural products, amount of products available in the markets of both the rural and urban areas and the final cost of agricultural products.

From the foregoing, it can be deduced that transportation is a key to efficient and effective distribution of agricultural products at a cost and time convenient for both the producers and the consumers. However, the rural transport system is poor resulting in the high cost of transportation, inefficient distribution and delay in reaching the final markets. The consequences are high crop rot which affects farmers' income and subsequently their level of investment resulting in vicious cycle of low production. Similarly, the middle men/women who buy directly from the farmers and sell at the urban markets are also affected by the deplorable rural roads. Sometimes, some of their

products perish before reaching the market, occasionally they sleep on the roads; however, the final consumers bear the brunt of some of these costs. It is therefore imperative to ascertain to what extent does rural transportation affect the distribution and marketing of agricultural products in Ibadan city region? This paper provides answer to this question and other related issues in the study area. This introduction is followed by sections on literature review and methodology. Presentation of data and discussions of results are contained in section four while the last section is the conclusion.

2.0 Theoretical Framework and Review of Related Literature

The theoretical framework supporting this work is the gravity model. The gravity model is an adaptation from the Newtonian concept of gravity in 1686 to explain the magnetic force operations within and between galaxies (Meyer and Miller, 2001). The adaptation of this model into transportation studies as explained by Vaughan (1987) states that "the amount of traffic between two zones is proportional to the product of the population or attraction of the zones multiplied by the deterrence factor for travel between the zones". This deterrence factor is based on the travel time, cost or distance between zones.

Many alternative forms of gravity models have been developed over the years (Meyer and Miller, 2001). But from the series of mutations evolved the one that is widely used for transportation planning purposes takes this form:

$$T_{ij} = \frac{Pi\ Aj\ f(dij)\ Kij}{\sum_{J=1}^{n} Ajf(dij)\ Kij}$$

Where Tij = number of trips generated in zone I and attracted to zone j.

Pi= total trips generated in zone i.

Aj= total number of trips attracted by zone j.

f(dij)= an expression of spatial separation between zones I and j.

kij= an adjustment factor for any special zonal characteristics of zones I and j.

In essence, what the gravity model means is that the percentage of trips produced by zone i allocated to destination zone j is dependent upon both the characteristics of and travel time to that zone relative to the features of all other attracting zones (Dicey, 1983). It tends to account for the factors that govern commuters' choice of movement. Researchers, however, have identified at least four of these factors which include travel time, travel costs, comfort and level of service (volume/capacity). However, these factors are further broken down into journey time, distance travel, monetary cost, congestion queue, class of road, scenery, sign posts and other behavioural habits associated with journey (Ortuzar and Willumson 1990).

The relevance of model in this research finds its basis from the three basic concepts underlying the movement and distribution of goods and services viz complementarity, intervening opportunities and transferability. The concept of complementarity implies that

interaction between two or more places is a function of specific interdependence. In order for two or places to interact there must be an interchangeable factor of supply and demand. Ibadan region comprises five local government areas which are the city core and six outlying local government areas regarded as the city-serving areas where agricultural products move inwards into the city to establish the factor of interdependence. Smith (1964) made a similar study of the flow of agricultural commodities by rail to the six New England states using gravity model regression. Intervening opportunities explains the emergence of new alternative sources of supply which in essence can substitute the initial area of supply and subsequently remove or reduce the friction of transportation. The concept of transferability focuses on the friction of distance as measured by time, cost and discomfort. The longer the distance, the higher the cost of transportation. In economic parlance, there is the tendency for people not to make contact with far distant locations. This is why transport planners always attempt to provide means of improving transport systems between areas by upgrading existing modes and networks.

Furthermore, the role of transportation in socio-economic development has been widely discussed by many researchers (Storey, 1969; Janelle, 1969; Rostow, 1960; Gauthier, 1970 and Wilson, Bergman, Hirsch and Klein, 1977). For instance, Gauthier distinguished three possible relationships between transport and development. The first is the positive effect, where innovation in transport is demonstrably responsible in a direct way for expansion of economic activity. The second is permissive effect where transport does not itself stimulate economic growth, neither does it inhibit development. The third effect he classified as negative, occurs when a backwash effect is experienced as a result of transport investment.

In the same vein, the importance of road transportation in agricultural development and marketing (distribution) has been stretched. Smith (1966) in his study of the impact of feeder roads on agriculture production and rural growth observed a positive relationship between increase in road facility and cotton production and that good rural roads encourages the production of cotton as well as other agricultural products in the country.

Berger (1966) pointed out that cheap transportation boost market and fuses buyers and sellers in contact with one another, thus increasing demand and supply. Also, Dahl and Hammond (1977) are of the view that the wide geographical distribution of farm products and consuming units, in addition to long distance between agricultural products producing area and consumption markets require substantial transportation inputs in the distribution of these products. It was therefore asserted that transportation is the most important part of the total food marketing bill

In his own study, Olayide (1972) stated that inadequate transport provision leads to waste of about 25% of the total agricultural foodstuff produced. However, a notable effect of high transportation cost, according to Onakomaiya (1975), is that it raises the final prices of a commodity beyond the purchasing power of many

consumers and, therefore, affects the size of agricultural markets. Similarly, Milikins, Dumble and Wigan (1976) noted that transportation decision does not only affect the financial position of the carrier and consumers but also affects the income of the producers of the commodities being transported and the effects are particularly important in agricultural science. They explained that products typically move longer distance to the markets and the cost of transportation accounts for a large percentage of the value of commodities at their destination. Their point was further buttressed by Idachaba (1980) when he observed that transportation among other factors represents the most serious constraint to agricultural production and development that adversely impinge on food production efforts in Nigeria.

African Development Bank (2010) has recently summarized the consequences of poor rural transport to rural economy in Nigeria. The problem is threefold, namely, lack of road access for a large number of rural communities, poor mobility due to lack of organized public transport and a low vehicle ownership rate. As a result, the rural inhabitants among other things face severe difficulties in marketing their agricultural products, which in turn limits the amount of agricultural products that could be sold. Using a Clockwise Multiple Binary Regression analysis, Ogunsanya (1987) found that the most important factors contributing to high cost of food stuff were high cost of labour and transportation problems, which affect farmers in rural areas. This view was also shared by Ajiboye (1990) when he observed that inadequate supply and high cost of foodstuff result from poor transportation network and inefficient distribution. Agboye (1994) in his own study on rural accessibility and transportation in Ijebu-North, Ogun state, found a positive correlation between agricultural production and transport; and that inadequate and poor transportation was the most significant among the various constraints associated with agricultural development.

3.0 Methodology and the Study Area

The study employed survey design in data collection process. Data were sourced from both primary and secondary sources. The primary source relied on the use of structured questionnaire to elicit information from 228 transport operators (drivers) representing 40% of the total transport operators in four selected markets in the study area. The questionnaire were pre-tested and validated before being served to the respondents. Purposive sampling was adopted in the distribution of the questionnaire. The four selected markets where the sample took place are; Aleshinloye, Bodija, Gbagi and Sasa markets in Ibadan South-West, Ibadan North, Egbeda and Akinyele local government areas respectively. The choice of these markets was based on the fact that, they are the biggest markets in each of the local government area from which they are selected. In-depth interview and Focus Group Discussion (FGD) were also adopted to elicit information from marketers, such as yam, corn, and pepper sellers associations among others. The use of FGD became imperative because their population is not as defined as the transport operators. Information from the

secondary sources included published and unpublished books, reports, existing literature relating to the study, magazines, journals and the internet. Official records from government ministries, parastatals and the local governments were also consulted. Descriptive statistics were used for data analysis.

The study area, which is Ibadan Region, consists of the city of Ibadan and its immediate sub-urban districts. It comprises of the inner 5 local governments (usually referred to as IbadanCity) and the 6 outlying local governments. Udo (1994) defined Ibadan region as the area extending for about 55km from Asejire in the east to Agemo in the west and for about 70km from Iroko in the north to Mamu in the South with about 1.2 million population; half of which lived in Ibadan city. However, the region has grown numerically from this population to 2,559,853 in 2006 (NPC, 2006). Different developments over the years in terms of construction of building and highways have led to the reduction of land area available for farming activities (Gbadegesin, 1994).

Right from its foundation as a military encampment, Ibadan had a large farming population, most of who were slaves, who settled in fortified hamlets and villages scattered all over the vast territory of the Ibadan region. In addition to large scale production of staple food crops, the cultivation of cotton and exploitation of wild rubber were major sources of income to the urban population. As the administrative capital of the Western Region of Nigeria, and later, Western Nigeria, Ibadan became the centre for coordinating the agricultural activities of the state government. In 1954, the Commodity Marketing Boards, which were established after the 2nd World War to coordinate the purchase and marketing of farm produce such as cocoa, palm produce, cotton and groundnuts were replaced by regional marketing boards of which one was the Western Regional Marketing Board with headquarters at Ibadan. Since then, Ibadan has become a centre for the marketing of agricultural produce.

With respect to marketing of agricultural produce, this issue will be examined from two perspectives namely; those in the rural areas and those within the Ibadan metropolis. While periodicity is the general situation of the marketing system of the rural area, buying and selling activities take place every day of the week in nearly all the markets within the metropolis. There are about twelve important markets in rural Ibadan. They are located within two to 20 kilometers away from the city. In addition, some farmers' markets have since been established in both rural and urban centers to reduce costs of food crops bought by consumers. However, the specific number of these is difficult to determine. These markets hold every Saturday. One of such markets is located in Ijokodo area of IbadanCity. Some of the rural markets within the region hold every four days (e.g Omi-Adio), some every five days (e.g Oyedeji) while others hold every nine days (e.g Ojoo). The only exception is Sasa which holds everyday from about 7 o'clock in the morning till 6 o'clock in the evening or later.

Nearly all rural markets depend on the sales of farm products coming from the surrounding areas of each specific market centre. Sasa, however, receives farm products from far and wide, especially tomatoes, pepper and onions which come from the northern parts of the country and from Odo-Oba near Ogbomoso. It also specializes in the sales of such foodstuffs as rice, beans, yam flour (elubo) and vegetables, hence, the sellers in Sasa consists of people mainly from the northern Nigeria while the buyers are made up mainly of retailers and primary consumers that come from Ibadan metropolis. All these rural periodic markets serve as primary sources of farm products to the city markets. They in fact supply most of the vegetable requirements of the city dwellers. A large number of city market women interact with the surrounding rural markets where they purchase products in bulk and they later retail in the city markets.

In terms of spatial location of markets in metropolitan Ibadan, the Oja'ba (Oja Iba) which is in the traditional core area of the city is the oldest market. This market is recognized as the city's traditional Central Business District (CBD) and it is close to the modern CBD from Gbagi area. The Ibadan Municipal Council has effected some changes in the marketing procedure and activities within the metropolis. These resulted in the expansion, closure and modifications of some markets within the city with the backing of the state government. The most remarkable of such undertakings are the movement of some traders to New Gbagi market and the demolition of old Dugbe while the traders were forced to move to Aleshinloye (New Dugbe) in Jericho area. In all, 16 of the markets are located in the indigenous section of the city while 21 are found in the modern areas. Incidentally, it is the latter area that is attracting new market locations since the indigenous section is already fully built-up. Transport operators provide link between farm locations and rural markets as well as between rural markets and urban markets for the effective agricultural distribution of agricultural products in the region.

4.0 Presentation of Results and Discussion

This section examines the socio-economic characteristics of transport operators, their mode of operations as well as the challenges they face in the movement and distribution of agricultural products in the study area.

4.1: Demographic and Socio-Economic Characteristics of Transport Operators

Table 1 shows that only males operate (drive) vehicles carrying agricultural produce in the study area. This implies that males dominate the commercial (public) transport industry. The reason may be due to the difficult nature of the profession especially with respect to the number of working hours and the stress of rectifying mechanical faults of the vehicle when they occur, more so that substantial part of their operations take place in the rural environment that is sometimes very solitary. Also, the age distribution indicated that none of the agricultural produce transport drivers is under aged. More than 75% are between the ages of 20-50 years and only 23.3% are more than 50 years, implying that many of

them may not be suffering from eye impairment as a result of old age except those who have specific eye problem.

Married respondents accounted for about 60% while the single and those who have divorced from their spouses constituted 8.8% each. The agricultural produce drivers who have lost their wives were 18.9%. This could have psychological and emotional effects on the driver particularly if the incident is fresh, and may affect their driving behavior. In terms of educational attainment of the respondents, more than 90% of them attended school, out of which 85.6% did not have more than secondary education. This is good for the industry because they would be able to read road signs and markings that are very important to safety of the roads. Furthermore, more than 37% of the transporters earned monthly income of less than N5000. Only 5.2% of them earned over N10,000 in a month. However, the issue of income of the respondents should be treated with caution because people do not usually want to disclose their income and as such do not want others to know how much they truly earn. Also, many of them engage in other activities that provide them with additional income.

Table 1: Demographic and Socio-economic Characteristics of Transport Operators

Variables	Frequency	Percentage
Sex		
Male	100	100
Female	-	-
Age (Years)		
20-39	10	4.4
30-39	81	35.5
40-49	84	36.8
Above 50	53	23.3
Marital Status		
Single	20	8.8
Married	135	59.2
Separated	10	4.4
Divorced	20	8.8
Widowed(er)	43	18.9
Education Attainment		
No formal education	22	9.6
Primary education	134	58.8
Secondary education	61	26.8
Tertiary education (OND and Above)	11	4.8
Monthly Income		
Less than N2500	40	17.5
N2501-5000	45	19.7
N5001-7500	105	46.0
N7501-10,000	26	11.4
More than N10,000	12	5.2

Source: Authors' Field Survey, 2010

4.2 Mode of Operation of Transport Operators

The working hours of the transporters is depicted in Figure 1. It shows that majority of the transporters (86%) worked for more than 12 hours in a day, 9.2% worked for between 9-12 hours and 4.8% between 1-4 hours in a day. This variation in their responses validates the fact that some of them engage in some other income generating activities apart from transport business. Further investigations revealed that some transporters simultaneously engage in farming, barbing, recharge card selling, mechanic and vulcanizing among others; resulting in shortages of the number vehicle trips whenever they engage in other activities.

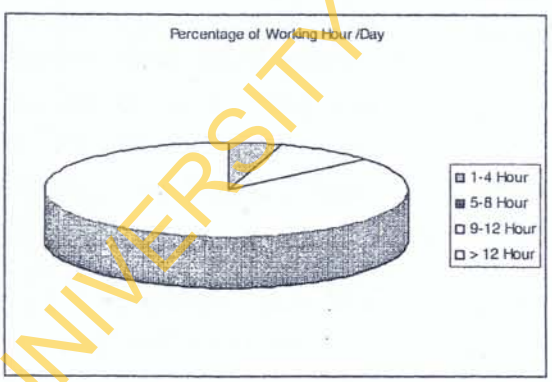

Figure 1: Working Hour per Day

Source: Authors' Field Survey, 2010.

Furthermore, road transport remains the only mode for transporting agricultural products from farms to markets. The use of bus accounted for 40.4 percent of the total vehicles used in the movement of agricultural products as shown in table 3. Lorry/truck was responsible for 41.2% while taxi-cab was 18.4%. Further investigations through interview revealed that railways were sometimes used to transport agricultural product to the city region but not to the markets where this study was carried out.

Investigations on the type of agricultural produce transported by transporters showed that 27.2 % of them carried only foodstuffs such as rice, beans, yam, yam flour and the rest, 4.4 percent carry only fruits such as bananas, plantains, oranges, pineapples, pawpaw and others. Meanwhile a large percentage of the transporters (68.4%) revealed that they carry any products available for transportation, be it foodstuff, fruits, live stocks and the rest as shown in table 2. It can be deduced from the foregoing that the transporters show little or no specialization in the type of produce carried in Ibadan region. Most of the transporters adopt the principle of 'anything goes' in their operational activities. This is understandable because it is a means of generating additional income.

Table 2: Types of Vehicles Used for Transportation.

Types of vehicle	Freq	%	Agricultural Products Transported	Freq	%
Car/Cab	42	18.4	Foodstuffs	62	27.2
Bus	92	40.4	Fruits	10	4.4
Truck/Lorry	94	41.2	Others (Any Product)	156	68.4
Total	228	100	Total	228	100

Source: Authors' Field Survey, 2010.

The rural areas still remain the most important sources of agricultural produce in Ibadan region. For example, agricultural produce like vegetables, bananas, oranges; plantain, yams flour, cassava flour and fruits are produced in the rural areas of Ibadan region such as Oluyole, Idi-Ayunre, Ogunmakin, Akinyele. Other areas outside Ibadan region include Ijaye Orile, Fiditi, Iseyin, Oyo, Ogbomosho, Iware, Pade, Iwo, Ede, Igbeti, Oke-Iho, Igboho among others. However, investigations revealed that products like onions, yam, dried pepper, beans, rice etc that come to Sasa and Bodija markets are from the Northern states of the country like Benue, Niger, Nassarawa, Kano and others.

4.3 Transport Problem in the Movement of Agricultural Products

The problems encountered in the movement and distribution of agricultural products by both the transporters and market sellers were also investigated. Figure 2 showed that more than 62% of the respondents associated the problem to poor roads 20.2% attributed it to police extortion while fuel scarcity accounted for 9.6%. The extreme poor state of the roads in such rural environment as well as the extortion by the police has resulted in scarcity of vehicles in conveying agricultural products to markets and bulk breaking points in the town. In-depth interviews with the transporters revealed that the poor nature of the roads was responsible for the frequent breakdowns of their vehicles resulting in high vehicle operating costs (VOC). The transporters also expressed dissatisfaction with the manner by which the policemen regularly extort money from them with coercion, harassing and molesting drivers that refuse to give money to police on duty.

Cross-section of agricultural produce sellers interviewed attributed the high cost of transport to bad roads and scarcity of vehicles. They also complained that whenever a vehicle breaks down, it leads to wastage of perishable products because of inability of sellers to get such products to markets on time. On the average, they claim to lose about N2500 and N6,000 naira monthly during dry and rainy season respectively as a result of wastage due to vehicle breakdown. This tremendously affects their profit margin. The problem, according to both drivers and sellers, is more severe during the rainy

season when vehicles may stuck on the road for between 2-3 days. At this point the goods (products) are transferred to another vehicle but at a price to both the driver and the sellers.

More than 90% of transporters interviewed indicated that the roads had been deteriorating very fast over the years. Their perception is very crucial in gauging condition of roads in the study area since they work day-in and day-out on these roads, and have long experience on these roads. General consensus among the drivers and sellers identified poor government attitude to road maintenance, negligence and lack of institutional framework for roads programmes (especially rural roads) were cited as reasons for poor road condition in the study area.

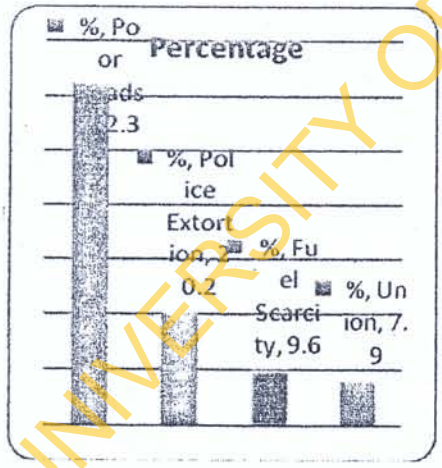

Fig 2: Problems in the Movement of Agricultural Produce in the Study Area

Source: Author's Field Survey, 2010

5.0 Recommendations and Conclusion

The paper has shown that the rural areas in Ibadan region still remain the food basket of the region. Various agricultural products are transported on daily basis from the rural areas to different markets within and outside the rural environment. However, poor road condition has become an insurmountable challenge to both the transporters and the market sellers. This is compounded with police extortion and the activities of the Nigerian Union of Road Transport Workers (NURTW).

Based on these findings, it is therefore recommended that the respective local governments speed up the maintenance of rural roads in Ibadan region because most of these roads are within the jurisdiction of local councils. The councils could adopt the Labour-Based Approach/Technology (LBT) as well as Community Participation (involvement) Approach to road maintenance which has successfully been implemented in many rural roads programmes all over the world. Furthermore, the councils must as a matter of urgency curb the activities of police men that are responsible for extorting money from both drivers and sellers of agricultural products. Punitive measures such as suspension, demotion and outright dismissal should be meted out against any police officer found indulging in the act. While it is very important to belong to a union because of its associated advantages, the government can also regulate their activities so that they do not become burden to their members. Similarly, the transport drivers can also report the excesses of any patrol members to the executives of the union for appropriate action. In the same vein, it is equally essential that government provides storage facilities in some of the rural communities in the region so that both farmers and sellers can make use of them (especially when there is breakdown of vehicles lasting for more than one day). Also, it is

high time that rural transport policy was developed by government so as to address the perennial rural transportation problems in Nigeria.

In conclusion, without efficient and effective rural transport, the rural inhabitants are caught in a cycle of poverty in which case they are unable to get their produce to the markets resulting in low income which also have effects on the level of investment and consequently on the level of agricultural production. It is therefore important that the rural transport infrastructure and services are effectively developed in Ibadan region in order to enhance effective transportation and distribution of agricultural products in the study area.

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