PLANNING MALAYSIA:
Journal of the Malaysian Institute of Planners
VOLUME 22 ISSUE 5 (2024), Page 321 – 331

ASSESSING FEDERAL ROAD SAFETY CORPS (FRSC) IMPACT ON EASING TRAFFIC CONGESTION ALONG THE ILESA-BENIN HIGHWAY AT AKURE, ONDO STATE, NIGERIA: EDUCATION, ENFORCEMENT, AND PATROL EFFICIENCY

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Abstract

This study evaluates the efficacy of the Federal Road Safety Corps (FRSC) in mitigating traffic congestion along the Ilesa-Benin Highway in Akure, Ondo State, Nigeria. It scrutinizes the efficiency of FRSC's education, patrol, and enforcement strategies to discern their impact on traffic congestion levels. The data were collected from primary sources via questionnaires and activity-based trip surveys, supplemented by secondary sources including satellite imagery and literature. The results revealed high internal consistency in the respondents' perceptions and no evidence of multicollinearity in the dataset. It also indicates the significant contributions of education and enforcement in reducing traffic congestion, contrary to the limited effectiveness of patrols. Among the recommendations include prioritizing improvements in education and enforcement efforts through enhanced training programs and community collaborations as well as re-evaluating and potentially restructuring patrol activities. These insights offer valuable guidance for policymakers and stakeholders in devising strategies to alleviate traffic congestion and enhance road safety on critical highway routes like the Ilesa-Benin Highway.

Keywords: Education, Enforcement, Patrol, Highways, Traffic Congestion, Federal Road Safety Corps

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INTRODUCTION

The establishment of the Federal Road Safety Corps (FRSC) through Decree No. 45 of 1988—later amended by Decree 35 in 1992, codified under the FRSC Act (CAP 141) of the Laws of the Federation of Nigeria 1990, and reenacted as the FRSC (Establishment) Act 2007—epitomizes an initiative aligned with the principles of good governance. This legislative action was pivotal given the severe issues of traffic law violations and congestion on Nigerian roads before 1988, a situation underscored by various historical accounts. For example, Maduagwu (1998) reported widespread disregard for traffic laws among Nigerian drivers, including ignoring speed limits and traffic signals, reckless overtaking, and haphazard parking, often compromising the safety of other road users. These behaviors contribute to a general state of disorder and unpredictability on the roads, coupled with a public disinterest in road safety and inconsistent policy approaches to managing road safety concerns (FRSC, 2020).

This study assesses the effectiveness of the Federal Road Safety Corps (FRSC) in reducing traffic congestion on the Ilesa-Benin Highway in Akure, Ondo State, Nigeria. It focuses on FRSC's education, patrol, and enforcement (which involves the power to arrest and prosecute) efficiency. The main objectives are (i) to assess the effectiveness of FRSC in reducing traffic congestion on the Ilesa-Benin Highway and (ii) to identify the relationship between FRSC's operational activities (education, enforcement, and patrol) efficiency on traffic congestion levels. The outcome of this paper will determine how FRSC's operational activities relate to traffic congestion levels and which operational characteristics significantly impact congestion on the highway.

LITERATURE REVIEW

Federal Road Safety Corps (FRSC)

The FRSC (Establishment) Act of 2007 grants power and responsibility to FRSC for enforcing traffic laws, promoting road safety education, and ensuring vehicle compliance. Traffic congestion along the Ilesa-Benin Highway in Akure, Ondo State, is symptomatic of multiple underlying issues, including poor traffic management, unsafe road infrastructure, human errors, deteriorating vehicle conditions, and a general non-adherence to traffic laws. These issues are further exacerbated by inadequate enforcement measures (Filibus, 2012; Alade, 2012; Raji, 2014; Stephens et al., 2015; Agyapong & Ojo, 2018; Ajiboye et al., 2020). It subsequently questions the effectiveness of FRSC in alleviating traffic congestion, particularly considering the continued traffic bottlenecks along the Ilesa-Benin Highway.

The literature also suggests that enhancements in traffic management might require a fortified legislative framework, better harmonization of traffic laws across various states, the establishment of stringent penalties for traffic

violations, and more rigorous enforcement protocols. Atubi (2012) postulates that the enhancement of traffic patrols, alongside the development of well-planned road networks and effective transport strategies, could significantly diminish road traffic congestion. A pertinent role of FRSC is to educate road users, especially drivers, on the importance of road discipline and the correct use of roads and highways. Purwoko et al. (2022) reported that the most common modes of transportation for round-trip commutes are private vehicles (73%) and public transit (27%). Considering the crucial role of mass public transportation in alleviating congestion and promoting eco-friendly transit, it is crucial to examine the FRSC's public enlightenment unit, which is primarily responsible for conducting this educational mandate under the authority granted by the 2007 Act.

Theoretical Framework (Social Judgment Theory)

This study is grounded on the Social Judgment Theory, which was first proposed by Muzafer Sherif, Carolyn Sherif, and Carl Hovland in 1961. The theory suggests that the effectiveness of a persuasive message on a specific issue depends on how the recipient evaluates the message's position (Smith et al., 2006, as cited in Asemah & Nkwam-Uwaoma, 2017). It asserts that individuals gauge message content based on their existing attitudes or viewpoints (Sherif & Hovland, 1961; Sherif, 1965, as cited in Yaroson & Asemah, 2008; Asemah, 2011; Asemah et al., 2017). As the primary objective of persuasive communication is to induce attitude change, the Social Judgment Theory aims to identify the conditions that facilitate this change while predicting its direction and extent (Asemah, Nwammuo, & Nkwam-Uwaoma, 2017, as cited in Amah, Oladele, & Asemah 2022).

According to the Social Judgment Theory, audience members often interpret and evaluate a message before forming their positions. It delves into the internal cognitive processes guiding an individual's judgment in response to a communicated message (Amah, Oladele, & Asemah 2022). The relevance of this theory to the present study lies in its ability to elucidate the impact of educational campaigns on the extent of attitudinal shifts among motorists along the Ilesa-Benin Highway in Akure, Ondo State, which is contingent upon consumers' perceived judgments.

RESEARCH METHODOLOGY

The data for this study were collected from both primary and secondary sources. Primary data involved administering 203 questionnaires to gauge the respondents' perceptions of FRSC's efficiency in reducing traffic congestion on the Ilesa-Benin Highway and analyzed through regression analysis. Cronbach’s Alpha was used to assess internal consistency reliabilities, yielding high scores: 0.86 for Education, 0.88 for Enforcement, 0.78 for Patrol, and 0.72 for traffic congestion,

indicating strong internal consistency. Multicollinearity was absent in the dataset as indicated by the value inflation factors (VIF). Additionally, an activity-based trip survey of the study area provided on-site road traffic congestion data. Secondary data included Google Earth satellite imagery of the study area and relevant literature. The results and findings are presented and discussed in the subsequent sections.

STUDY AREA LOCATION AND SIZE

Since assuming the role of the administrative capital of Ondo State, Akure's population has increased substantially from around 71,106 in 1963 to 691,000 as of 2021, marking a 3.75% rise from the previous year (Owoeye et al., 2021; UN et al., 2022). Land use in the study area comprises built-up areas, dense and sparse vegetation, alongside aquatic bodies. The Ilesa-Benin Highway in Akure, Ondo State, Nigeria serves as the focus of this research due to frequent traffic congestion (Ajayi et al., 2019). The highway is a crucial transportation hub for the state and experiences heavy traffic congestion daily, which is attributed to factors such as inadequate road infrastructure and indiscriminate parking by roadside traders, leading to travel delays and reduced road capacity (Ajayi et al., 2019). Figure 1 shows the locational map of Ondo State in Nigeria and its 18 Local Government Areas.

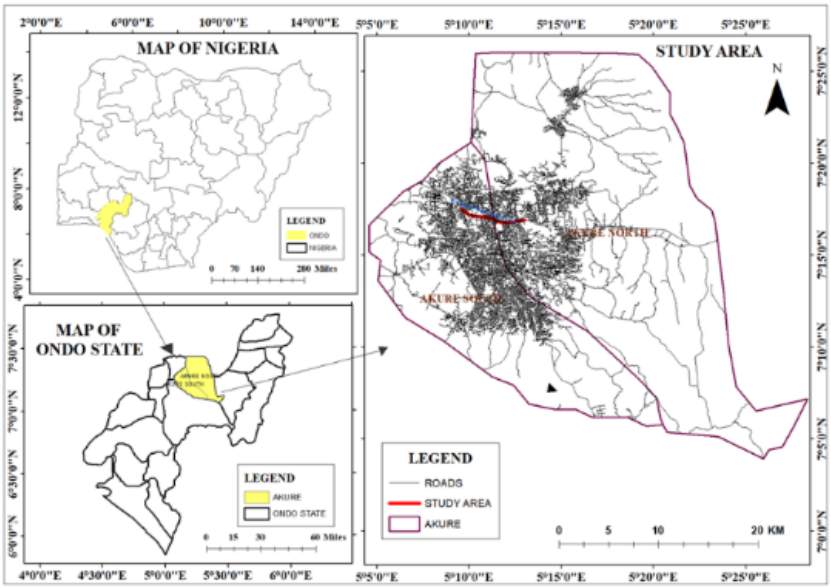

Figure 1: Locational map of the study area in the regional setting and the 18 Local Government Areas.
(Source: - ArcGIS Studio work 2023)

Background Information and Site Visit

Figures 2 and 3 show pictorial evidence of recent traffic congestion situations along the Ilesa-Benin Highway of Akure.

Figure 2: Traffic congestion along the Ilesa-Benin Highway.
(Source: On-site visit, 2023)

Figure 3: Traffic congestion along the Ilesa-Benin Highway.
(Source: On-site visit, 2023)

ANALYSIS AND DISCUSSION

Assessing the effectiveness of FRSC on the Ilesa-Benin Highway in Akure

Table 1 delineates the efficacy levels of FRSC's operational characteristics along the Ilesa-Benin Highway at Akure, Ondo State, Nigeria. The analysis focuses on three distinct variables: Education, Patrol, and Enforcement, with the latter involves the power to arrest and prosecute. Each variable is stratified into five tiers of efficacy, ranging from Very Low to Very High.

Concerning the Education variable, many of the respondents manifested Low (38.9%) and Moderate (34.0%) predominant perceptions, with a

concurrent prevalence of Very Low (21.2%). A minor portion of them perceived the variable as having High (3.4%) or Very High (2.5%) prominence. In terms of Patrols, a substantial portion of the respondents perceived High (28.6%), Moderate (25.1%), and Low (23.6%) efficacy levels. It was followed by smaller contingents of Very Low (8.4%) or Very High (14.3%). Notably, a broader distribution is evident, primarily emphasizing the perceptions of heightened efficacy. This is indicative of a relatively elevated operational efficiency in executing their power over offenders. Regarding Enforcement, the prevalent perceptions centered around Low (30.0%) and Very Low (32.0%), followed by Moderate (24.1%). A limited proportion of the respondents categorized it as High (12.3%) or Very High (1.5%).

Such data implicate potential areas for enhancement across all three operational characteristics of FRSC, particularly in Education and Enforcement. Predominant perceptions depict these aspects operating at Low or Moderate efficacy levels, suggesting a requisite for augmentation to bolster road traffic congestion outcomes.

Moreover, a prevailing sentiment among the respondents underscores perceived inadequacies, especially in Education and Enforcement, for mitigating traffic congestion issues along the highway. This subsequently emphasizes the necessity for remedial actions. However, it is worthy to highlight that Patrols evinced relatively higher perceived efficacy, with a significant number of respondents attributing it to High or Moderate efficacy levels.

Table 1 Level of efficiency of the Federal Road Safety Corps (FRSC) operational characteristics

Variables		Frequency	Percentage	Cumulative Percentage
Education	Very Low	43	21.2	21.2
	Low	79	38.9	60.1
	Moderate	69	34.0	94.1
	High	7	3.4	97.5
	Very High	5	2.5	100.0
Patrols	Very Low	17	8.4	8.4
	Low	48	23.6	32.0
	Moderate	51	25.1	57.1
	High	58	28.6	85.7
	Very High	29	14.3	100.0
Enforcement	Very Low	65	32.0	32.0
	Low	61	30.0	62.1
	Moderate	49	24.1	86.2
	High	25	12.3	98.5
	Very High	3	1.5	100.0

(Source: Author's calculation)

Identifying the relationship between FRSC's operational activities and traffic congestion levels on the Ilesa-Benin Highway

A multiple linear regression analysis was conducted to further investigate the effectiveness of these specific operational activities conducted by FRSC in curbing traffic congestion along the Ilesa-Benin Highway in Akure, Ondo State, Nigeria. The three key strategies employed by FRSC were Education, and Patrols. By examining the relationships between these independent variables and the dependent variable (i.e., traffic congestion), this study hopes to assess the effectiveness of these three key strategies employed by FRSC in managing traffic flow and improving road traffic congestion.

Hypotheses and Results of the Multiple Linear Regression Analysis

Table 2 depicts the multiple linear regression analysis of FRSC's operational activities and traffic congestion levels. The hypotheses suggest that the initiatives undertaken by FRSC have not yielded tangible improvements in traffic flow and congestion levels, thereby validating the efficacy of their interventions. These hypotheses were analyzed at 95% confidence intervals. The analysis showed a significant model summary: $F_{(1, 2)} = 8.47$, $P < .000$, Adj $R^2 = 0.16$, and $R^2 = 0.18$.

The hypotheses central to this exploration are as follows:

- Hypothesis 1 (Education)
  H0: There exists no significant reduction in traffic congestion following the implementation of education measures by the Federal Road Safety Corps (FRSC). However, the regression analysis found that Education had a significant effect on reducing traffic congestion along the highway ($\beta = -0.17$, $t = -2.42$, $P < 0.010$). Therefore, H0 is rejected, indicating that education measures implemented by FRSC led to a significant reduction in traffic congestion.
- Hypothesis 2 (Patrols)
  H0: There is no significant decrease in traffic congestion resulting from the execution of patrols by the Federal Road Safety Corps (FRSC). Affirmatively, the regression analysis showed that Patrols had no significant effect on reducing traffic congestion along the highway ($\beta = 0.114$, $t = 1.70$, $P > 0.092$). Therefore, H0 is accepted, indicating that there was no significant decrease in traffic congestion resulting from the execution of patrols by FRSC.
- Hypothesis 3 (Enforcement)
  H0: There is no notable decrease in traffic congestion after the enactment of enforcement measures by the Federal Road Safety Corps (FRSC). The regression analysis revealed that Enforcement had a significant effect on

reducing traffic congestion along the highway (β = -0.246, t = -3.515, P < 0.001). Hence, H0 is rejected, suggesting that enforcement measures implemented by FRSC led to a notable decrease in traffic congestion.

Table 2: Multiple Linear Regression Analysis of FRSC's operational activities and traffic congestion levels

Model Summary

Model	R Square	Adjusted R Square	Change Statistics	
			F Change	Sig. F Change
1	.177	.156	8.467	.000

a. Predictors: (Constant), Education, Patrols, Enforcement, Gender, Age
b. P = 0.05

(Source: Author's calculation)

Coefficients[a]

Model		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		Beta			Tolerance	VIF
1	(Constant)		8.017	.000		
	Age	-.112	-1.655	.099	.910	1.099
	Gender	-.172	-2.602	.010	.961	1.041
	Education	-.170	-2.417	.017	.849	1.178
	Patrols	-.246	-3.515	.001	.850	1.176
	Enforcement	.114	1.692	.092	.927	1.079

a. Dependent Variable: Traffic congestion along the Highway
b. P = 0.05

(Source: Author's calculation)

DISCUSSIONS

The study evaluated FRSC's effectiveness in reducing traffic congestion on the Ilesa-Benin Highway by examining the impact of its operational activities. Previous studies have emphasized on the importance of law enforcement, collaboration, and education campaigns to reduce traffic congestion (Sumaila, 2013) alongside the need for adequate equipment and optimal operations (Gana & Emmanuel, 2014). Our findings highlighted deficiencies in education and enforcement, which are aligned with the Social Judgment Theory. This is also supported by Asemah, Nwammuo, and Nkwam-Uwaoma (2017, as cited in

Amah, Oladele, & Asemah, 2022) who emphasize that persuasive communication aims to alter attitudes.

Hypothesis 1 indicated a notable decrease in congestion due to FRSC's education program. Such result is consistent with earlier studies by Onuka and Akinyemi (2012) and Okafor et al. (2014) whereby enforcement significantly reduces congestion. It also resonates with the study by Hills (2008) on traffic safety regulations. However, the patrols by FRSC did not notably decrease congestion, which echoes the observations of widespread traffic violations by Chidoka (2009) and FRSC (2012). The study's focus on traffic congestion along the Ilesa-Benin Highway in Akure also reflects the experiences and perceptions of individuals in the area.

CONCLUSION

This research sheds light on the effectiveness of the Federal Road Safety Corps (FRSC) in managing traffic congestion along the Ilesa-Benin Highway. It underscores the importance of addressing deficiencies in the FRSC's service delivery to enhance traffic flow. The findings suggest that while education and enforcement measures are proven effective in reducing traffic congestion, patrolling measures yield no significant improvements. These insights offer crucial guidance for policymakers and stakeholders in developing strategies to reduce traffic congestion and enhance road safety on this critical highway, which has long suffered from persistent congestion. Our respondents also denoted poor road infrastructure, commercial activities, the proximity of junctions, and high volume of vehicles as the main contributors to traffic congestion. This aligns with Ogunyemi et al. (2021) who found that delays at road junctions exacerbate extended travel times. Based on the findings, it is recommended for FRSC to prioritize initiatives aimed at improving the effectiveness of education and enforcement efforts. This involves enhancing training programs, fostering collaborations with communities, and implementing comprehensive public awareness campaigns. Additionally, further evaluation and potential restructuring of patrol activities are necessary to better align with traffic management objectives. By addressing these areas of concern, stakeholders can work towards reducing traffic congestion on the Ilesa-Benin Highway and similar routes across Nigeria.

ACKNOWLEDGEMENT

The authors wish to thank the publication funding from the Fundamental Research Grant Scheme (203/PPBGN/6711707) (Grant No: FRGS/1/2022/SSI02 /USM/03/1).

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Received: 18th March 2024. Accepted: 17th August 2024