

Road Users' Perception of Licensing System Effectiveness in Promoting Traffic Safety in Niger State

¹ Ozi-Salami Dauda, & ² Ajiboye Olarinkoye Araoye.

^{1,2}Department of Logistics and Transport Technology, Federal University of Technology Minna, Niger State.
Corresponding contact: Deeczis1@gmail.com/+2348136185915

Article history

Abstract

Received March. 26, 2026
Revised April, 09, 2026
Accepted May, 15, 2026

KEYWORDS: Road traffic safety,
licensing system, driving test,
corruption, and Niger state

The present study evaluated the perceptions of the effectiveness of the driver licensing system to promote road traffic safety in Niger State, Nigeria. The study employed a descriptive survey research design guided by Deterrence Theory. A simple random sampling and proportional allocation of a sample of 400 respondents were used. Data were collected with the help of a structured questionnaire and analysed by descriptive statistics and multiple linear regression. Results showed that the overall effectiveness of the driver licensing system was perceived to be moderate, with an overall mean score of 3.168. The best licensing indicators were: adequate driver testing (mean = 3.454), inclusion of both theoretical and practical driving tests (mean = 3.423), and mandatory reassessment when the license is renewed (mean = 3.380). The rest of the indicators for licensing did not show a significant effect. Regression analysis showed that the absence of corruption in the licensing process was the only statistically significant predictor of perceived road traffic safety ($\beta = -0.159$, $p = 0.043$). The results indicate that licensing requirements are not as important as public confidence in the integrity of the process and licensing institutions in shaping perceptions of road safety. The study finds that the driver licensing system has some positive effects on the promotion of road safety in Niger State, but these are hampered by corruption and poor institutional accountability. Therefore, strengthening transparency is crucial for better outcomes on road safety and the licensing of qualified drivers to operate on public roads through digital verification systems, biometric authentication, tightened enforcement systems, and better inter-agency cooperation.

Recommended citation: Ozi-Salami, D., & Ajiboye, O.A. Effect of Corporate Social Responsibility on Firm Value of Listed Deposit Money Banks in Nigeria, CUSTECH-Journal of Innovation, Management and Social Sciences, 1(1).

1 INTRODUCTION

Road traffic accidents are a major public health and transportation problem worldwide. The World Health Organization (2023) estimates that each year about 1.19 million people die as a result of road traffic crashes, more than 90% of whom live in Low- and Medium-Income Countries (LMICs). This is also an issue for Nigeria. According to Federal Road Safety Corps (FRSC) data, more than 10,000 road traffic crashes were reported nationwide in 2023, resulting in more than 5,000 deaths and thousands of injuries (FRSC, 2024). Road crashes remain a major threat to life and property and to socio-economic development in Niger State along major transport corridors such as Minna – Suleja, Bida – Lapai, and Suleja – Kaduna.

Human factors have been identified in every study that has been conducted on the major causes of road traffic crashes. Factors such as reckless driving, non-compliance with traffic laws, over speeding, dangerous overtaking, and distracted driving are significant in the extent and severity of crashes (Bates et al., 2020; Okyere et al., 2021). The FRSC (2024) noted that speeding and dangerous driving were the primary causes of road crashes in Nigeria, as well as violations of traffic rules. Likewise, Akande (2020) noted that a poor licensing system and improperly trained

drivers compound the danger associated with the operations of vehicles on the road. The concerns in these demonstrate the importance of having effective mechanisms that can guarantee driver competence and adherence to traffic laws. An effective driver licensing system is one of the important measures to overcome this challenge.

Driver licensing is a regulatory mechanism to ensure that only people who have the knowledge of the various traffic laws, driving skills, and safe road use practices are allowed to drive a motor vehicle (Abbas et al., 2024). Through theoretical and practical assessments, the licensing process helps screen out unqualified drivers, promote compliance with traffic regulations, and enhance overall road safety. Previous research has demonstrated that stringent licensing and driver training programmes play a significant role in improving driving behavior and the number of accidents (Barua et al., 2014; Jiang et al., 2020). But the effectiveness of licensing systems is not solely determined by the number of licenses issued; it also depends on the activities of regulatory agencies charged with enforcement and education of the public. The Federal Road Safety Corps (FRSC) in Nigeria has a vital role to play in the enforcement of traffic rules and order, public awareness, and ensuring adherence to road safety regulations. Gana and Emmanuel (2014) and Folagbade (2015) found that compliance with road safety regulations can be greatly enhanced by traffic law enforcement and public enlightenment programmes.

Similarly, Ogadimma et al. (2020) found that abating unsafe driving behavior is achieved through the effective enforcement of traffic regulations and licensing requirements. Even with these, some problems have still affected the effectiveness of the licensing process in Nigeria, including the circulation of fake licenses, inadequate driver tests, and corruption (Akande, 2020; Sahabuddin et al., 2021). In this context, this research work investigates the perception of the effectiveness of the driver licensing system to enhance road traffic safety in Minna, Bida, and Suleja of Niger State. Public opinion of the effectiveness of the licensing program is vital to determining areas in which the state's road safety management system is lacking and designing policy options that can improve the system and mitigate roadway safety risks.

2 LITERATURE REVIEW

2.1 Deterrence Theory

In this study, the deterrence theory was adopted as the main theory, which may assist in explaining the effectiveness of the licensing system in promoting traffic safety in Niger state. The theory cannot be attributed to one author; the theory was traced to the work of Cesare Beccaria between 1938 and 1974 on crime and punishment (Becker, 1968). The idea was revived during the Cold War era, as the strategic concept of deterrence became more popular as a way to avoid conflict grew in importance (Betts, 1991). The theory explains how a party, through a threat, forces another party to refrain from engaging in or initiating a particular act or action. In the context of this research, it means that people might not engage in negative behavior if they feel severe or significant punishment for the negative behavior. For example, an unlicensed driver will need to get a license when they feel that they will be severely punished if they are found without a license. The theory has two component that is general and specific. A general deterrence occurs when a public warning is given about the consequences of failing to comply, thus discouraging failure to comply before it takes place. Specific deterrence is when a person who has been previously found guilty of a crime is harshly punished, such as with a fine or license revocation.

In a study by Ogadimma et al. (2020), the authors investigated the perception of the drivers on traffic law enforcement in Lagos using deterrence theory, which found that the drivers' awareness of the Traffic Law Act of 2012 was inadequate, but the impact of the law enforcement on the drivers' behavior was positive. The theory of deterrence has been criticized as being "severe" and as being more specific about the relationship between punishment and prevention of unwanted behavior; empirical research, however, has yielded few, if any, results dealing with the effects of severe punishment. For example, Mears & Stafford (2024) show that classical deterrence policies are not likely to be appreciably effective, especially those that are based on severity rather than considering theory limitations (e.g., ignoring psychological costs and rewards other than punishment).

2.2 Concept of Licensing, Licensing Procedures, and Conceptual Relationship

Licensing refers to formal permission granted by a regulatory authority that authorizes an individual or organization to operate a transport service legitimately on the road. Its process certifies that both drivers and vehicle operators meet

the minimum operating safety standards and competence, thereby improving road safety and safety compliance and enhancing public trust. Licensing, at its core, serves two key functions: driver licensing and licensing of transport operators. Driver licensing has to do with verifying individual drivers' capability to drive, specifically age, health, driving aptitude, and traffic law knowledge. While transport operator licenses, on the other hand, involve regulating commercial passenger or freight transport operations, ensuring that they achieve technical, financial, and safety requirements (Akande, 2020).

Licensing framework, according to Sobczuk & Borucka (2024), is developing to accommodate sustainable transport goals, combining both Digital Verification System (DVS) and Intelligent Transport Technologies (ITT) to optimize compliance and oversight. Similarly, licensing procedures in Nigeria are fragmented across many agencies, thereby causing regulatory gaps and unstable enforcement of traffic laws and regulations. According to the licensing regime, the licensing procedures include an administrative process for vehicle insurance, renewal, withdrawal of license, and capability to drive assessment based on medical and behavioral features (European Commission, 2024). These regimes are developed to ensure that only competent drivers and operators are allowed to drive on public roads, reducing the risk of road incidents and improving traffic efficiency. Moreover, the European Commission (2024) posited that transport licenses are grouped into the nature of operation, which is domestic and international freight. In fact, the current European Commission licensing laws require licenses for vehicles between 2.5 and 3.5 tons, indicating stricter standards.

Figure 1 shows the conceptual relationship between the dependent and independent variables studied. The present study conceptualized that an effective licensing system is a good predictor of perceived road traffic safety in Niger state. The independent variables in this study consist of nine dimensions of licensing system effectiveness, including adequate driver testing before license issuance, the integration of both theoretical and practical driving assessments, the availability of well-equipped licensing centers, and the absence of corruption in licensing procedures.

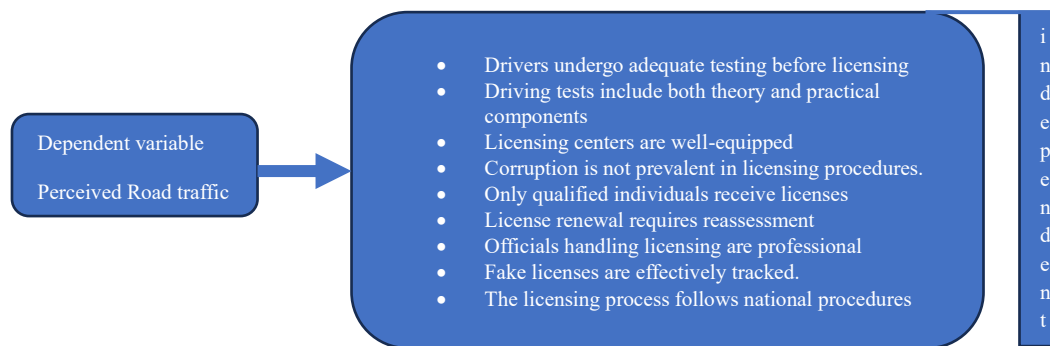


Figure 1: Conceptual relationship (Sources: Author's design, 2026).

2.3 Review of Relevant Literatures

Tilahun et al. (2023) study seeks to identify the stakeholders involved in Ethiopian road safety and their readiness, practices, enforcement challenges, and collaboration commitment in reducing road traffic accidents using thematic analysis. The findings show that nearly all individuals from all sectors, such as transport, health, education, and so on, are road users, thereby making them stakeholders. In addition, the study findings uncover that weak capacity, fragmented responsibility among agencies, limited budget to fund the initiative, inadequate staffing, and lack of technology are challenges of traffic regulation enforcement in Ethiopia. In another investigation, Gana & Emmanuel (2014) used a survey design to examine the effectiveness of the enforcement officer role in driver licensing, challenges, and threats to road safety in Nigeria. The study result shows that there are 85% valid driver's license holders, while respondents rate the enforcement role in licensing as very effective. Inadequate funding, poor logistical support, lack of adequate patrol vehicles and communication devices, assaults on personnel, poor cooperation among regulatory officers, and rampant corruption are challenges limiting the effectiveness of driver licensing in Nigeria. This also makes compliance ineffective, thereby resulting in an increase in road safety incidents in Nigeria.

Folagbade (2015) studied the effectiveness of FRSC in reducing road accidents in Kaduna State. The study focused on determining when period accidents normally occur, the availability of enforcement equipment, operational

strategies, and FRSC working conditions impacting their enforcement capacity. The study uses a cross-sectional and descriptive research design while relying on accident data from 2004-2013 and questionnaires. The study shows that accidents normally occur at night during the rainy season (April-October) in Kaduna State. Also, knowledge, equipment, manpower, and welfare gaps are factors responsible for the ineffectiveness in FRSC capacity in reducing road accidents. Public enlightenment programs are the most effective strategies used by FRSC for reducing road accidents.

Barua et al. (2014) use conceptual and analytical review to study the impact of driver training and licensing systems on young drivers' behavior and road accident reduction. The study also looks at how factors like personal, behavioral, and demographic features impact drivers' safety on roads. The study findings show that impulsivity, inexperience, and distraction are the risk factors that are the key determinants of road accidents. The study also reveals that licensing procedures should be integrated with personality, use, and family-related factors into driver training, but not until training starts. The study underscores community and stakeholder participation in licensing procedures; this will improve road safety outcomes and solve the local problems.

Ferrer-Celicious and Naparota (2023) utilize a descriptive research design to investigate the driver's perception of the influence of traffic enforcement on the implementation of pedestrian safety rules in Dipolog City in the year 2020. In addition, the study explores the effectiveness of the existing traffic regulation in the city. The results show that both drivers and pedestrians poorly rate traffic law implementation with a mean score ranging from 2.34 to 2.35. Also, the study shows a weak negative relationship between enforcement and overall implementation perception.

Using the case of Lagos and Abuja, Akande (2020) utilizes a cross-sectional quantitative comparative analysis to examine the role of driver's licenses in reducing road traffic accident rates. The study determines the connection between demographic features of truck drivers and their license status. The investigation examines how administrative weakness in license procurement impacts road safety. The results show that licensing plays a significant role in road traffic accident reduction, but Abuja has less influence compared to Lagos. The study utilizes a strong sample size and robust statistical analysis, but the use of self-reported data may cause response bias.

In Indonesia, Sahabuddin et al. (2021) studied the effectiveness of the driving license issuance policy used in Gowa Police Station. The study examines the role of human resources, formation systems, and infrastructures in road safety management, as well as factors impacting the successful implementation of driving license policy. The study utilizes a qualitative research design through interviews and a review of documents. The results indicate that personnel competency and adequate staffing are human resources influencing road traffic safety. While inadequate driving tests for SIM A & B, insufficient waiting rooms, and inadequate equipment for tests and biometrics are infrastructural gaps impacting the issuance of licenses. In addition, financial constraints, poor coordination, and infrastructural problems are the determinants of the successful implementation of the license issuance policy.

From the review literature, existing studies inadequately address the issue of licensing system effectiveness, particularly in relation to transparency, detection, and tracking of fake licenses, and the rising incidence of corruption within licensing processes. Which the present study is here to fill.

3 RESEARCH METHODOLOGY

This study adopts a descriptive research design to describe the features of the study population, while multiple linear regression was used to determine the relationship between perceived road traffic safety and an effective licensing system in Niger state. This approach is significant as it assists in determining which of the licensing systems exerts more influence on traffic safety in the state.

The study population comprises 400 drivers across Minna, Suleja, and Bida. The study treats all individuals in the aforementioned urban area as road users. Minna, Suleja, and Bida were purposefully chosen out of the twenty-five (25) Local Government Areas (LGAs) for the study because they are the most populous cities in the state and are characterized by dense traffic and unique traffic safety issues in the state. Simple random sampling was used to distribute the questionnaires to the chosen respondents across the study area. However, the proportional allocation was

used to distribute the sample size of 400 across the three cities. The questionnaire utilise consist of three sections, the first section comprises the sociodemographic features of the respondent, the second part gathers information on perceived road safety, and the third section gathers information on the influence of the licensing system on traffic safety. The questionnaire was designed to gather information on a five-point Likert scale, where 1 represents strongly disagree, and 5 represents strongly agree.

The study utilises Cronbach's alpha to test the internal reliability of the research instrument. The outcome indicates high internal reliability, as all the variables are highly reliable with a score of 0.80. According to Gliem and Gliem (2003), any Cronbach's alpha score greater than 0.7 is acceptable and implies that the research instrument has high internal consistency. The study utilises descriptive statistics such as mean and percentages to analyse the collected data, and inferential statistics, particularly multiple linear regression, were used to determine the relationship between road traffic safety and licensing system in Niger state.

4 RESULTS AND DISCUSSION

4.1 Socioeconomic features of the respondents

The analysis of the gender distribution of road users in Figure 2 shows that approximately 72.5% are male, while 27.5% are female. The outcome indicates that more males are willing to participate in the survey compared to females. This may influence the study findings as it represents a greater percentage of male perceptions of licensing procedures and overall perceptions of national road safety standards.

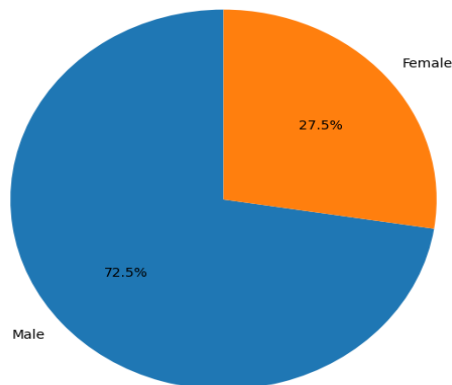


Figure 1: Gender of the road users (Sources: Authors' survey, 2026)

In terms of the marital status of the road users, married people account for 52.8% of the survey, those who are single constitutes 30.1% of the survey, and only 4.9% are widowed (see Figure 3). A smaller proportion of the respondents is divorced. Since there are more married people, this could influence the final result. As more people with family responsibilities influence safety behavior, reduced risk-taking and compliance with traffic laws.

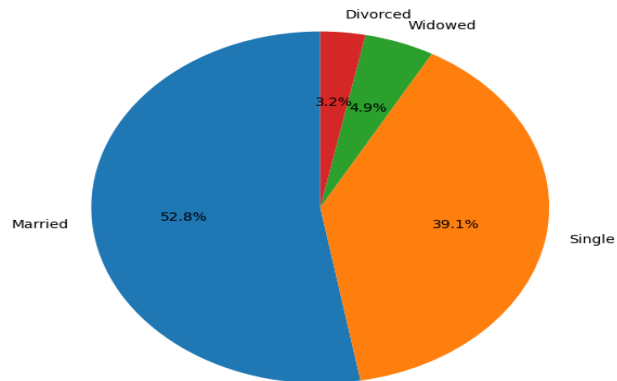


Figure 3: Marital status of the road users (Sources: Authors' survey, 2026)

The analysis of the age of road users in Figure 4 reveals that the majority of respondents are in the age range of 21 to 30. Additionally, 78 of them are between 31 and 40 years of age, and only 51 of the respondents are between 41 and 50 years. The higher proportion of those in their young age is a revelation that compliance with national road safety standards may be poor in Niger State, as youthfulness is associated with risky driving behavior and non-compliance with road traffic regulations.

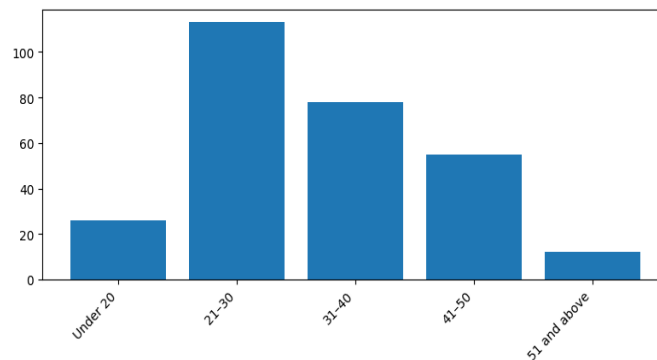


Figure 4: Age distribution of the road users (Sources: Authors' survey, 2026)

The education distribution of road users in Niger State, depicted in Figure 5, reveals that there are more road users with tertiary education. These were followed by those road users who possess secondary and primary school certificates. The larger proportion of road users with tertiary education implies that respondents understood the question asked, were capable of reading and understanding road traffic signs. Thereby enhancing compliance and overall safety while on the road.

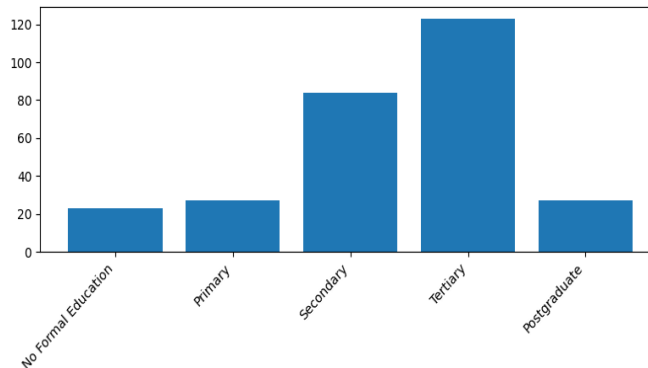


Figure 5: Educational background of the road users (Sources: Authors' survey, 2026)

The analysis in Figure 6 reveals that 35.6% of the road users are self-employed, 24.6% are in the private sector, and 21.5% are civil servants. Additionally, 10.6% of the respondents are employed in other occupations other than the aforementioned, and only 7.7% of them are students. The outcome captured the perceptions of a diverse group of people from varied occupations. Respondents' occupations tend to impact road safety as different occupations require different driving needs. In fact, occupational stress may also influence safety

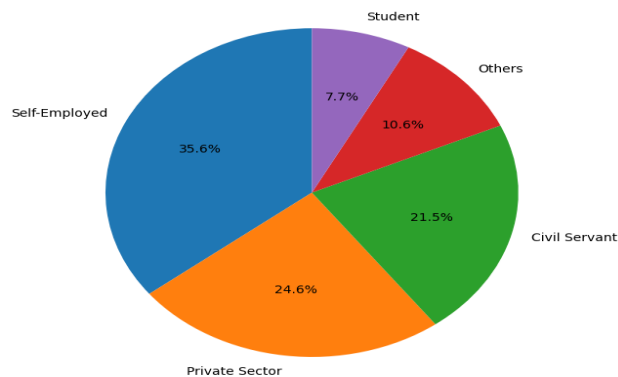


Figure 6: Occupational distribution of the road users (Sources: Authors' survey, 2026)

The analysis of the work experience in Figure 7 reveals that 121 respondents had between 1 and 5 years of work experience, 60 respondents had 6 to 10 years, and 55 respondents had less than 1 year of experience.

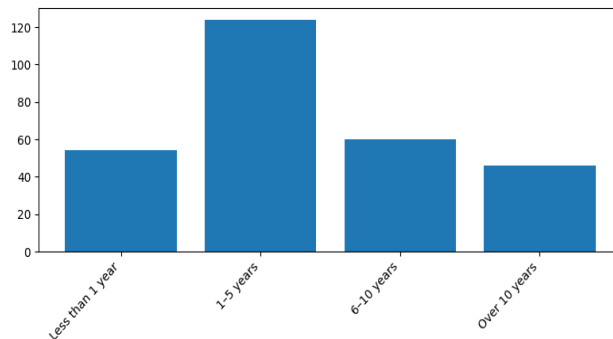


Figure 7: Years of working experience among road users (Sources: Authors' survey, 2026)

The analysis of whether road users possess valid license in Figure 8 reveals that more than half of the respondents own a valid license and about 31.3% disagrees. The larger proportion of those with a valid license is a revelation

majority of the road users has undergone licensing procedures and have ample knowledge of its effectiveness. The result also indicate that majority of the road users are likely to comply with the traffic laws.

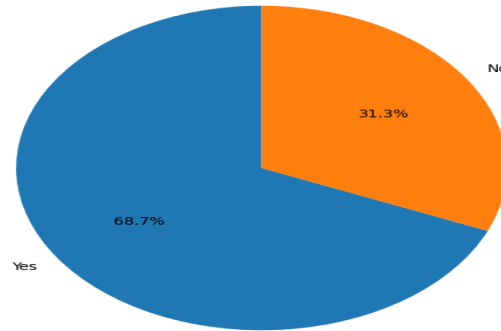


Figure 8: Valid license possession among road users (Sources: Authors' survey, 2026)

The analysis of whether road users have been involved in a traffic accident depicted in Figure 9 reveals that a larger proportion of the respondents said no, and only 25.7% of them agreed. The finding underscores the effectiveness of road safety programs, as many road users haven't been involved in traffic accidents. Additionally, the findings suggest that there is high compliance with road traffic regulations.

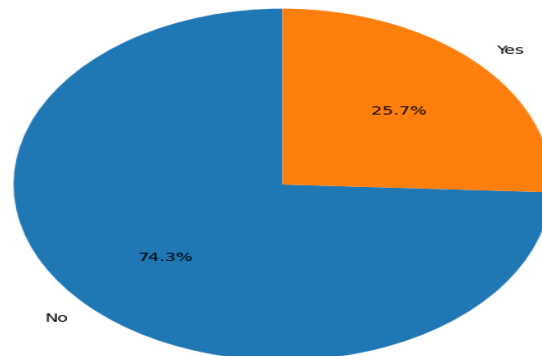


Figure 9: Accident involvement among the road users (Sources: Authors' survey, 2026)

4.2 Analyzing the Perceived Road Traffic Safety in Niger State

The analysis of the perceived road traffic safety in Table 1 indicates that respondents perceived danger from road users and transport infrastructure as very high, with a mean score of 3.735 and 4.204, respectively. Similarly, their general sense of safety on the road was below the average ($M = 3.484$), indicating that road users perceived they were safe while on the road.

Table 1: Distribution of perceived road traffic safety

S/N	Items measured	Mean Score
1	General sense of safety on the road	2.513
2	Perceived risk from another road user	3.735
3	Perceived danger from transport infrastructure	4.204
	Average safety perception	3.484

Sources: Authors' survey (2026)

4.3 Analyzing the effectiveness of driver's license procedures on accident reduction

The analysis in Table 2 shows that the overall mean score for the item measured is 3.168, suggesting that the licensing procedures. The individual mean score for the measured items ranges from 2.920 to 3.454. The findings reveal that licensing procedures are effective and consistent across the measured items, with no particular item showing

ineffective or highly effective. While there are positive aspects to the current licensing procedures, there is room for improvement to promote road safety. Therefore, policy intervention should be channeled towards the entire licensing procedures adopted by the Niger State traffic enforcement agency. This may enhance road safety, reduce fake licensing, and ensure that highly skillful drivers are issued a license.

Table 2: Mean distribution of effective driver license procedures

S/N	Item	Mean Index Score
1.	Drivers undergo adequate testing before licensing.	3.454
2.	Driving tests include both theory and practical components.	3.423
3.	Licensing centers are well-equipped.	2.889
4.	Corruption is not prevalent in licensing procedures.	3.180
5.	Only qualified individuals receive licenses.	2.972
6.	License renewal requires reassessment.	3.380
7.	Officials handling licensing are professional.	3.197
8.	Fake licenses are effectively tracked.	2.920
9.	The licensing process follows national procedures.	3.007
	Overall mean score	3.168

Sources: Authors' Survey (2026)

4.4 Analysis of the Relationship between Effective Driver Licensing and Perceived Road Traffic Safety

This study utilizes inferential statistics to determine the relationship between perceived road traffic safety and the effectiveness of driver licensing. In order to achieve this objective, the study formulated the following null hypothesis: H01: There is no statistically significant relationship between driver licensing and perceived road safety in Niger state. The results of the hypothesis are stated in Tables 3, 4, and 5. Table 3 shows the model summary, the $R^2 = 72.080\%$, indicating that the predictors explain a larger proportion of the variability of perceived road safety. This suggests a strong model fit for the regression model. Additionally, the Durbin-Watson value of 2.1808 reveals that there is no significant autocorrelation in the model.

Table 3: Model Summary

Model	R	R^2	Adjusted R^2	Std. error of Estimates	Durbin-Watson
Perceived road safety ~ Effectiveness of license P.	73.160	72.080	69.131	0.9662	2.1808

Note: p= procedures

Sources: Authors' Survey (2026)

Table 4 shows the ANOVA table. Comparing the F-value of 0.786504 to the P-value of 0.0000 indicates that the overall model is statistically significant at 95% confident interval.

Table 4: ANOVA table for the regression model

	Source	Sum of Squares	df	Mean Square	F	Sig.
0	Regression	7.342014	10	0.734201	0.786504	0.000
1	Residual	254.845451	273	0.933500		
2	Total	262.187465	283			

Sources: Authors' Survey (2026)

The multiple regression analysis in Table 5 examined the relationship between effective driver licensing indicators and perceived road traffic safety. The overall model was not statistically significant, $F(10, 273) = 0.787$, $p = 0.642$, indicating that the predictor variables jointly did not significantly explain variations in perceived road traffic safety. At the individual level, only corruption, which is not prevalent in licensing procedures, emerged as a statistically significant predictor ($p = 0.043$), while all other licensing indicators were not significant. This suggests that among the dimensions of effective driver licensing considered, the absence of corruption in the licensing process is the most important factor influencing perceived road traffic safety. The findings further revealed high multicollinearity among the predictors, as indicated by the high VIF values, suggesting substantial overlap among the explanatory variables. The implication is that strengthening the formal components of driver licensing alone may not significantly improve road safety perceptions unless accompanied by greater transparency, accountability, and reduction of corruption in the licensing process.

Table 5: Coefficient

	Unstandardized B	Std. Error	Standardize Beta	t	Sig.
(Constant)					
Drivers undergo adequate testing before licensing	0.578	0.549	0.773	0.105	0.036
Driving tests include both theory and practical components	0.462	0.599	0.628	0.771	0.001
Licensing centers are well-equipped.	0.015	0.060	-0.021	-0.255	0.799
Only qualified individuals receive licenses.	0.035	0.059	0.047	0.591	0.555
Corruption is not prevalent in licensing procedures	0.118	0.058	-0.159	-2.034	0.043
License renewal requires reassessment.	0.001	0.057	0.013	0.172	0.863
Officials handling licensing are professional.	0.038	0.052	0.052	0.717	0.474
Fake licenses are effectively tracked	0.069	0.056	0.096	1.226	0.221
The licensing process follows national procedures.	0.040	0.053	-0.057	-0.755	0.451

4.5 Discussion Findings

The findings align with deterrence theory, which posits that compliance improves when individuals perceive credible sanctions. As Buchanan & Watson (2021) noted, severe penalties influence compliance behavior, yet this study highlights that transparency in licensing—specifically the absence of corruption—has a stronger impact than punishment severity. Similar to Gana & Emmanuel (2014), respondents acknowledged licensing as effective but undermined by corruption and weak enforcement. The moderate effectiveness (see Table 4) observed echoes Sahabuddin et al. (2021), who identified infrastructural and administrative gaps in licensing systems. Moreover, Akande (2020) emphasized that licensing reduces accidents, but its impact varies depending on enforcement strength. This study reinforces that licensing procedures alone cannot guarantee safety unless corruption is minimized and enforcement is consistent. The perception of safety being influenced more by institutional integrity than by technical testing suggests that public trust is central to compliance. Thus, while FRSC and DRTS initiatives have improved awareness, systemic weaknesses in transparency remain the critical barrier.

5 CONCLUSION AND RECOMMENDATION

The study concludes that driver licensing in Niger State moderately promotes traffic safety, but its effectiveness is significantly constrained by corruption and weak enforcement. Transparency in licensing procedures is the most important determinant of perceived road safety, outweighing technical testing and renewal processes. Without addressing corruption, improvements in testing or infrastructure will have a limited impact. The study recommends that;

1. Strengthen anti-corruption measures in licensing procedures through digital verification systems and biometric tracking.
2. Improve infrastructure at licensing centers to ensure adequate testing facilities and professional handling of applicants.
3. Enhance enforcement capacity by equipping FRSC and DRTS with modern tools, patrol vehicles, and communication devices.
4. Integrate public awareness campaigns to reinforce deterrence and highlight the consequences of driving without a valid license.
5. Adopt continuous reassessment policies during license renewal to ensure drivers maintain competence and compliance.
6. Promote inter-agency collaboration to close regulatory gaps and ensure uniform national standards in licensing.

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