Universiti Teknologi MARA
Cawangan Perlis
Jurnal Intelek
Volume 12 Issue 2 (2017)

# Road Hazards and Human Resources Productivity in Nigeria

*A. Salman[a], S. B. Isiaka[a], M.J. Saka[b]*

*[a]Department of Business Administration, Faculty of Management Sciences, University of Ilorin, Ilorin, Nigeria.*
*[b]Department of Epidemiology and Community Health, Health Management Unit, Faculty of Clinical Sciences, College of Medicine, University of Ilorin, Ilorin, Nigeria.*

**ABSTRACT**

Transport is a major key factor in modern economies. In fact, cities and transport have developed hand-in-hand since the earliest large human settlements. Problems such as road congestions and other forms of road hazards hinder the objective of human resource productivity and transportation systems. This paper however, examined the impact of roads hazards on human resources productivity in Nigeria. The respondents were made up of drivers, passengers, pedestrians, security officers, market women and men, and farmers. Thirty-five (35) respondents were selected at strategic areas through stratified and simple random sampling techniques from each selected areas of the states under study. Z-score statistical tool was adopted. It was concluded that road hazards has negative effects on the productivity of human resources in Nigeria. The study, therefore, recommended that road hazards can be drastically reduced by embarking on various prevention and implementation of strategies such as: implement mobility management, improving traffic operations, etc.
**Keywords:** *human resources; road hazards; productivity; Nigeria.*

## 1. Introduction

Transport is a major key factor in modern economies. In fact, cities and transport have developed hand-in-hand since the earliest large human settlements. The same forces that draw inhabitants to congregate in large urban areas also; however, do lead to sometimes intolerable levels of traffic congestion on urban streets and thoroughfares. Effective urban governance requires a careful balancing between the benefits of agglomeration and the dis-benefits of excessive congestion. However, transportation systems, in view of Thomas and Stephen (2004), are designed to move people, goods and services efficiently, economically and safely from one point on the earth's surface to another.

According to Aizaz (2007) Pakistan has large road network of 259, 758 km of which 8,318km are National Highway and 2,027 km are Motorways. The National Highway that passes through major cities is the backbone of Pakistan economy. The Asian Highway Network length in Pakistan is 4964km. Road crashes are among leading causes of death and injury worldwide. Thousands of people die on the Pakistan's roads every year. Aizaz (2007) added that, road traffic injuries cause emotional, physical and economic burden. In developing country like Pakistan, the poor are disproportionately affected, with most of the victims being pedestrian, bicyclist, motorcyclists and passenger of public transport riders and with more than half of them between ages of 15 to 44 years. Young road users are particularly more vulnerable. In summary, road traffic deaths and injuries affect us all.

Nigeria economy transport services need an efficient transport system and the problems, which may hinder the objective of the transportation system, must be drastically tackled to minimise the causes of the transportation hazards. Evidence has shown that means of transport by road contributes more to transport hazards reports and economy problems generally. According to Kim (2002) 'Road accidents is a human tragedy, associated with major health problem, negative socioeconomic growth, and poverty'. Studies under these vital incidences indicate a tremendous negative impact on life, property, and production output among others. It is also a great concern that many people are affected on the road due to some hazards, which are not even caused by actual accident but mostly psychological. A number of reasons are accounted for these situations. Among others are: wrong signals on the roads, over concentration of working places at a particular location, congestions, potholes, lack of road width etc. Persaud, Retting and Lyon (2000) observed that hazards such as extreme weather, landslides and earthquakes are much more difficult to predict, manage and mitigate. These adverse events can dramatically reduce network serviceability, increase costs, and decrease safety. The economic livelihood of many individuals, firms, and nations depends on efficient transportation, and this fact is embodied in twentieth-century innovations just like in-time manufacturing



ISSN: 2231-7716

and overnight shipping. As the movement of people, goods, and services increased at all scales due to population growth, technological innovation, and globalization, Janelle and Beuthe (1997) saw the systematic study of these events becoming increasingly important.

The United Nations (UN), according to the reports on Road Safety in the People's Republic of China (2009), has integrated road safety into its policies on sustainable development. In April 2004, for the first time, a UN General Assembly plenary session addressed road safety and called on member states to stimulate a new level of commitment and an urgent response to improve road safety. The World Health Organisation (WHO) as reported by Asian Development Bank (2009) Project, forecasts that road accidents will move from the ninth to the third most serious problem facing the world, within next 10 years.

This paper however, examined the impact of roads hazards on human resources productivity in Nigeria. The study looked into the causes, consequences, on effect of road hazards on human resources productivity and recommends possible solutions from the investigation through analysis.

### 1.1. Literature Review

Thomas and Stephen (2004), explained the term 'hazard' as often used to mean environmental threats like fog, wind, and floods, but transportation hazards exist at all scales from a sidewalk curb that might trip a pedestrian to the potential for sea- level rise to flood a coastal highway. In the most general sense, a hazard is simply a threat to people and things they value.

However, in Nigeria, according to The GUARDIAN Newspaper, (Nov. 6 2006) traffic congestion has greatly increased in recent years owing largely to the government's liberalised policy of ensuring the availability of vehicles. Unfortunately, road maintenance, driver's education, vehicle upkeep and traffic enforcement have not grown accordingly. As a result, the roads have become death-traps. In most places, drivers seemingly fail to adhere to road signs. Even when they are apprehended for road offences, some are able to bribe their way by seeking the assistance of corrupt police motor traffic officers who by and large, have been partly to blame for the escalation in road accidents.

Also in Nigeria, the problems of roads in the country have become an embarrassing stigma. In many parts of this country, normal interaction has been frustrated by bad road conditions. Vehicles owners are in distressed as their vehicles are not used optimally. Moreover, the continuous increasing number of potholes and detours on the roads mean that vehicles keep breaking down, making Nigeria's emergency mechanics springing up to assist stranded commuters sometimes meet with disastrous consequences. The roads to Benin, Bode Sadu (Kwara State), Mokwa in (Niger State), are so bad that the vehicles using the roads invariably retire to a mechanics workshop at the end of every journey.

Transporters are hurting and are bewildered that despite their payment of all road taxes to the Federal Government and the various rates to the State and Local Governments, little is being done to repair the roads upon which their livelihood depends.

Also, armed robbers are a constant threat particularly at night. It is common for thieves, rapists and other miscreants to ensconce themselves in bad portions of the roads where all vehicles virtually come to a halt. Commuters are in trouble whether in the cities or on interstate highways as bad roads make it impossible to plan a journey or predict arrival time. Commercial activities are suffering as goods and services are now in short supply leading to price increases practically for all consumer items.

Natural forces such as rain, wind, and earthquakes have causal links with many other hazards. Rain and earthquakes can both induce a flood, landslide, rock fall or debris flow. Earthquake can also start a fire or result in a toxic release. Extreme wind can kick up dust, start a fire, drive smoke from a fire, blow trees and debris into the roadway, or redeposit snow leading to an avalanche. These are some examples of the many natural calamities that are related to and could lead to road hazards. These can prevent or hinder movement of people to places of work. Road hazards, therefore, can be a deterrent to human resources productivity.

Several studies have been conducted in different countries on the road problems. According to Jeff (2007), more than 1.2 million people are killed every year and over 100,000 are injured on roads worldwide every day. Almost 400,000 young people under the age of 25 years and about 1,049 youngsters everyday were killed in road traffic crashes. Road accidents disable as many as 50 million more per annum globally and economic impact is significant in low and middle-income countries. Road traffic crashes and their consequences cost government about 2% of their Gross National Product.

The report of Asian Development Bank Transport Activities in People's Republic of China (2009) also revealed that the problem of road safety is severe in the Asia-Pacific region, which ironically only has around 18% of the world's motorized vehicle fleet but accounts for around 50% of global road deaths. The estimated economic loss to the region from road traffic accidents is over $35 billion per annum. Around 40 million in-patient days are taken up in the regions' hospital each year by road accident victims.

In People's Republic of China (PRC), rapid economic growth, low vehicle ownership rates, lower car prices as tariff barriers fell after World Trade Organization (WTO) accession, and increasing access to loans to finance automobile purchases, and the vehicles fleet is expected to continue to grow rapidly in the coming

years. As a result of this rapid development and increasing in vehicular growth in the PRC have resulted in a substantial increase in road accidents and loss of life.

It is also observed that casualty rate recorded in road transport increases especially at the last of the 'ember' months every year. Here, statistics by the Federal Road Safety Commission, 2009 indicates that over the year's road accidents have continued to remain a major cause of deaths in Nigeria.

This statistics reports shows thus:

| Year | No of cases | No killed | No injured |
|---|---|---|---|
| 1960 | 14,130 | 1,083 | 10,216 |
| 1961 | 15,963 | 1,313 | 10,614 |
| 1962 | 16,317 | 1,578 | 10,341 |
| 1963 | 19,835 | 1,532 | 7,771 |
| 1964 | 15,927 | 1,769 | 12,581 |
| 1965 | 16,904 | 1,918 | 12,024 |
| 1966 | 14,000 | 2,000 | 13,000 |
| 1967 | 13,000 | 2,400 | 10,000 |
| 1968 | 12,163 | 2,808 | 9,474 |
| 1969 | 12,998 | 2,347 | 8,804 |
| 1970 | 16,666 | 2,893 | 13,154 |
| 1971 | 17,745 | 3,206 | 14,592 |
| 1972 | 23,287 | 3,921 | 16,161 |
| 1973 | 24,844 | 4,537 | 18,154 |
| 1974 | 28,893 | 4,992 | 18,660 |
| 1975 | 23,651 | 5,552 | 20,132 |
| 1976 | 40,881 | 6,761 | 28,155 |
| 1977 | 35,351 | 8,000 | 30,023 |
| 1978 | 36,111 | 9,252 | 28,854 |
| 1979 | 29,271 | 8,022 | 21,203 |
| 1980 | 32,138 | 8,736 | 25,484 |
| 1981 | 33,777 | 10,202 | 26,337 |
| 1982 | 37,094 | 11,382 | 28,539 |
| 1983 | 32,109 | 10,462 | 26,866 |
| 1984 | 23,892 | 8,830 | 23,861 |
| 1985 | 29,978 | 9,221 | 23,853 |
| 1986 | 25,188 | 8,154 | 22,176 |
| 1987 | 28,215 | 7,912 | 22,747 |
| 1988 | 25,792 | 9,077 | 24,413 |
| 1989 | 23,978 | 9,221 | 23,853 |
| 1990 | 21,683 | 8,154 | 22,176 |
| 1991 | 22,498 | 9,525 | 24,508 |
| 1992 | 22,909 | 9,620 | 5,759 |
| 1993 | 21,419 | 9,454 | 24,146 |
| 1994 | 18,218 | 7,440 | 17,938 |
| 1995 | 17,000 | 6,647 | 14,561 |
| 1996 | 16,795 | 6,364 | 15,290 |
| 1997 | 17,500 | 6,500 | 10,786 |
| 1998 | 16,046 | 6,538 | 17,341 |
| 1999 | 15,873 | 6,795 | 17,728 |
| 2000 | 16,348 | 8,473 | 20,677 |
| 2001 | 20,530 | 9,946 | 23,249 |
| 2002 | 14,544 | 7,407 | 22,112 |
| 2003 | 14,363 | 6,452 | 18,116 |
| 2004 | 14,279 | 5,351 | 16,879 |
| 2005 | N/A | 8,980 | N/A |
| 2006 | 22,301 | 4,944 | 17,432 |
| 2007 | 22,467 | 4,673 | 17,794 |
| 2008 | 34,641 | 6,661 | 27,980 |

*Sources:* TELL Newspaper, Monday 14th December, 2009.

However, report of Daily Trust from Oyeyemi (2016) confirmed that a total of 6,052 people died from road traffic crashes in Nigeria in 2010, in 2012 it was 6,092, and 6,450 died from road crashes by 2013. Thus, as of the last week of November 2014, a total of 4,643 people had died from road traffic crashes throughout the country.

### 1.2. Causes of Road Hazards

Lack of maintenance of roads in Nigeria, as revealed by the study has become a public issue as Nigerians are daily lamenting this failure of leadership. Good roads are a basic component of good governance. Employees in Nigeria are routinely being put at risk everyday as a result of the failure of the state to provide adequate amenities.

Another problem besetting Nigerian roads is that they are not designed for expansion. As the volume of traffic increases, road construction should be seen to be keeping pace accordingly. The Lagos-Ibadan expressway, for instance, can do with further expansion. Also, the time-honoured idea of road camps should be revived so that deteriorating sections can be quickly repaired. Awarding emergency contract near National Festival period such as Christmas, Sallah etc., which may even happen to coincide with the end of the financial year, does not seem to be sustainable way of managing our bad roads. (GUARDIAN, November 26, 2006).

Fog, dust, smoke, sunlight and darkness are transportation hazards that compromise the visibility of system users. This hazard category does not apply to pipeline networks, transmission lines, and other networks where visibility is not an issue. From a roadway perspective, Perry and Symons (1991) provide an excellent source on these hazards. Musk (1991) thoroughly covers the fog hazard, and Brazel (1991) describes a dust storm case-study for Arizona. Although smoke from wildfires routinely disrupts roadways and inhibits operations at airports each summer, it appears to be an under-researched topic in transportation hazards. Darkness also has an understandably adverse effect on road safety, especially when combined with fog, smoke or dust (Thomas & Stephen, 2003).

### 1.3. Possible Solutions to Road Hazards

There are many strategies that can help to improve travel speeds, increase system reliability and mitigate the impacts of congestion. Traditional congestion management strategies can be divided into four broad classes: those that seek to improve traffic operations, those that seek to shift urban traffic to public transport or otherwise reduce the demand for urban road travel, those that seek to modify existing infrastructure so as to increase its capacity, and those that seek to provide new infrastructure. These strategies are discussed as follows:

#### *1.3.1. Improving traffic operations*

Proactive traffic operations management has much potential. Road traffic information systems, pre-trip guidance, coordinated traffic signal systems and the implementation of dynamic speed and incident management policies have often proven to be cost-effective ways to deliver better travel conditions, allowing users to reschedule their trips away from traffic peaks and/or select other travel modes. These strategies allow road managers to get more out of roads – e.g. to allow for greater flows than could otherwise be realised. They should not be deployed with an eye to bringing traffic up to the limit of the physical capacity of the roadway as this inherently leads to major instabilities in traffic flow and increased probabilities of sudden breakdowns. In fact, many of these strategies can be helpful in managing traffic such as flows are held below these unstable threshold zones.

#### *1.3.2. Improving public transport*

Public transport has the potential to transport more people than individual cars for a given amount of road space (in the case of on-street systems such as buses and trams) or without consuming any road space at all (in the case of off-road systems such as metros and surface rail systems). The promotion of public transport remains a fundamentally important congestion management strategy. When public transport provides a quality of service that approximates that which car drivers have previously been used to, it can maintain a high level of access throughout urban areas with a drop in overall car usage.

#### *1.3.3. Implementing mobility management*

There are numerous mobility management strategies that can, when successful, reduce car use in urban areas. These include ride-sharing, promoting bicycling and pedestrian travel or supporting mobility management efforts targeting large trip generators such as companies.

#### *1.3.4. Modifying existing infrastructure*

There are many approaches that can squeeze additional capacity out of existing infrastructure. These include adding lanes, re-allocating road space, modifying intersections, modifying the geometric design of roads or creating one-way streets. These approaches can benefit either car users or public transport. However, as with operational management policies – these interventions should not seek to bring traffic flows so close to the maximum capacity of the roadway that the probability of sudden traffic breakdowns becomes unacceptable. While these types of measures are ideally suited for treating bottlenecks, care should be given to consider the downstream impacts of releasing greater traffic flows through previously contained bottlenecks. Great care should be taken to at least address what the network effects will be over the mid- to long-term of such bottleneck treatments (European Conference of Minister of Transport, 2004).

### 1.4 Employee Productivity

Managers know all too well that productivity is the only way forward if they are serious about sustainable results. The managers are the ones responsible to clarify the goals of the business, to devise processes for achieving the goals and to control those processes. Whether a business organization has been set up to produce a product or to render a service it will always have to see how to increase its competitiveness with by aiming to have a better product or to render a superior service (compared to its competitors) so as to have its market share.

Productivity then is regarded as a measure of efficiency; more precisely output per unit of input. Productivity is computed by dividing average output per period by the total costs incurred or resources (capital, physical, material, and human) consumed in that given period. Everyone should be concerned about 'how to improve productivity'. Because this is about how everyone in the organization combine resources to produce goods and services. It is a magic formula in creating more from available resources. The higher the productivity of an organization, the more it can invest in achieving even higher productivity.

Business productivity is the capability of a business organization to utilize its available resources to produce profitable goods and/or services as desired by its customers. Productivity is the only way forward. Increased productivity leads to increased capacity and capability. This in turn leads to a firm's capacity to innovate, to reduce cost of production, to better satisfy customers and to better satisfy all its stakeholders; including its employees. Productivity is much more important than revenues and profits. This is simply because profits vary as a result of external factors, such as exchange rate, dividends on investments, bank rates, and etc. and because profits reflect the end result. Whereas productivity reflects the increased efficiency and effectiveness of the whole organization, including its policies, structures, management systems, and etc.

Therefore, employee productivity is sometimes referred to as workforce productivity. It is an assessment of the efficiency of a worker or group of workers. Productivity may be evaluated in terms of the output of an employee in a specific period of time. Typically, the productivity of a given worker will be assessed relative to an average for employees doing similar work. Since much of the success of any organization relies upon the productivity of its workforce, employee productivity is an important consideration for businesses and economy growth.

## 2. Methodology

The study adopted a survey research design. The respondents were made up of drivers, passengers, pedestrians, security officers, market women and men, and farmers. Thirty-five (35) respondents were drawn at two selected areas through stratified and simple random sampling techniques from each of the states under study. The areas are Oja-Oba, Ilorin, Kwara State; Owode-Market, Offa, Kwara State; Isale-Eko, Lagos state; Ajegunle, Lagos state; Oke-fia, Osun state; Old Garage, Osun state; Kuta Market, Minna, Niger State; and Paiko Market Motor Park, Minna, Niger State. Data were obtained through administration of structured questionnaires from a total of 245 out of 280 copies of questionnaires distributed through random sampling technique. Z-score statistical tool was adopted in order to examine the effect of road hazards on human resources productivity.

**Hypothesis of the Study:** Road hazards have no effect on the human resources productivity in Nigeria.

The scope of the study are; Lagos, Kwara, Osun, and Niger States of Nigeria. These states were selected because of the situation of their roads.

## 3. Results and Discussion

For the purpose of this test, weight was assigned to the variables on the data obtained from the respondents such as follows;
Question: Road hazards reduce the contributions of human resources productivity.

Table 1. Respondents feedbacks on human resources productivity

| Options | Weight |
|---|---|
| Strongly Agreed | 5 |
| Agreed | 3 |
| Disagreed | 1 |
| Strongly Disagreed | 0 |

Source: Field Survey, 2016

Table 2: Result of Z-Score

| Variables | X | F | FX | $X-\overline{X}$ | $(X-\overline{X})^2$ | $F(X-\overline{X})^2$ |
|---|---|---|---|---|---|---|
| Strongly Agreed | 4 | 145 | 580 | 0.469 | 0.2197 | 31.857 |
| Agreed | 3 | 85 | 255 | -0.531 | 0.2820 | 23.970 |
| Disagreed | 2 | 15 | 30 | -1.531 | 2.3440 | 35.160 |
| Strongly Disagreed | 1 | 0 | 0 | 0 | 0 | 0 |
| | | 245 | 865 | | | 90.987 |

Source: Researcher's Computations, 2016.

$$\text{Mean} = \frac{\sum FX}{\sum F} = \frac{865}{245} = 3.531 \quad (1)$$

$$\text{Standard Deviation} = \sqrt{\frac{\sum F(X-\overline{X})}{\sum F}} = \sqrt{\frac{90.987}{245}} = \sqrt{0.3714} = 0.6094 \quad (2)$$

$$\text{Standard Error of Mean (S.E)} = \frac{\sqrt{\frac{\sum F(X-\overline{X})}{\sum F}}}{\frac{\sum FX}{\sum F}} = \frac{0.6094}{\sum 245} = \frac{0.6094}{15.653} = 0.0389 \quad (3)$$

= 3.531 ± 1.96 (0.0389) base on the population mean (x) which lies within ± 1.96.
= 3.531 + 0.0762 = 3.6072
or
= 3.531 - 0.0762 = 3.4548

$$Z = \frac{X-n}{S.E} = \frac{3.531-3.6072}{0.0389} = \frac{-0.762}{0.0389} = -1.96 \text{ or } \frac{3.531-3.4548}{0.0389} = \frac{0.0762}{0.0389} = 1.96$$

## 4. Conclusion and Recommendations

Based on the findings of this study, it is clear that road hazards have negative effects on the contributions of human resources in Nigeria. It was therefore recommended that road hazards can be drastically reduced by embarking on various prevention and implementation strategies such as anticipation of possible danger, drive at an appropriate speed for the road conditions, avoid lateness, board the right route, never assume other drivers are as skilful as you are, and be prepared for unexpected road stop or block. Also, government on their part should implement mobility management, improving traffic operations, improving public transport to prevent traffic congestion in order to aid and improve human resources productivity in their place.

## References

Ahmed A. (2007): *National Road Safety Secretariat*, Ministry of Communications Government of Pakistan.
Ahmed A. (2007): *National Road Safety Secretariat*, Ministry of Communications Government of Pakistan
Asian Development Bank (2009): Promoting Road safety and Transport Suitability.
Brazel, A.I. (1991) *Blowing dust and highways*: the case of Arizona, USA, in Perry, A.H. and Symons, L.J. (eds.), Highway Meteorology, p. 131-161.
European Conference of Minister of Transport (2004): Managing Urban Traffic Congestion. GUARDIAN Newspaper (2006): The Bad Roads of Nigeria.
Janelle D.G., and Beuthe, M. (1997) Globalization and research issues in transportation, Journal of Transport Geography, p. 199-206.
Jeff R. (2007): South Africa Global Road Safety Week: First United Nations Road Safety Week.
Johannes et al (2004): Exploratory Study on the Potential Socio-economic impact of the introduction of intelligent Safety Systems in Road Vehicles.
Kim J. (2009): *Highway and Motor Vehicles Growth*: Road Safety in the People's Republic of China: Past, Present and Future.
Kim, K., and Levine, N. (1996) Using GIS to improve highway safety, Computers, Environment, and Urban Systems, p. 289-302.
Musk, L.F. (1991) Climate as a factor in the planning and design of new roads and Motorways, in Perry, A.H. and Symons, L.J. (eds.), *Highway Meteorology*, p. 1-25.
Perry, A.H., and Symons, L.J. (1994) The wind hazard in the British Isles and its effects on transportation, *Journal of Transport Geography*, p. 122-130.
Persaud, B., Retting, R.A., and Lyon, C. (2000) Guidelines for identification of hazardous highway curves, *Highway and Traffic Safety*: Crash Data, Analysis Tools, and Statistical Methods, Transportation Research Record, p.14-18.
TELL Newspaper ( 2009): Federal Road Safety Commission/ Bureau of Statistic. p. 41
Thomas J. C. and Stephen C.(2003): Transportation hazards, in *Transportation Engineers'Handbook*, M. Kutz (ed.), in press.