

DRIVER IMPULSES WITHIN TRAFFIC AND JOURNEY CONDITIONS: A GENDER DIFFERENTIAL APPROACH

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Abstract

The study tends to establish the level of driver impulses within some road conditions with respect to both sexes. Primary data were collected by the use of structured questionnaire by the critical incidence Method. 100 respondents of both sexes who are drivers working at the state and federal secretariats in Owerri were randomly selected to form a population of 50 male and 50 female drivers respectively. Their responses were tallied and ranked based on the 5 impulses- very stable, stable, fairly stable, unstable, and very unstable. The quantities were then subjected to Analysis of Variance (ANOVA) test to reveal their differences and level of significance. Results show that the extreme conditions and impulses -very stable and very unstable- were not significantly related to the gender of the driver. It is concluded that driver impulsiveness may be traced along personality traits rather than gender differentials. The study therefore recommended among other things that relevant government agencies should engage in value re-orientation of the citizens in terms of attitudes and behavioural patterns with respect to traffic regulations.

Key words: Driving, impulsiveness, traffic, gender, road, journey.

1.0 Introduction

Driving is the act of operating and controlling a motor vehicle with the desire to get to a predetermined destination. Driving has a relationship with transportation, and transportation according to Hanson (2004) is vital to U.S. urban life and to life in other places as well because it is an absolutely necessary means to an end: It allows people to carry out the diverse range of activities that make up daily life. Driving demands a well coordinated manipulation of numerous mechanisms that come into play when a motor vehicle is set in motion.

Can you imagine what life would be like without the ease of movement that we now take for granted (Hanson, 2004)? This is made possible by transportation which can only be realized when a driver applies his skill in putting a vehicle on motion. As awareness and need for transportation continue to grow, the desire to drive the motor vehicle keeps increasing: either as a private vehicle driver, a public service driver or a commercial driver.

As we have many people engaged in driving the motor vehicle, so we have diverse approaches and attitudes in driving. Even if drivers are given a common training; guided with the same rules and regulations; and operate in the same environment, they definitely differ in the way and manner they drive, irrespective of gender.

It is, however, interesting to note that even with the numerous risks associated with driving, it is increasingly becoming exciting for people to sit behind the steering wheel driving the motor vehicle. And like many other human activities, driving is not a prerogative of any particular gender. Therefore, everyone sees oneself as a potential driver and in fact, a driver in the end.

Little wonder the worlds' first long distance road trip by automobile took place in Germany in August 1888 when Bertha Benz, the wife of Karl Benz, the inventor of the first patented motor car (the Benz Patent-Motorwagen) travelled from Mannheim to Pforzheim (a distance of 106km or 66 miles) (en.wikipedia.org/wik/driving). This is an indication that driving to both genders is as old as the history of motor vehicle.

1.1 Problem statement

When people are driving in pursuit of economic activities, they may be involved in the production, distribution or consumption of goods and services. These are the principal reasons why people drive to and from places, and indeed, the reason for transportation. Hence, Hay (1977) maintains that almost all transport developments are economic in origin.

Hansan (2004) asserts that because cities consist of spatially separated, highly specialized land uses such as food stores, Laundromats, hardware stores, banks, drug stores, hospitals, libraries, schools, post offices, and so on - people must travel if they want to obtain necessary goods and services. And most of these travels are made by means of the motor vehicle, and indeed, the services of the driver.

It is not out of place to say that several claims have been made in favour of both sexes regarding the state of drivers on the road. Some feminists lay such claims in favour of the women due mainly to their calmness and thoroughness. Whereas, the supporters of the men claim that the men find themselves in a better state because they are more courageous than the women over any situation.

Therefore, while people are driving the motor vehicle on the road, they exhibit different driving behaviours towards certain road conditions and happenstances which vary with individuals, and perhaps with gender considerations. It is on this assumption that this study was based.

1.2 Objectives of the Study

This study was based on two critical objectives:

- I. To establish the significance of the degree of impulse of male and female drivers at extreme conditions on the road;
- II. To determine if a difference exists in the way the male and female drivers react under certain driving conditions.

1.3 Research Questions

The following research questions were put up in this study:

- I. Is the degree of impulse of male and female drivers significant at extreme conditions on the road?
- II. Do female drivers react to driving conditions the same way the males do?

1.4 Research Hypotheses

The hypothesis of this research states thus:

- I. The degree of impulse of male and female drivers at extreme conditions on the road is not significant.
- II. There is no significant difference in the way the male and female drivers react to driving conditions on the road.

1.5 Justification

This study is invaluable to policy makers, government, the academia and other stake holders in the transport industry.

1.6 Study Area and Population

This research was carried out in Imo State, Nigeria. Imo State is one of the 36 States of Nigeria and lies in the South- East region of Nigeria, set in the heart of Igboland. Owerri is its capital and largest city. It occupies the area between the lower River Niger and the upper and middle Imo River and situate near Otamiri River. Owerri is one of the largest and most populous cities in southern Nigeria, with the population exceeding 750,000 people. It lies within the latitude 5.476310 and longitude 7.025853, with the GPS coordinates of 5⁰ 28' 34.7160''N and 7⁰ 1' 33.0708''E. The city elevation is 71 meters, equivalent to 233 feet. Owing to the nature of the research, which had to do with drivers only, the population of the study was drawn from the two large secretariats in Owerri, the capital of Imo State. They were the Imo State Secretariat and the Federal Secretariat. The secretariats were selected because they have a good concentration of drivers- both males and females.

A total of one hundred drivers who were equally distributed along gender lines – fifty males and fifty females, formed the sample population of this study. Fifty drivers were randomly selected from each of the two secretariats also along gender lines – twenty five males and twenty five females who were served with copies of the structured questionnaire. The questionnaires were completely retrieved by the researchers at the end of the survey period of three months.

2.0 Literature Review

2.1 Conceptual Framework

A driver is a person who drives a vehicle (Hornby, 2007). In order to be able to drive, one needs to be trained in the art of manipulating the different mechanisms and controlling of the motor vehicle. This requires a basic knowledge of how the engine works - how it is started, sustained at work at different workloads, and eventually stopped when desired. While doing all that, a driver should be competent in the use of the clutch and gear systems of the motor vehicle in order to ensure that the right gear is

engaged at the right time under perfect engagement and disengagement of the clutch for a harmonious transmission of the drive to the road wheels.

Some vehicles are fitted with automatic transmission mechanism which eliminates the use of the conventional clutch/gear transmission of the drive. This type of the transmission makes it easier for the driver to operate the vehicle, but its choice is optional and rests entirely on the owner of the vehicle. It is, however, not common on big buses and trucks.

When a vehicle is in motion, the driver may wish to slow down or stop entirely. This demands the application of the brake. While supporting this, Giri (2008) asserts that the function of the braking system is to retard the speed of the moving vehicle or bring it to rest in a shortest possible distance whenever required. This makes the brake a very crucial system of the motor vehicle which demands the efficiency of the driver for prompt and proper application in order to ensure that a vehicle is always under good control.

The braking system works in synergy with the steering system in effectively controlling a vehicle. The driver should, therefore, harmonize the operation of the two systems for a vehicle to always remain on track (the lane). Hence it is maintained that the steering is the collection of components, linkages, etc. which allow a vehicle to follow the desired course (Wikipedia, 2016).

The driver should know about the electrical system of a motor vehicle – when to apply certain features; when they are functioning and not functioning, and what measures to adopt under certain conditions. Of particular interest is the use of the direction indicators which must be applied promptly in order to guide other road users when taking a turn. It is also a good practice not to drive closely to vehicle in front and always keep a watch at the brake light so as to avoid running into a slowing or stopping vehicle.

Lane discipline is an important issue each time a driver is on the road. It is a major cause of accident if drivers cut in and out of lanes. Lanes are however determined by the route one is heading to and should be strictly maintained. A sudden change of route should be discouraged and where it becomes necessary to change route, a gradual approach should be followed by giving a suitable signal to the other traffic such a turn might affect and allowing them to respond appropriately.

Traffic rules and regulations are devised to assure the smooth flow of motor vehicles in the road. Hence the thorough knowledge of traffic rules/regulations, traffic signs and markings are very essential for the drivers and road users (Transport Department, Assam, 2010). Similarly, the National Road Traffic Regulations (2004) of the Federal Republic of Nigeria provides under Use and Construction, the necessary guidelines for the use of motor vehicles.

The horn is available to the driver as a means of signaling to other road-users of the presence of a vehicle and for necessary precaution to be taken in order to avoid any risk or danger. It is a very important tool for safety in driving which should be applied as the need arises.

Driving at night or when it is dark creates the need for the headlamp. It is necessary to put on the headlamp for proper illumination of the roadway once darkness sets in. The headlamps must be accurately set for proper lighting system. It is also incorporated with a dim mechanism or a dipping system. Hiller and Pittuck (1968) assert that a dipping system must ensure that the lamps cannot dazzle any person standing on the same horizontal plane as the vehicle at a distance greater than 25

feet from the lamp, and whose eye level is not less than 3 feet 6 inches above the plane. This must be applied appropriately when driving at night.

The windscreen wiper is used in cleaning the windscreen when it is raining so that the driver will have clear view of the road. An obscured or dull windscreen can be dangerous when driving and may lead to accident. This makes the use of the wiper imperative when it is raining.

2.2 Understanding Gender and Sex

Bilton et al (1981) quoting Oakley (1972) established a distinction between sex and gender maintaining that sex refers to the most basic physiological differences between men and women – differences in genitals and reproductive capacities. Whereas, gender refers to the culturally specific patterns of behaviour, either actual or normative, which may be attached to the sexes, they are of the view that when speaking of sexual differences, we are distinguishing between males and females; when speaking of gender, we are distinguishing between masculine and feminine. They see the context of the male /female distinction as genetically determined and largely universal; whereas the context of the masculine/feminine distinction is culturally determined and highly variable.

Billing (2013) sees gender division as the difference between female and male, feminine and masculine. He sees these concepts as being constructed as oppositional dichotomous, and hierarchical in situations in which the masculine is privileged; and believes that most cultures seem to include meanings and norms that prescribe gender differences and different activities for women and men.

In Nigeria, however, the most roles of males and females are culturally established. For instance, it is the role of women to do the kitchen works, especially cooking; while the men build and maintain the houses. Similarly, during farming, women weed grasses, while the men cut the bushes. Therefore, most functions are sexually determined and culturally established. Even when women can do what men do it is most times seen as a taboo for women to do so in most cultures.

Driving the motor vehicle is however a western culture and Nigerians have joined the rest of the world in the practice. Although, there are limitations as to the kind of vehicles women drive, such assumption is purely a stereotype in the sense that women had in the past attempted to drive them, and still drive them occasionally.

For instance, women don't usually drive articulated vehicles because there is a belief that it is a work for men not because they cannot drive them. After all, they also drive many other kinds of vehicles.

2.3 Empirical Review

Studies are ongoing in an attempt to unravel the existence of gender differences in various occupations and trades. While this is the case, the quantum of differences varies from one occupation to another. For instance, Eccles et al (2007) are of the view that the main source of gender differences in entry into physical science and engineering occupations is not gender differences in either mathematics aptitude or a sense of personal efficacy to succeed at these occupations, rather it is a gender difference in the value placed on different types of occupations. This goes to suggest that the value attached to what one does is on its own a motivating factor to the degree of success attained in the occupation.

It is a known fact that driving demands the use of the hands, legs, eyes and brain, all working together to ensure safe and efficient movement and control of a vehicle. Also needed is a reasonable amount of energy to generate the required power for the driver to perform his duty. It is also a fact that both male and female genders are naturally gifted with the above stated body supports. What appears to differ is the degree or level of performance of these supports in the individual irrespective of gender inclination.

However, gender differences in driving have been viewed from divergent perspectives by researchers. Some looked at it from the technical angle; that is, seeing driving as being technical in nature; some looked at it from the psychological dimension; while some looked at it from the social, educational or economic angle.

Tom Vanderbilt in Phillips (2011) is of the view that some research suggests that men do show more technical proficiency in driving as well as a greater tendency to declare themselves above average drivers (during rating). Similarly, it is his opinion that male drivers are capable of parking vehicles in a closed-off parking garage more accurately and quickly than their female counterparts; and concluded by noting that even though women are often seen to be socially stereotyped as bad drivers, they are considered safer drivers.

In a landmark report, Cheney (2010) maintains that gender-based differences in driving behavior is seen to account for women being more likely to be involved in accidents based on what he calls slips or lapses (like distracted driving), while men are more likely to have accidents based on deliberate or risk-taking behavior (such as speeding). He sees women as being easily carried away by emotion which sometimes leads to loss of concentration and eventual mishap, whereas the men indulge in recklessness and over-assumption of their perfection.

Analyzing 6.5 million car crashes that occurred in the United States between 1998 and 2007, Sivak and Schoettle (2011) maintain that female drivers were found to be involved in 68.1 percent of all crashes, while male drivers were involved in 31.9 percent. This happened even as men were found to drive 60 percent of the time while women drive only 40 percent, they maintain.

3.0 Methodology

Data for the research was obtained from primary source through the use of Structured questionnaire distributed to drivers of both sexes. The questionnaire contained questions developed through the 'Critical Incident Technique' which researchers maintain is a quantitative research method that is still widely used today. Flanagan (1954) propounded the Critical Incident Technique (CIT) which is a technique that enables one to collect specific and significant behavioural facts for typical performance in an operating environment and condition.

In this case, the drivers of Imo State Civil Service who were on training in Imo State Ministry of Works and Transport were given an assignment for each of them to produce a list of driving conditions which they experience while driving. After going through the lists they produced, the researchers used the conditions that appeared repeatedly on each list to develop the questions contained in the questionnaire.

The questionnaire was however taken to two Vehicle Inspection Officers (VIOs) and two officers of the Federal Road Safety Commission (FRSC) all in Owerri, for their validation of the questions since

they were experts on road traffic matters. Their observations produced the final questions that led to the questionnaire which copies were administered to the sample population.

The 100 respondents were randomly selected, 50 males and 50 females. 18 direct questions on prevailing conditions and circumstances while driving were asked to reveal the degree of their impulses as to determine their level of stability respectively on each condition. The degree of impulses or level s of stability was measured on a 5 point scale (A to E) in the descending order of magnitude viz: Very stable, Stable, Fairy stable, Unstable, and Very unstable. The responses per question per respondent for both categories- male and female- were tallied with respect to the level of stability. These were then subjected to Analysis of Variance (ANOVA) to test the degree of variance between the two categories with respect to the questions on driving conditions and corresponding impulses. The F- statistics and p-values for each were used for the interpretation of results.

4.0 Interpretation of Results

Table 4.1: F-Test Two-Sample for Variances based on the impulse- Very Stable- for both categories

	A	A
Mean	20.83333	15.27778
Variance	23.91176	22.80065
Observations	18	18
Df	17	17
F	1.048732	
P(F<=f) one-tail	0.4615	
F Critical one-tail	2.271893	

Source: SPSS v20 output

Table 4.1 reveals that the mean and variance of male and female respondents for 18 observations on the impulse- Very stable- are 20.833, 23.91 and approximately 15.28, 22.80 respectively, having degree of freedom (n-k)=17. The F- statistic is $1.048732 < F$ critical value of 2.271893, hence we accept the null hypothesis. More so, the F statistic value is greater than or equal to 1 and therefore we may infer that the difference between the means is not due to sample error or chance but genuine. The p value of $0.4615 >$ the level of significance at 0.05 and therefore the outcomes are not statistically significant.

Table 4.2: F-Test Two-Sample for Variances based on the impulse- Stable- for both categories

	B	B
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Mean	15.83333	17.66667
Variance	24.73529	10
Observations	18	18
Df	17	17
F	2.473529	
P(F<=f) one-tail	0.035134	
F Critical one-tail	2.271893	

Source: SPSSv20 output

Table 4.2 shows that the mean and variance of male and female respondents for 18 observations on the impulse- Stable- are 15.833, 24.74 and approximately 17.66, 10.00 respectively, having degree of freedom (n-k)=17. The F- statistic is 2.473529 > F critical value of 2.271893, hence we reject the null hypothesis. More so, F- statistic is 2.473529 > 1 and therefore we may infer that the difference between the means is not due to sample error or chance but genuine. The p value of 0.035134 < the level of significance at 0.05, hence we may infer that the outcomes are statistically significant.

Table 4.3: F-Test Two-Sample for Variances based on the impulse- Fairy Unstable- for both categories

	C	C
Mean	6.666667	4.888889
Variance	19.29412	7.751634
Observations	18	18
Df	17	17
F	2.489039	
P(F<=f) one-tail	0.034206	
F Critical one-tail	2.271893	

Source: SPSSv20 output

Table 4.3 shows that the mean and variance of male and female respondents for 18 observations on the impulse - Fairy Stable- are 6.67, 19.29 and approximately 4.89, 7.75 respectively, having degree of freedom (n-k)=17. The F- statistic is 2.489039 > F critical value of 2.271893, hence we reject the null hypothesis. More so F- statistic is 2.489039 is > 1 and therefore we may infer that the difference between the means is not due to sample error or chance but genuine. The p value of 0.034206 < the level of significance at 0.05, hence we may infer that the outcomes are statistically significant.

Table 4.4 F-Test Two-Sample for Variances based on the impulse- Unstable- for both categories

	<i>D</i>	<i>D</i>
Mean	3.882353	2
Variance	7.610294	1.142857
Observations	17	8
Df	16	7
F	6.659007	
P(F<=f) one-tail	0.008396	
F Critical one-tail	3.494408	

Source: SPSSv20 output

Table 4.4 reveals that the mean and variance of male and female respondents for 17 and 8 observations respectively on the impulse- Unstable- are 3.88, 7.61 and approximately 2.00, 1.14 respectively, having degree of freedom (n-k) =16 and 7 respectively. The F- statistic value of 6.66 is > F critical value of 3.494408, hence we reject the null hypothesis. More so, F statistic value is > 1 and therefore we may infer that the difference between the means is not due to sample error or chance but genuine. The p value of 0.008396 < the level of significance at 0.05, hence we may infer that the outcomes are statistically significant.

Table 4.5: F-Test Two-Sample for Variances based on the impulse- Very Unstable- for both categories

	<i>E</i>	<i>E</i>
Mean	2.444444	4.4
Variance	3.437908	11.37778
Observations	18	10
Df	17	9
F	0.30216	
P(F<=f) one-tail	0.016157	
F Critical one-tail	0.400915	

Source: SPSSv20 output

Table 4.5 shows that the mean and variance of male and female respondents for 18 and 10 observations respectively on the impulse- Very Unstable- are 2.44, 3.44 and approximately 4.40,

11.38 respectively, having degrees of freedom (n-k)=17 and 9 respectively. The F- statistic value 0.30216 is < F critical value of 0.400915, hence we accept the null hypothesis. More so, F statistic value of 0.30216 is < 1 and therefore we may infer that the difference between the means is due to sample error or chance and hence not statistically significant.

4.1 DISCUSSION

The results reveal that the two extreme states or impulses- Very Stable and Very Unstable- of driver categories with respect to prevailing conditions on the road were proven to be statistically not significant. This may imply that the driver's state or impulse is not necessarily affected by the sampled road conditions to that extent. On the other hand, the middle states or impulses- Stable, Fairly Stable and Unstable- were proven to be statistically significant with the prevailing road conditions. This implies that both male and female drivers react to the sampled road conditions to these degrees. These findings are in line with Ogwude (2010) which reveals that "under stressful conditions the emotional states of anxiety, anger and aggression relate well with the personality traits of impulsiveness evocative of neurotic tendencies". However, the mean responses reveal that male drivers are respectively stable, fairly stable and sometimes unstable to the stated road conditions over their female counterparts. On the other hand, deviations from the mean give the female counterparts an edge over the males. It implies that the degree of stability on road may not be gender biased as perceived commonly, due to the conception that more men are seen on the wheels than women especially in this part of the world. This may be primarily due to cultural obligation where women play more domestic role than men which limits their engagement in transportation as drivers. Above all, driver impulsiveness may be traced along personality traits rather than gender differentials. This may open new grounds for further research in transportation.

5.0 CONCLUSION

We conclude that the degree of impulse of male and female drivers at extreme conditions on the road is not significant. This is evidenced with the fact that mean and variance of the responses were not statistically significant and hence the acceptance of the null hypotheses. More so, it was proven that there is no significant difference in the way the male and female drivers react to driving conditions on the road. However, deviations from the mean show more stability in female drivers with respect to certain conditions over the male counterparts while the mean responses proved otherwise. In the light of the above, we conclude that the degree of driver impulse is based on personality traits rather than gender.

5.1 RECOMMENDATIONS

None-the-less, performance in every occupation can be enhanced through training, experience and willingness to do the right thing at all times. These considerations affect everyone within the limit an individual is ready to subject him or herself which greatly assists in the production of the end result irrespective of gender inclination. Hence, we recommend that:

- Relevant government agencies should engage in value re-orientation of the citizens in terms of attitudes and behavioral patterns with respect to traffic regulations.

- Law enforcement agencies should be conscious of the need for both sexes to always apply the rules of the game with respect to the enforcement of traffic rules and regulations, hence the need not to stereotype against any gender.
- Equal treatment should be imposed on both gender in all traffic conditions as a way to ensure a balanced and unbiased traffic system.

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