# Port-hinterland trucking constraints in Nigeria

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ABSTRACT

A reliable and efficient transportation system contributes immensely to growth and prosperity of a nation. Nigeria, with its vast import traffic cannot afford to transport hinterland bound cargo in a manner not consistent with reliable practices. This study seeks to evaluate the rank-order and magnitude of the operational constraints associated with cargo haulage from Nigerian seaports to the hinterland. Data were obtained from primary sources through systematic administration of a questionnaire to truck drivers at the point of waiting in the seaport terminal. In all, 302 respondents were sampled. The results of the study reveals that 'harassment' from law enforcement agencies ranked first (Mean = 2.08). The results also shows that the association between nine pairs of the constraints were significant with the strongest negative correlation being that of delays and armed robbery, $r = -0.599$, $p < 0.001$. These results are fundamental for the prioritization of palliative measures to improve the operational problems of trucking in Nigeria.

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## 1. Introduction

In the research literature, trucking operational difficulties have been considered from different dimensions. Studies of the operating constraints of long haul trucking are usually done in conjunction with driver behaviour (Golob and Hensher, 1997; Hensher et al., 1993), accidents (Loeb and Clark, 2007), disruptions in supply chain (Wilson, 2007; Hendricks and Singhal, 2005) and cost of operations (World Bank, 2007). The general approach of the behavioural theme has been to relate the operational problems of trucking to the behavioural pattern of long distance drivers. It is argued, for instance, that truckers by their nature indulge in long distance driving and so experience sleepless nights that are fundamental for the explanations of risks and subsequent accidents (Savage, 1989). This position has, however, not gone unchallenged. Loeb and Clark (2007) commenting on accidents of truck drivers have very well acknowledged that, indeed, the miles driven on roadways, alcohol consumption by truck drivers, and age of truck drivers have been shown to be positively linked to accidents.

A recent study elsewhere (FHWA, 2009) have shown that highway bottlenecks arising from delays is estimated to be caused by non-recurring congestion. The result of transitory events such as construction work zones, crashes, breakdowns, extreme weather conditions and suboptimal traffic controls are all cases of delays in freight transport delivery. Consequently, the report notes with dismay that truck delay bottlenecks increases costs to business and consumers. To other writers, their approach has been to exam-

ine trucking operational problems within the framework of supply chain, since transport performs a critical role by enabling products to be made available at locations desired by the consumers (Potter and Lalwani, 2008) and that any disruption to material flows in the supply chain results in an abrupt cessation of the movement of goods (Wilson, 2007). According to Chopra and Sodhi (2004) transportation disruptions can occur as a result of natural disasters, labour disputes, terrorist activities and infrastructure failures. These disruptions have the propensity to stop the flow of goods when such goods in transit are interrupted. Imperatively, a disruption in transportation will certainly delay the arrival of consignments at destination points.

However, several studies in Nigeria (Oni, 2000; Oni and Okanlawon, 2006; Ubogu, 2005; World Bank, 2007) suggest that poor roads, narrow bridges, menace of armed robbery on highways, harassment by security officials, touting, delays occasioned by traffic congestion, outright non-delivery of consignments consequent upon accidents, shortage or scarcity of fuel, incessant vehicle breakdown and traffic hold-up in the city centres are some of the operational difficulties confronting cargo haulage in the country. Quite often, commentators have identified poor quality of roads as a major drawback for trucking of consignments, in spite of the fact that, road haulage has been and still remains the most favoured mode for the movement of cargo (Oni, 2008).

Unfortunately, this transport sub-sector is dominated by a large number of small-scale operators with most of the transport outfits not equipped with road worthy trucks. Other problems include overloading and the resultant damage to roads, poor vehicle maintenance which is a factor of the incessant breakdown of vehicles as well as numerous police check points. Some operational difficulties

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can be viewed within the context of the characteristics that are basic to all services: price, average transit time of delivering cargo to destination points, loss of goods in transit as well as damages to goods (Somuyiwa and Dosunmu, 2008). It is therefore not surprising that UNCTAD (1993) asserted that the transit time of freight to penetrate the hinterland in Nigeria is alarming. This is because it is much easier to move cargo from Europe to Nigeria than it is to move it to the hinterland. These numerous operational clogs coupled with traffic congestion, by no small means, increases the delays associated with cargo delivery. Furthermore, some goods do not reach their final destination.

One major aspect that has been missing from these various studies in Nigeria has been the order and magnitude of the constraints. Indeed, the constraints on trucking operations have received only limited coverage in the oft cited works on long haul trucking. Previous studies on trucking operations have not sought to explicitly quantify the magnitude of the operational problems, though the nature of the clogs in long haul cargo distribution have been implied.

The fact that most of the analyses of the different studies were undertaken in countries where the road haulage industry is under varying levels of regulation suggests that the identified problems might not yield identical results. This is because the economic regulation of rates, entry and standard of practice influences the operating practices of the industry (Harper and Johnson, 1987). The trucking industry in Nigeria is unregulated with no specific legal restrictions on entry into the industry (Olanrewaju, 1983).

The fundamental purpose of this paper is to evaluate the order and magnitude of a subset of the operational problems on Nigeria's two major port-hinterland corridors. Several factors were taken into consideration in the selection of the study sites. The first factor is the relative accessibility of the ports to import cargo. The Lagos and Port Harcourt port complexes dominate ocean shipping activities in Nigeria. Both complexes account for more than 75% of the shipping activities in Nigeria. The Lagos ports complex alone handles over 60% of the nation's total import traffic while the Rivers port complex handles about 15% of the total traffic handled (NPA, 2004). Therefore, such ports are indirectly centres of haulage, trucking activities, bridging firms, and petroleum pipeline distribution centres as well as railway termini that engage in the transportation of goods to the hinterland. Applying rank-ordered technique, this study determines the order of the operational constraints facing the smooth operations of cargo delivery from the seaports to the hinterland.

## 2. The study area

Roads provide by far the most important mode of transport in Nigeria. The highways in the country generally account for about 70% of the movement of goods and persons in the country (Akpogomeh, 2002). This is largely attributed to the natural advantage provided by the existence of vast land mass in Nigeria, when compared with waterways, and perhaps the inadequate attention being given to the rail system (Adesanya, 1998). The major cities, including the 36 states capitals and the federal capital are connected to each other by a network of two-lane highways; with some main connections being of four-lane, dual carriageway type. The road network in the south-western and south-eastern parts of the country is much denser than in the rest of Nigeria due to higher population densities (MITI, 2002, p. 109). Generally, the roads are classified into trunk A, B, and C roads constructed, managed and owned by the three tiers of government. Essentially, trunk A roads are the responsibility of the federal government (Digest of Transport Statistics, 2004) the majority of which are the paved highways of the country. Presently, some of the roads are in deplorable condition in most parts of the country (Oni and Okanlawon, 2006).

The Nigerian road haulage industry has developed tremendously over the past 15–20 years. This is the growing reliance on road transportation and the relegation of rail in long haul freight transport. Incidentally, there are no reliable statistics on the size of the total truck market in Nigeria but it is estimated that the country's trucking market is about 10,000–15,000 units annually (Eke, 2006). According to the National Bureau of Statistics (2006) the total registered land transport establishments are 742 including trucking firms. While well established road haulage providers operate with new and fairly new used trucks, smaller companies with lean budgets continue to use old trucks. It is estimated that small haulage firms presently constitute about 50–60% of the Nigerian haulage industry. These small haulage organizations range from owner operators to a few truck owners who operate on contractual basis with freight forwarders and other maritime operators. There are about 15 truck brands deployed by the trucking firms however, Mercedes, MAN Diesel, DAF, Iveco, Mack and Freightliner are the dominant ones (Eke, 2006).

The country has about 3505 km of single track 1067 mm gauge railways, of which 1788 km are sharp curves. A 320 km standard-gauge section of Ajaokuta-Warri line has been constructed (MITI, 2002). With regards to seaports, there are several ports conveniently classified into four major port complexes. These seaports are of vital importance to the country because a substantial portion of Nigeria's international trade uses them. Since the freight share of rail has overtime been taken over by road, imported maritime goods are mainly transported on the major port-hinterland corridors that constitute the corridors of interest to this research.

## 3. The data and analytical technique

The primary source of data was from a structured questionnaire administered to truck drivers. A sample comprising of 302 truck drivers sampled in the two major seaports of Lagos and Port Harcourt were selected. Available records shows that these two ports complexes account for more than 75% of cargo freight traffic in Nigeria and that these ports have the widest coverage in terms of physical distribution of goods that are hinterland bound (NPA, 2005). The truck drivers were sampled systematically by asking every fifth truck driver at the point of loading or waiting at the ports. The freight capacity of Lagos port complex, at the time of the survey reveals that, on a daily basis about 1300 trucks are loaded at Apapa Wharf while 350 trucks are loaded in Tin-Can Port from 10 a.m. to 10 p.m. These two terminals comprise the major terminals of the Lagos port complex. The Port Harcourt port complex comprises of two major terminals notably the Port Harcourt and Onne ports with a combined truck loading capacity estimated to be 413 trucks. On the basis of these capacities, 5% samples from this population were taken for 3 days: Mondays, Wednesdays and Fridays in the two port complexes. The period of the fieldwork was in March and September, 2008 for Lagos and Port Harcourt port complex, respectively. Consequently, 242 and 60 truck drivers were interviewed with the questionnaire in Lagos and Port Harcourt, respectively.

The questionnaire was used to elicit information on the operational characteristics of the truck drivers as well as the problems encountered in hauling freight to hinterland locations. Apart from descriptive statistics, the Kruskal–Wallis method of non-parametric test for repeated measure analysis was used to evaluate the magnitude and rank-order of the operational constraints. This method is used here to determine the rank-order of the difficulties associated with road haulage in conveying goods to hinterland destinations. Its analytical function is to compare the mean ranks for the rank-ordered problems. The K–W test is often used to detect the overall difference in distribution among the groups under con-