
**EVALUATION OF FACTORS INFLUENCING ROAD
TRANSPORTATION PERFORMANCE IN OYO STATE, NIGERIA**

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DOI: <https://doi-doi.org/101555/ijarp.8314>**ABSTRACT**

The study evaluates the factors influencing road performance in Oyo State, Nigeria. The objectives evaluate the factors influencing road transportation performance and examine the extent to which these factors influence the performance of road transport operations. The cluster sampling technique was adopted, in which three (3) Local Government Areas in the Oyo North Senatorial District were chosen. Both descriptive and inferential statistics were used to analyse the data. The study made use of primary sources. Primary data was sourced through the use of a well-structured questionnaire. The result showed the mean and standard deviation of government policy as a major factor of road performance. The result of the factor analysis shows that five factors whose eigenvalues were greater than one (1) accounted for 68.5%, leaving about 31.5% of the total variance not accounted for by the factors. Also, the result of the KMO values is 0.697. This indicates that the sampling is adequate and the factor analysis is appropriate for the data. It was concluded that the study identifies the most significant factors that will enhance effective and efficient road transportation operations in Oyo State. These factors have to do with transport infrastructure, vehicle condition, management, and government. It was recommended that investment in transport infrastructure and collaboration and coordination among stakeholders should be prioritised.

KEYWORDS: Road transportation, vehicle condition, transport infrastructure, government policy, fleet management.

1.0 INTRODUCTION

Transportation is the movement of people, animals and goods from one location to another (Beaver, 2005). Transportation is indispensable to modern economic development, especially in a developing country like Nigeria. Transportation opens up new areas of economic activities, increases agricultural production, and revitalises trading activities and impacts positively on the urbanisation process (Olubomehin, 2012). Wane (2001) pointed out that transportation is a crucial vector for urban insertion since it gives access to economic activity, facilitates family life, and helps in spinning social networks. Indisputably, transportation is a key to the socio-economic and environmental development and sustainability of many nations of the world (Nwoye, Oyegun & Ugbebor, 2019). Okolo and Ehikwe (2015) support this statement by stating that transportation aids the evolution of civilisation and catalyses economic growth and development.

Furthermore, transport developments lead to change in the pattern of land use in an urban centre around the transport corridors, with more commercial activities locating closer to transport terminals. These impacts can be important at a local level but primarily affect the geographical pattern of activity rather than the overall level of activity. Although there are different modes of transport, this study focuses on road transport. Howell (1994) defined roads as an economic penetrating route which is required to open ways for investment in new activities such as agriculture and commerce. Musa (2003) defined roads as those which are clearly necessary ingredients of nearly every aspect of economic and social development. It links the most remote locations and has been found to be more useful in gathering goods to collection points for distribution and marketing in rural and urban centres.

In addition, the growth in road infrastructure was intended to increase speed and smooth vehicular movement (Donald, 2005). The potential significance of road development for investment, trade, growth and poverty alleviation has long been recognised. Not only does road transport infrastructure facilitate the direct provision of services to consumers, but it also provides intermediate inputs that enter into the production of other sectors and raise factor productivity (Anyanwu et al., 1997). As such, its role toward enhancing economic growth and diversification cannot be underestimated. This is characterised by increased trip times and increased vehicle turnaround trips (Altshore, 2007). Similarly, commercial activities like banking, retail/wholesale businesses and professional services congregated to take advantage of nearness to the seat of governance.

However, the cost of road transport is closely tied to the expense of operating a vehicle. Operating costs are the expenses incurred while running a business or operating a machine,

component, or facility; they are the necessary expenses that a company incurs to keep the business running (Kockelman, Chen, Larsen, and Nichols, 2013). According to Cahyono and Wibowo (2021), vehicle operating costs are the overall expenses of road transport operations and road conditions for a given type of vehicle per kilometre travelled. The costs incurred in private car transportation are composed of two essential components: running costs and fixed costs. The fixed costs include depreciation and taxes, which are the expenses that are incurred regardless of the vehicle's usage frequency (Cahyono & Wibowo, 2021). Depreciation is based on several factors, including the purchase price, the residual value, interest rates, and the age of the vehicle (Cahyono & Wibowo, 2021). The running costs, on the other hand, encompass expenses such as maintenance, repairs, insurance, and fuel.

Furthermore, the cost of transport is often inflated due to the deplorable state of our roads, poor maintenance of our roads and the cost of vehicle spare parts, which is a common occurrence in urban and rural areas. Most studies in Nigeria focused on the Northern and Southern parts of Nigeria, such as Gombe, Katsina, Ilorin, Oshogbo, and Abuja, and Asian countries such as Malaysia. Others also considered road transport infrastructure and economic growth, determinants of mode choice behaviour of road users, and the effect of road transport development on urban growth and commercial activities, but this study examines the factors contributing to the performance of road transport operations in the three Local Government Areas in Oyo State, which are Saki West, Iseyin and Ogbomoso North.

Objectives of the study

The objectives are to:

1. Identify the factors influencing road transportation performance in the study area.
2. Examine the extent to which these factors influence performance of road transport operations.

Hypothesis

H₀₁: There is no significant relationship between factors contributing to road transport operations and performance of road transportation in the study area

2.0 Literature review

The Concept of Road Transport Operations

Road transport is available to the public irrespective of your status and background unlike other modes of transportation. Road transportation systems are varied; they are either land-based (rail), road-based mass transit systems or water-based (World Bank, 2002). White,

(2002). Common modes of road transport include buses and minibuses, shared taxis, converted pick-up vans, motor scooters (auto rickshaws) and pedal rickshaws (Adesanya, 2011). The dominant mode of transport in developing countries is road-based. Public transport as an integral backbone of urban life is one of the factors which determine the form and socio-economic development of a city (Santhakumar, 2003). Road transport is an important component of the economy, impacting development and the welfare of populations. Road transportation performs many functions, such as providing easy access and safe, efficient and cost-effective transport services to passengers (Ismail *et al.*, 2013 and Ojo *et al.*, 2014). Travelling on road transport with a high level of facilities, convenience and quality is important for passengers satisfaction. Currently, major investments are being made in bus systems to make them more competitive in Nigeria. New services are being developed and old ones are being improved. The private operators, such as the National Union of Road Transport Workers (NURTW), the Road Transport Employers Association of Nigeria (RTEAN), labour unions, cooperative societies, private companies, among others, have also been providing bus services. According to the federal ministry of transport, there are over fifty transport companies offering bus services in Nigeria. In fact, the Federal Road Safety Corps (FRSC) appreciates NURTW and RTEAN as dominant players constituting just about 75% of bus services and controlling 60-80% of goods and passenger movements in public transport in Nigeria. Based on current developments in Nigeria, the bus service was chosen as the focus of this study for several reasons. First, it is the largest public transport means in Nigeria (Ali, 2014). Second, the bus system has a range of passenger capacities and performance characteristics and may operate on fixed routes with fixed schedules (Ali, 2014; Smerk, 1974). Third, bus systems have the potential of extending transport services to greater proportions of urban residents who do not have private cars and cannot afford high taxi fares (Andeleeb *et al.*, 2007). Fourth, they have the potential of being used as a strategy to reduce the number of cars on urban roads and thus reduce traffic congestion and air pollution in cities (Ali, 2014; Anable, 2005; Hwe *et al.*, 2006; Noor *et al.*, 2014).

Factors Contributing to Road Transport Operations in Nigeria

Several factors constitute road transport operations, but in this project, six were considered salient ones as a result of their impacts on operational efficiency. Those considered are bad fleet management, infrastructural challenges, and inconsistent government policies and regulations.

1. Bad Fleet Management:

Fleet management can be seen as monitoring and increasing how efficient one can perceive transportation fleet (Gitahi and Ogollah, 2014). It includes the management of vehicles like cars, ships, vans and trucks. A lot of functions are considered when it comes to fleet management including financing vehicles, maintenance of vehicles, vehicle telematics, driver shifting and rostering, tracking of assets, management of speed, fuel management as well as health and safety management. The primary aim of fleet management is to significantly decrease the risks associated with vehicle operation, efficiency, productivity and minimising the transportation and staff cost entirely. Accordingly, Besiou *et al.* (2012) claim that a strategy that ensures sustainable fleet management is one that seeks to minimise environmental effect through the integration of cleaner vehicles and fuels, fuel-efficient operation and driving, and by minimising the quantum of traffic it creates on the road.

Fleets have been poorly managed by the private transport owners in Nigeria which has nearly led to decline and collapse of road transport operation. It is not surprising that top transport management's resistance to change has been identified as one of the challenges to transportation development. There is no infusion of new ideas and no desire to learn new or innovative ways of doing things. It is reported that many Nigerians managers view customer service, trade-off, just-in-time inventory or total quality management as concepts with no practical value in the transportation system of Nigeria. Hence, instead of adopting the total cost concept as a guiding philosophy for cost reduction and competitive advantage, these managers tend to urge the government to protect their captive market from outside competition. The managers fail to understand and appreciate the role and importance of logistics as a distinct management function and, as such, are reluctant to support the establishment of such a department in their organizations.

Fleet management has become necessary for transport service delivery systems whether in the public or private sector. There is always a competition between the private and public sector in terms of the kind of transport services they offer and how customers express their satisfaction with services from both sectors. Gitahi and Ogollah (2014) however assert that, the higher expectation of customers and their intolerance for unsatisfactory services have resulted into a competitive atmosphere for fleet operation to provide reliable and cost efficient services.

2. Infrastructural Challenges

In Nigeria, road transport is the commonest and most extensively used form of transportation. It involves the use of bicycles, motorbikes, carts, cars, buses, lorries, trailers, tankers, etc., in

moving people, goods and services from one location to another where they are needed (Anyanwu, 1997). Achieving entrepreneurship especially in emerging economies cannot be achieved if transportation which is an important component of globalization and economic growth and development is not properly overhauled. Like many other developing countries, the most important challenges facing transportation development in Nigeria appears to be infrastructure related. The major road transport infrastructure in Nigeria, as at year 2010, consisted of 34,123km Federal Highways including seven major bridges across the Niger and Benue Rivers, the Lagos ring road, the Third Mainland Axial Bridge; 30,500km of State Government roads; and 130,000km Local Government roads (FGN, 2010). Buhari (2000) observed further that, only 50% of the Federal roads and 20% of the State roads were in reasonably good condition. Only an estimated 5% of the local rural roads were freely motorable (Oroleye, 2019).

Meanwhile, overuse and lack of maintenance are further eroding the quality of the rest of the roads network which hinder the economic development in Federal Capital Territory, Abuja. Inadequate transport and telecommunication networks, and poor port and related facilities are the major factors hindering the development of a logistics system in the country. These shortcomings greatly reduce the flexibility of a firm. It is plausible that the respondents prefer road transport for its door-to-door, fast, frequent and flexible service, and as such, tend to consider this more suitable for their transport needs and, therefore, more important for the system. Because of construction of more road-mileage during the last two decades, there has been a continuous realignment in the domestic business and distribution centres in Nigeria.

Many new centres accessible by motor carriers have emerged, replacing traditional centres connected through relatively slower rail or river transport. However, the rail links connecting the ports and their major business and industrial hinterland are yet considered adequate by many. These facilities need both modernisation and expansion. In the sector of road transport, the roads in Nigeria, both the federal and state roads, are in their dangerous mode, which is causing an increase in accidents on a daily basis. A lot of decaying facilities are in Nigeria's modes of transport; these decaying facilities give the country a bad image for foreigners coming into the country.

3. Inconsistent Government Policies and Regulations

Policy is an attempt by government to address issues by instituting laws, regulations, decisions, or actions that are pertinent to a particular problem. Therefore, issues arising in different sectors must be addressed and resolved by its policy. Policies tend towards man, material, money and machinery. It is expedient for the public and private sectors, firms and

industries, government and ministries to formulate sound policies which are the regulatory framework, tenets, and constitution of such organisations (Adetayo and Sidiq 2017). It is also conceptualised as a set of ideas, guidelines, goals, aspirations and visions for a better society (Sumaila, 2013).

These challenges have stemmed primarily from the frequent changes in the government policies, lack of understanding of the nature of the market economy and its management. It may be argued that due to these changes, the structure of the road transport operations and its modus operandi may not have been well understood even by the managers of the economy. This is exemplified by the fact that while the intention to establish is being publicised as a national policy, protectionism is also being encouraged by some decision-makers. The political instability, lack of continuity of government policies, and resource limitation of the country have been classified as general problems since their effect transcends the domain of logistics and extends to all aspects of the nation. For many decades, Nigeria never enjoyed any term of political stability. As a result, the country failed to plan and pursue any long-term national economic agenda. Irrespective of their relative merit and importance, policies adopted by an outgoing regime are almost always changed by the incoming government. Decision makers' idiosyncrasies rather than issues of national interest often determine objectives and policy priorities.

Consequently, projects undertaken to upgrade infrastructure are often abandoned halfway. There is every need to act fast in this regard if entrepreneurship can be achieved in emerging economies.

4. Loose Security

There is loose security on roads in Nigeria. There is no adequate security manning the roads in the country. They lack adequate equipment and public support as a result of the inadequate relationship between the security personnel and the populace. For example, the roads leading to some airports, such as those at Owerri and Port Harcourt, are not secured, as armed robbers and militants attack travellers (Agbo, 2008). The Isolo Motorway leading to Lagos International Airport also witnesses armed robbery incidents. These robbery incidents often occur due to loose security along our roads connecting to states that need reforms. This issue of insecurity needs to be addressed for the safety of travellers and their properties. There are also petty thieves on Nigeria roads who capitalise on the loose security to break into visitors' cars and carry handy belongings. Also, all kinds of people are found on our roads at night by the public transport due to loose security. This loose security will affect the use of public transport by the user, in that they will like to move by their personal means of transport that

they will be able to secure themselves rather than patronising the public transport in which their lives are at risk.

5. Lack of Skilled Manpower

This issue is a major concern facing the performance of public transport in Nigeria. This can be clearly seen in the road sector by the characters displayed by the drivers employed by the public transport companies or management. Most of the enterprises in the public transportation sector have yet to computerise their operations. Also, there is a general shortage of qualified managerial personnel. It has been reported that a serious lack of skill among Nigeria's public transport management is hindering the improvement of productivity and efficiency of transport operations.

6. Vehicle Condition

Infrastructural condition of Nigeria roads is not encouraging that could allow free movement of vehicle on transit. The roads are bad and full of potholes as a result of erosion due to a lack of proper drainage and regular maintenance culture, and some of these roads are often cut during the laying of water pipes and communication cables. This can be clearly seen on Nigerian roads, which need to be regulated through the sector policy. Also, there is always a delay in reaching the destination on time and reducing the number of trips. The transportation system's effectiveness may be judged by four factors: time efficiency, energy and fuel economy, environmental effect, and safety. Energy and fuel efficiency are frequently mentioned as part of vehicle running expenses (Sugiyanto, 2012).

3.0 METHODOLOGY

Both descriptive and inferential statistics were used to analyse the data. The study area chosen for this research is Oyo State. Oyo State has thirty-three (33) local government areas, with three (3) senatorial districts. The Oyo North Senatorial District has thirteen (13) local government areas, Oyo South has eleven (11) local government areas, while Oyo Central has nine (9). Local Government Areas. However, this research adopts a cluster sampling technique in which three (3) local government areas in the Oyo North senatorial district were chosen. It comprises Ogbomoso North, Saki West and Iseyin based on the following reasons: i.e., Saki West is the largest local government area, a town located along the border area with a population census of 390,500 (2006). Iseyin, the second largest local government area located toward the south in Oyo State, has a population of 365,300, according to the population census (2006). Ogbomoso North is the third among them, located toward the northern part of Oyo State, with a population of 284,200, according to the population census

(2006). The total number of motor parks available was 75 motor parks. There are 1440 commuters and 80 bus drivers across the three (3) local government areas from the travellers' manifest. The distributions are Saki-West 540, Iseyin 486, Ogbomoso North 414. The Taro Yamane technique was used to reduce the sample size to 180 respondents. The study made use of a primary source. Primary data was sourced through the use of a well-structured questionnaire.

4.0 RESULTS AND DISCUSSION

The result showed that one hundred and eighty (180) respondents, which are drivers and commuters, received the questionnaires. The distribution of questionnaires to respondents is shown in Table 1. Only 5 of the surveys were not returned, while 175 were correctly completed and returned. The sociodemographic characteristics of respondents were shown in Table 2.

Table 1. Questionnaire distribution.

Questionnaire	Number	Percentage (%)
Responded	175	97.22%
Non-responded	5	2.78%
Total	180	100

Table 2: Socio-demographic Characteristics of the respondents.

Age	Frequency	Percentage
20-29	25	14.29
30-39	30	17.14
40-49	45	25.71
50-59	40	22.86
60 and above	35	20
Total	175	100
Sex	Frequency	Percentage
Female	50	29
Male	125	71
Total	175	100
Level of Education	Frequency	Percentage
Non formal education	35	20
Primary	55	31
Secondary	40	23
Tertiary	20	12
Nomadic	25	14
Total	175	100
Road users	Frequency	Percentage
Drivers	80	46
Commuters	95	54

Total	175	100
Other supportive business as a driver	Frequency	Percentage
Farming	40	23
Herding	30	17
Trading	29	17
Civil Servant	26	14
Artisan	35	20
Others	15	9
Total	175	100
Other supportive business as a commuter	Frequency	Percentage
Farming	35	20
Herding	30	17
Trading	45	26
Civil Servant	17	10
Artisan	34	19
Others	14	8
Total	175	100
Local government	Frequency	Percentage
Saki west	57	32
Ogbomoso North	40	23
Iseyin	43	25
Others	35	20
Total	175	100
Vehicle Condition	Frequency	Percentage
Dirty	25	14
Fairly Neat	60	34
Neat	55	32
Others	35	20
Total	175	100

Table 2 shows the socio-demographic characteristics of the respondents. Regarding the age of the respondents, 14.29% of the respondents are in the age bracket of 20-29 years, 17.14% are in the age bracket of 30 to 39, 25.71% are in the age bracket of 40 to 49, 22.86% are in the age bracket of 50 to 59, and 20% of the respondents are 60 years and above. It was generalised that those within the age range of 40 to 49 are predominant. 29% of the respondents are female, while 71% constitute the male respondents. It was generalised that the male population is predominant. On the level of education, thirty-five of the respondents, representing 20% of the population, had non-formal education; fifty-five (55), representing 31% of the population, had primary school education; forty (40) respondents, representing 23% of the population, had SSCE; and twenty (20) respondents, representing 12% of the population, had tertiary education. Twenty (20) respondents representing 14% of the population had nomadic education. It implies that the majority of the respondents had primary school education.

Concerning road users, eighty (80) respondents representing 46% of the population are drivers, while ninety-five (95) respondents representing 54% of the population are commuters. Other supportive businesses include driving; forty (40) respondents, representing 23% of the population, are engaged in farming; thirty (30), representing 17% of the population, are engaged in herding; twenty-nine (29), representing 17% of the population, are engaged in trading; twenty-six (26) respondents, representing 14%, are civil servants; thirty-five (35) respondents, representing 20% of the population, are artisans; while fifteen (15) respondents of the population, representing 9%, constitute others. It implies that the majority of the respondents are into farming as a supportive business. Other supportive businesses include commuters; thirty-five (35) respondents, representing 20% of the population, are engaged in farming; thirty (30), representing 17% of the population, are engaged in herding; forty-five (45), representing 26% of the population, are engaged in trading; seventeen (17) respondents, representing 10%, are civil servants; thirty-four (34) respondents, representing 19% of the population, are artisans; while fourteen (14) respondents of the population, representing 8%, constitute others. It implies that the majority of the respondents are into trading as a supportive business.

In local government, fifty-seven (57) respondents representing 32% of the population are from Saki West, forty (40) respondents representing 23% are from Ogbomoso North, and forty-three (43) respondents representing 25% are from Iseyin. Thirty-five (35) respondents constitute 20% of others that are not from the study area. It implies that the majority of the respondents are from Saki-West. Regarding the vehicle condition, twenty-five (25) respondents, representing 14% of the population, considered the vehicle condition to be dirty; sixty (60), representing 34% of the population, considered the vehicle condition to be fairly neat; fifty-five (55) respondents, representing 32%, considered the vehicle condition to be neat; while others (35), representing 20% of the population, are indifferent based on the condition of the vehicle. It implies that the majority of the respondents considered the condition of the vehicle to be fairly neat.

The result in Table 3 shows the mean ($\bar{x} = 3.2114$) and standard deviation ($\sigma = 0.99186$), of government policy as a factor of road performance. It was shown that building more roads has the mean 3.0743 and standard deviation 1.11420, road repairs and maintenance has the mean of 3.0629 and the standard deviation is 1.09940, transport cost has the standard

deviation ($\sigma = 1.00400$) and the mean ($\bar{x} = 3.1943$), management has the standard deviation ($\sigma = 1.12117$) and the mean ($\bar{x} = 3.0400$), vehicle condition has the standard deviation ($\sigma = 1.06186$) and the mean ($\bar{x} = 2.8343$), transportation fare has the standard deviation ($\sigma = 1.30020$) and the mean ($\bar{x} = 2.8181$), security device has the standard deviation ($\sigma = 1.06498$) and the mean ($\bar{x} = 2.9029$), timely delivery has the standard deviation ($\sigma = 1.79212$) and the mean ($\bar{x} = 3.1543$), decongestion mechanism has the standard deviation ($\sigma = 1.21612$) and the mean ($\bar{x} = 2.4514$), building more bridges has the standard deviation ($\sigma = 1.17032$) and the mean ($\bar{x} = 2.6400$) and the traffic light mechanism has the standard deviation ($\sigma = 1.14419$) and the mean ($\bar{x} = 2.6057$). It can be generalized that government policy and regulations is the highest mean. Therefore, they should be given a priority with regards to road performance.

Table 3: Factors Contributing to Performance of Road Transport Operations.

	N	Minimum	Maximum	Mean	Std. Deviation
Government policy	175	1.00	4.00	3.2114	.991866
Building more roads	175	1.00	4.00	3.0743	1.11420
Roads repair and maintenance	175	1.00	4.00	3.0629	1.09940
Transport infrastructure	175	1.00	4.00	3.1943	1.00400
Management	175	1.00	4.00	3.0400	1.12117
Vehicle conditions	175	1.00	4.00	2.8343	1.06186
Transportation fares	175	1.00	4.00	2.8171	1.30020
Security device	175	1.00	4.00	2.9029	1.06498
Timely delivery	175	1.00	4.00	3.1543	1.79212
Decongestion mechanism	175	1.00	4.00	2.4514	1.21612
Building more bridges	175	1.00	4.00	2.6400	1.17032
Traffic light mechanism	175	1.00	4.00	2.6057	1.14419
Valid N (listwise)	175				

In order to check the distribution and the range of normality, skewness and kurtosis were used. Skewness is a measure of symmetry i.e if it looks the same to the left if the value for skewness or kurtosis is less than +1.0, then the skewness or kurtosis for the distribution is not outside the range of normality. However, if the values are greater than +1.0, then the

skewness or kurtosis for the distribution is outside the range of normality, so the distribution cannot be considered normal. The values for the skewness and kurtosis are less than +1.0. Hence, they are considered normal. Table 4 shows the extent to which identified factors influence the performance of road transport in the study area. It was shown that 39.4% of the respondents agreed that government policy influences road transports to a very large extend. Also, 27.7% respondents agreed that management influences road transport to a large very extend and 33.3% agreed that transport infrastructure influences road transport to very large extend. It was generalized that government policy influences road transport.

Table 4: Frequency Table Showing the Extent of Factors Influencing the Road Transport Operation.

Government policy					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very little extent	35	19.8	20.0	29.1
	Little extent	36	20.3	20.6	49.7
	Large extent	69	38.9	39.4	80.0
	Very large extent	35	19.8	20.0	100.0
	Total	175	98.8	100.0	
Management					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very little extent	57	32.2	32.6	32.6
	Little extent	32	18.1	18.3	50.9
	Large extent	37	20.9	21.1	72.0
	Very large extent	49	27.7	28.0	100.0
	Total	175	98.9	100.0	
Road infrastructure					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very little extent	49	27.7	28.0	28.0
	Little extent	39	22.0	22.3	50.3
	Large extent	28	15.8	16.0	66.3
	Very large extent	59	33.3	33.7	100.0
	Total	175	98.9	100.0	
Vehicle conditions					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	very little extent	29	16.4	16.6	16.6
	Little extent	42	23.7	24.0	40.6
	Large extent	42	23.7	24.0	64.6
	Very large extent	62	35.0	35.4	100.0
	Total	175	98.9	100.0	

Hypothesis one: The factors influencing performance of road transportation in the study area

In order to identify the most significant determinant factors among the road transportation performance in the study area, a principal component analysis was used as shown in table 5. A total of twelve variables were used, these include: government policy, building more roads/maintenance, transport infrastructure, management, vehicle conditions, security device, transportation fare, decongestion mechanism, traffic light mechanism and parking system. The variables were entered into factor analysis for the purpose of data transformation and reduction of data in order to reduce the chance of multi collinearity among predictors. Factor analysis was computed and instructed into retaining eigen-values above one (1). Five factors were retained and these explained roughly 69.7% of the variation in the data. Table 6 shows the KMO and Bartlett's test. This was used to test the adequacy and validity of the data used for the study that it was significantly adequate. Table 5 explained the result using eigen value one criteria (Kaiser 1960 criterion). The result showed the total variance of factors influencing road transportation performance in the study area. The result of the factor analysis shows that five factors whose eigenvalues were greater than one (1) accounted for 68.5% leaving about 31.5% of the total variance not accounted for by the factors.

Decision rule

The KMO values between 0.8 to 1.0 indicate the sampling is adequate. KMO values between 0.7 to 0.79 are middling and values between 0.6 to 0.69 are mediocre. KMO values less than 0.6 indicate the sampling is not adequate and the remedial action should be taken. If the value is less than 0.5. If the value is less than 0.5, the results of the factor analysis undoubtedly won't be very suitable for the analysis of the data. If the sample size is < 300 the average communality of the retained items has to be tested. An average value > 0.6 is acceptable for sample size <100, an average value between 0.5 and 0.6 is acceptable for sample sizes between 100 and 200. The result of the KMO values is 0.697. This indicates that the sampling is adequate and the factor analysis is appropriate for the data. Bartlett's test of Sphericity is used to test for the adequacy of the correlation matrix. The Bartlett's test of Sphericity is highly significant at $p < 0.000$ which shows that the correlation matrix has significant correlations among at least some of the variables. Here, the test value is 610.9 and an associated degree of significance is less than 0.0001. This study agreed with Suthathip, Kasidis and Veeris (2014) analysed road infrastructure and road user's satisfactions. It was opined that the highway authorities of motorway are responsible to create a safe environment

for road users and provide service to them in order to maximize the satisfaction level since all motorway road users has to pay the toll fee.

Table 5: Total Variance Explained.

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.522	29.350	29.350	3.488	29.063	29.063
2	1.454	12.116	41.467	1.280	10.663	39.726
3	1.151	9.592	51.058	1.217	10.145	49.871
4	1.089	9.073	60.131	1.131	9.428	59.299
5	1.005	8.375	68.506	1.105	9.207	68.506
6	.934	7.780	76.286			
7	.822	6.851	83.136			
8	.732	6.101	89.238			
9	.505	4.206	93.444			
10	.384	3.200	96.644			
11	.247	2.059	98.703			
12	.156	1.297	100.000			

Extraction Method: Principal Component Analysis.

Table 6: KMO and Bartlett's Test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.697
Bartlett's Test of Sphericity	Approx. Chi-Square	610.961
	Df	66
	Sig.	.000

5.0 CONCLUSION AND RECOMMENDATIONS

It was concluded that the study identify most significant factors that will enhanced effective and efficient road transportation operations in Oyo State. These factors have to do with transport infrastructure, vehicle condition, management, and government. This study examines the extent to which these factors contribute to performance of road transportation operations, and has a positive and significant relationship. Also, based on the findings of the study, it was concluded that management and government policy were significant factors contributing to performance of road transport operations in Oyo State. the following recommendations are provided to improve the performance of road transport operations in Oyo State, Nigeria:

1. Invest in transport infrastructure: through collaboration with relevant stakeholders to prioritize and invest in transport infrastructure development also by addressing road conditions, reduce congestion levels, provide alternative routes, and ensure adequate

infrastructure investments to support operational efficiency and improve road transport performance.

2. Evaluate and review government policies and regulations: by conducting periodic reviews of existing policies and regulations to ensure they are effective, relevant, and supportive of road transport operations.
3. Enhance collaboration and coordination: by fostering collaboration among various stakeholders involved in road transport operations, including government agencies, transport companies, drivers, and industry associations. Establish platforms for regular communication, knowledge sharing, and coordination to address common challenges, share best practices, and collectively work towards improving road transport performance.

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