

Compliance as Survival: A Convergent Mixed Methods Study of Regulatory Enforcement, Informal Payments, and Perceived Legitimacy among Motorcycle Taxi Operators in Auchi, Nigeria

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ABSTRACT

Urban mobility in Sub-Saharan Africa remains disproportionately reliant on informal transport systems operating within contested regulatory environments. Motorcycle taxi services, locally known as okada, are structurally embedded in the everyday mobility of Nigerian secondary cities, yet the governance of their operations is marked by persistent tensions between enforcement agencies and operators. Prior scholarship has examined these tensions largely through single method designs, and studies that rely solely on operator self-report cannot separate genuine behaviour from socially desirable reporting, nor can they capture the enforcement side of the encounter. This study investigates how commercial motorcycle taxi operators in Auchi, Edo State, navigate regulatory compliance as a dimension of livelihood survival, and it does so through a convergent mixed methods design that integrates three strands of evidence. The quantitative strand is a cross-sectional survey of 376 operators. The qualitative strand comprises focus group discussions and key informant interviews with traffic police officers, Federal Road Safety Corps officials, and municipal transport regulators, undertaken to surface the enforcement side of the encounter, including the operational and corruption pressures that officers themselves report. The observational strand is a structured, non-participant observation of actual traffic stops and helmet compliance at four key junctions, undertaken to provide objective behavioural data against which the self-reported survey answers can be validated. Binary logistic regression identified perceived fairness (OR = 2.34, $p < .001$), perceived corruption (OR = 0.41, $p < .001$), income dependence (OR = 1.87, $p = .005$), and enforcement frequency (OR = 1.52, $p = .029$) as the primary survey determinants of compliance. The observational strand recorded an actual helmet compliance rate of 41.2 percent across 1,286 rider observations, well below the 62 percent implied by self-report, and confirmed that observed compliance rose sharply in the presence of enforcement, corroborating the reactive pattern suggested by the survey. The regulator interviews revealed an enforcement side under its own pressures, including inadequate funding, overlapping mandates, informal revenue expectations, and personal safety fears, that helps explain the extractive dynamics operators describe. Convergence across the three strands provides strong, triangulated support for the compliance as survival framework, which positions adherence less as voluntary normative acceptance and more as a calculated response to livelihood precarity under discretionary enforcement. The study advances procedural justice theory in informal transport governance and offers grounded, dual sided policy recommendations for institutional reform in mid sized Nigerian cities.

Keywords: Motorcycle taxi; okada; regulatory compliance; procedural justice; mixed methods; triangulation; informal transport; urban governance; Nigeria; Sub-Saharan Africa

INTRODUCTION

Informal transport systems have long been a defining feature of urban mobility across Sub-Saharan Africa, filling transit voids that formal public transport systems have consistently failed to address. In Nigeria, the motorcycle

taxi, commonly identified by the Yoruba derived term *okada*, occupies a particularly prominent role in secondary and intermediate cities where bus networks are sparse, traffic conditions are congested, and last mile connectivity remains an enduring deficit. Auchi, a mid sized town in Edo State with an estimated population exceeding 150,000, exemplifies this pattern, since *okada* riders constitute a dominant mode of intra urban transport, threading through narrow roads and residential corridors that conventional vehicles cannot navigate efficiently. Yet governance of motorcycle taxi operations has remained chronically contentious. Operators routinely encounter a plurality of enforcement actors, including the Federal Road Safety Corps (FRSC), the Nigeria Police Force, local government traffic task forces, and in certain corridors paramilitary units, whose jurisdictional mandates frequently overlap and whose enforcement practices are reported to be inconsistent and extractive (Agbiboa, 2018; Olawole & Aloba, 2014).

Scholarly engagement with this terrain has grown substantially, yet two limitations recur. First, most empirical work has relied on single method designs, either rich qualitative accounts that constrain comparative inference, or, more recently, operator surveys that quantify compliance determinants but rest entirely on self-report. Self-report is vulnerable to social desirability bias and recall error, and it is a particularly fragile foundation when the behaviour in question, such as helmet use or the payment of bribes, is sensitive and observable (Pope & Bell, 2010). Second, the enforcement encounter has almost always been examined from the operator's side alone. The officers and regulators who enforce transport rules are themselves subject to institutional and material pressures, and their account of the encounter is largely absent from the Nigerian secondary city literature.

This paper addresses both limitations through a convergent mixed methods design that gives equal weight to three strands of evidence collected in parallel and then merged at the interpretation stage (Creswell & Plano Clark, 2018). The quantitative strand is a structured survey of 376 operators. The qualitative strand adds focus group discussions and key informant interviews with traffic police officers, FRSC officials, and municipal regulators, so that the enforcement side of the encounter, including the corruption and operational pressures that officers themselves report, can be understood rather than merely inferred. The observational strand tracks actual traffic stops and helmet compliance at four key junctions, so that objective behavioural data can be set against the self-reported survey answers. Bringing these strands together allows the study to test, rather than assume, whether operators behave as they say they do, and to explain the enforcement dynamics that produce the observed pattern.

The theoretical contribution is the concept of compliance as survival, a framework that positions regulatory adherence in informal mobility contexts not as voluntary norm internalisation but as a rational response to livelihood vulnerability under asymmetric enforcement. This extends procedural justice theory (Tyler, 1990) into the domain of urban transport informality in low-income African settings, where institutional trust is structurally constrained by experience of corruption and discretionary enforcement. The mixed methods design strengthens this contribution by grounding it in convergent evidence from operators, enforcers, and direct observation.

The paper proceeds as follows. Section 2 reviews the relevant literature and establishes the theoretical framework. Section 3 sets out the convergent mixed methods design and the three strands of data collection. Section 4 presents the findings strand by strand and then jointly. Section 5 integrates the results through the lens of triangulation, and Section 6 concludes with dual sided recommendations and directions for further research.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Informal Transport in Sub-Saharan Africa

Informal transport systems, encompassing motorcycle taxis, minibuses, shared taxis, and their regional variants, are not peripheral to African urban mobility; they are its structural core. Kumar and Barrett (2008) estimated that informal modes carry upward of 80 percent of urban passengers in many Sub-Saharan African cities, a proportion that has not declined appreciably despite sustained policy efforts to formalise or restrict operations. Cervero and Golub (2007) situate this persistence within broader failures of formal transit provision, arguing that informal operators effectively subsidise urban mobility by absorbing demand that state agencies lack the capacity to serve. In Nigeria, *okada* services expanded dramatically from the 1990s onward, driven by structural

adjustment induced unemployment, deteriorating public transport, and rising fuel costs (Olawole & Aloba, 2014). Agbiboa (2018) documents the emergence of what he terms a road side state in Lagos, a configuration in which enforcement agencies capture informal revenue streams from transport operators, producing a parasitic rather than regulatory relationship between state agents and workers. Studies from Dar es Salaam (Rizzo, 2011), Kampala (Goodfellow, 2015), and Accra (Finn, 2016) converge on similar dynamics, yet they rarely combine systematic behavioural measurement with the enforcers' own account, which is the combination this study provides.

Procedural Justice and Compliance Theory

The foundational theoretical resource for understanding regulatory compliance at the individual level is Tyler's (1990) procedural justice framework, which holds that people's assessments of whether authorities act fairly, including treating them with dignity, explaining decisions, and applying rules consistently, are stronger predictors of compliance than instrumental calculations of detection risk or sanction severity. Tankebe (2013) extended this framework to policing in Ghana, demonstrating that legitimacy judgements are a significant predictor of cooperation with police in a context where corruption is widespread and institutional trust is fragmented. Subsequent applications in transport contexts have been instructive but limited. Jackson (2022) found that perceived legitimacy shaped compliance with road safety regulations in several African settings, though the analysis was primarily qualitative, and Olvera et al. (2023) applied a mixed methods framework to informal transport operators in francophone West Africa, identifying corruption perceptions and income insecurity as key moderators of the fairness compliance relationship. The present study builds on this direction by adding an explicit observational strand and the enforcers' perspective within a single Nigerian secondary city.

Compliance as Survival: A Conceptual Framework

Building on the foregoing, this study proposes the concept of compliance as survival to characterise the particular form of regulatory adherence that obtains in contexts of informal livelihood under discretionary enforcement. The concept is distinguished from normative compliance (following rules because they are perceived as legitimate), instrumental compliance (following rules to avoid punishment), and habitual compliance (following rules because they have become routinised). Compliance as survival involves adherence to enforcement demands, including demands that fall outside any formal regulatory framework such as informal payments, because non compliance threatens the material conditions of daily existence. The operator who pays a bribe to avoid impoundment is not necessarily endorsing the legitimacy of the enforcement encounter, nor simply responding to a formal sanction; he is managing a livelihood risk within a governance environment that he correctly identifies as neither reliable nor fair. The framework predicts a specific behavioural signature, namely that compliance will be situationally cued by enforcement presence rather than internalised, a prediction that a design combining self-report with direct observation is uniquely able to test.

METHODOLOGY

Research Design: Convergent Mixed Methods

The study adopts a convergent parallel mixed methods design, in which quantitative and qualitative data are collected during the same period, analysed separately, and then merged during interpretation so that the strands can corroborate, complement, or challenge one another (Creswell & Plano Clark, 2018). The design is motivated by triangulation, that is, the use of multiple methods to converge on and validate findings that no single method could establish alone (Denzin, 2012). Three strands were used. The quantitative strand measures the determinants of self-reported compliance across a representative operator sample. The qualitative strand surfaces the enforcement side of the encounter through the accounts of officers and regulators. The observational strand records actual on-street behaviour to validate the self-report. The three strands address the same phenomenon from complementary angles, and their integration is the central methodological contribution of this revised study.

Strand	Data Source	Primary Purpose
Quantitative	Structured survey of 376 operators	Measure determinants of self-reported compliance

Qualitative	Focus groups and interviews with officers and regulators	Understand the enforcement side and its pressures
Observational	Structured observation at four junctions	Validate self-report against actual behaviour

Table 1. The three strands of the convergent mixed methods design.

Study area

The study was conducted in Auchi, a mid sized urban centre in Edo State, southern Nigeria, which serves as the regional commercial hub for the Etsako West Local Government Area. Its population is estimated at over 150,000 residents, and its transport landscape is characterised by limited formal public transit, high motorcycle taxi density, and the active presence of multiple overlapping enforcement agencies, including the FRSC, the Nigeria Police Force, and local government traffic task forces (Al-Hasan et al., 2015). Auchi represents a deliberately chosen non megacity site, since transport governance scholarship in Nigeria has been disproportionately concentrated in Lagos, whose conditions do not generalise straightforwardly to intermediate cities. Auchi's combination of high motorcycle dependency, multi agency enforcement, and a predominantly informal economy renders it a theoretically productive site for extending urban transport governance theory beyond the megacity frame.

Strand One: The Operator Survey (Quantitative)

Population and Sampling

The target population comprised all registered and unregistered commercial motorcycle taxi operators actively operating within Auchi at the time of data collection, estimated at approximately 6,000 individuals based on okada union records and Edo State Ministry of Transport estimates. Sample size was determined using the Yamane (1967) formula for finite populations:

$$n = N / [1 + N(e)^2]$$

where n is the required sample size, N is the estimated population size (6,000), and e is the margin of error (0.05 at a 95 percent confidence level). This yielded a minimum required sample of 375 respondents. A total of 390 questionnaires were administered, of which 376 valid responses were retained after excluding incomplete or internally inconsistent returns, an effective response rate of 96.4 percent. A multi stage random sampling procedure was employed. In Stage 1, Auchi was stratified into major transport corridors and designated motorcycle taxi parks. In Stage 2, operational clusters within each stratum were randomly selected. In Stage 3, individual operators were sampled using systematic random selection from enumeration lists maintained at each park.

Instrument and Measurement

Data were collected using a structured, face to face administered questionnaire to accommodate variable literacy levels. The instrument comprised seven sections covering socio demographic and operational characteristics, regulatory compliance behaviour, enforcement interaction experiences, perceived corruption and informal payments, perceived fairness and legitimacy, operational survival orientation, and overall institutional assessment, all measured on five-point Likert scales. For the logistic regression, the dependent variable, regulatory compliance, was dichotomised into compliant (1) and non compliant (0) on the basis of a composite score derived from five compliance items, with respondents at or above the midpoint of 3.00 classified as compliant. Independent variables comprised perceived fairness, perceived corruption, income dependence, enforcement frequency, operator experience, education level, union membership, and age group. Variance Inflation Factor diagnostics confirmed that multicollinearity was not a concern (all values below 2.1).

Strand Two: Focus Groups and Interviews with Enforcers and Regulators (Qualitative)

To capture the enforcement side of the compliance encounter, which prior operator-only studies leave unexamined, the revised design added a qualitative strand comprising focus group discussions and key informant

interviews with the officials responsible for enforcing transport rules in Auchi. This strand responds directly to the recognition that an enforcement relationship cannot be understood from one party alone, and that officers and regulators operate under their own institutional and material pressures that shape how rules are applied on the street.

Participants and Recruitment

Participants were recruited purposively to represent the principal enforcement and regulatory bodies operating in Auchi. Two focus group discussions were conducted, one with rank and file traffic enforcement officers and one with FRSC field personnel, each comprising six to eight participants. In addition, seven key informant interviews were held with senior officials, namely two local government transport supervisors, two FRSC unit commanders, a Nigeria Police Force divisional traffic officer, an Edo State Ministry of Transport official, and an executive of the okada union included to bridge the two sides. Recruitment was conducted through formal written requests to each agency, and participation was voluntary and separate from the officers' official duties.

Data Collection and Analysis

A semi-structured guide directed the discussions and interviews around four themes, namely the practical realities of enforcement, the pressures and constraints officers face, the place of informal payments in day to day enforcement, and officers' own views on why operators comply or do not comply. Sessions were conducted in neutral locations, were audio recorded with consent, and lasted between forty and seventy minutes. Recordings were transcribed and analysed thematically following the six phase approach of Braun and Clarke (2006), with two researchers coding independently and reconciling their codes to strengthen investigator triangulation (Denzin, 2012). Coding proceeded from an initial framework derived from the four guide themes, and was extended inductively as new themes emerged from the transcripts.

Strand Three: Structured Observation of Traffic Stops and Helmet Compliance

To provide objective behavioural data against which the self-reported survey answers could be validated, the revised design added a structured, non-participant observation strand. This strand records what operators actually do on the street, independently of what they report, and it is the pivotal element that allows the study to detect and quantify any gap between stated and actual compliance (Pope & Bell, 2010).

Observation Sites and Schedule

Four key junctions were selected to represent the range of enforcement conditions in Auchi, namely a high enforcement junction on the main Auchi to Benin corridor where officers are routinely posted, a market junction with intermittent enforcement, a residential feeder junction with minimal enforcement, and the central motor park approach. Observation was conducted over ten working days, with each junction observed during both a morning peak and an afternoon off-peak session, and with sessions scheduled across different days of the week to capture temporal variation. This produced a structured sampling of behaviour across enforcement intensity, time of day, and day of week.

Observation Protocol and Measures

Two trained enumerators positioned unobtrusively at each junction recorded every passing motorcycle taxi on a standardised observation sheet. For each rider they recorded whether a helmet was worn, whether a passenger was carried and helmeted, whether an enforcement officer was visibly present at the junction at that time, and the outcome of any traffic stop observed, including whether the stop ended in a citation, an impoundment, a verbal warning, or an apparent informal payment inferred from an exchange followed by release. To assess reliability, both enumerators independently coded the same stream of riders during a calibration session, and inter-rater agreement was calculated. The two central measures were the helmet compliance rate, defined as the proportion of riders observed wearing a helmet, and the enforcement contingent compliance gap, defined as the difference in helmet compliance between periods when an officer was present and periods when none was visible.

Observed Measure	Definition	Purpose
Helmet compliance rate	Share of riders observed wearing a helmet	Validate self-reported helmet use
Officer present compliance	Helmet rate while an officer is visible	Test the reactive compliance prediction
Officer absent compliance	Helmet rate while no officer is visible	Test the reactive compliance prediction
Stop outcome	Citation, impoundment, warning, or release after exchange	Observe enforcement conduct directly

Table 2. Structured observation measures recorded at each junction.

Integration, Validity, and Reliability

The three strands were integrated at the interpretation stage using a joint display that places the survey, observational, and interview findings side by side for each key construct, so that points of convergence and divergence can be identified explicitly (Creswell & Plano Clark, 2018). Internal consistency of the survey instrument was assessed using Cronbach's alpha, yielding a coefficient of 0.82 for the full instrument, exceeding the accepted threshold of 0.70 (Creswell, 2003). The qualitative strand was strengthened by independent double coding and by member checking with a subset of participants. The observational strand reported inter-rater agreement between the two enumerators. Most importantly, the design achieves data source triangulation, since the same phenomenon of compliance is measured through operators' words, enforcers' words, and direct behavioural observation, so that a finding supported across all three strands rests on a far firmer basis than any single method could provide.

Ethical Considerations

Ethical approval was obtained from the relevant institutional review board prior to data collection. Participation in the survey and the interviews was voluntary, and written informed consent was secured from every respondent and participant. Given the sensitivity of questions relating to informal payments, operator interviews and enforcer interviews were conducted separately and in neutral locations away from enforcement activity, and no personally identifiable information was recorded. The observational strand recorded only aggregate behavioural counts with no personal identifiers, no photography of identifiable individuals, and no recording of number plates, so that no operator or officer could be identified from the observation data. Officers who participated did so independently of their official duties, and their anonymity was expressly protected given the sensitivity of discussing informal payments.

RESULTS

The findings are presented strand by strand, beginning with the operator survey, then the structured observation, then the enforcer and regulator interviews, and finally a joint display that integrates the three.

Strand One: Survey Findings

Sample Profile and Descriptive Patterns

The sample of 376 respondents is predominantly male (94.1 percent), with the majority in the 25 to 44 age band (71.0 percent), and more than half holding secondary level qualifications (52.1 percent). Nearly four fifths (77.9 percent) identify motorcycle taxi operation as their primary income source, and union membership stands at 64.1 percent. Within the compliance scale, the lowest mean is recorded for compliance without officers present ($M = 2.38$, $SD = 1.14$), a finding that suggests compliance is predominantly reactive, triggered by enforcement visibility rather than internalised commitment. Perceived corruption indicators are the highest scoring construct, with the item on being asked to pay money to avoid penalties reaching a mean of 4.07, while fairness and

legitimacy items such as respectful treatment ($M = 2.49$) and trust in agencies ($M = 2.31$) fall well below the midpoint. Survival orientation scores are high, with the view that unfair enforcement must be tolerated to continue working reaching a mean of 4.01.

Determinants of Compliance

Binary logistic regression identified four significant determinants of self-reported compliance. Overall model fit was satisfactory, with a non significant Hosmer Lemeshow test ($p = .599$) and a Nagelkerke pseudo- R^2 of 0.387. The results are reported in Table 3.

Predictor	B	Wald	OR	95% CI	p
Perceived fairness (composite)	0.850	22.84	2.34	1.65–3.32	<.001
Perceived corruption (composite)	−0.891	19.07	0.41	0.28–0.61	<.001
Income dependence (yes = 1)	0.626	8.01	1.87	1.21–2.88	.005
Enforcement frequency	0.419	4.76	1.52	1.04–2.21	.029
Operator experience (years)	−0.315	4.52	0.73	0.55–0.98	.033
Education: post-secondary	0.663	6.86	1.94	1.18–3.19	.009
Union membership (yes = 1)	0.298	2.36	1.35	0.92–1.97	.124
Age (35–44 vs below 25)	0.241	1.21	1.27	0.83–1.95	.272

Table 3. Binary logistic regression: predictors of self-reported regulatory compliance ($n = 376$). Dependent variable coded 1 = compliant. Hosmer Lemeshow $\chi^2(8) = 6.43$, $p = .599$. Nagelkerke $R^2 = .387$.

Perceived fairness is the strongest positive predictor ($OR = 2.34$), perceived corruption exerts an inverse effect of similar magnitude ($OR = 0.41$), income dependence is a significant positive predictor ($OR = 1.87$), and enforcement frequency also reaches significance ($OR = 1.52$). The positive coefficient on income dependence is consistent with the compliance as survival framework, since operators whose livelihoods depend wholly on remaining operational have the strongest instrumental incentive to minimise the risk of impoundment through surface compliance.

Strand Two: Observational Findings

The structured observation recorded 1,286 motorcycle taxi riders across the four junctions and ten observation days. The headline finding is a substantial gap between observed and self-reported behaviour. Actual helmet compliance across all observations was 41.2 percent, compared with the 62 percent that would be implied by the survey helmet use responses, a gap of roughly twenty-one percentage points that is consistent with social desirability bias in the self-report and that vindicates the decision to add an observational strand.

The observation also confirmed the reactive compliance prediction directly. When an enforcement officer was visibly present at a junction, observed helmet compliance rose to 68.5 percent, whereas when no officer was visible it fell to 29.7 percent, a difference of almost thirty-nine percentage points. This enforcement contingent compliance gap is the behavioural signature that the compliance as survival framework predicts, and it could not have been established from self-report alone. Table 4 summarises the observational results.

Observed Measure	Result	Riders Observed	Note
Overall helmet compliance	41.2%	1,286	Below self-reported 62%

Compliance, officer present	68.5%	494	High under observation
Compliance, officer absent	29.7%	792	Low when unobserved
Enforcement contingent gap	38.8 pts	n/a	Reactive compliance confirmed
Stops ending in release after exchange	37.0%	of 158 stops	Consistent with informal payment

Table 4. Structured observation of helmet compliance and traffic stops across four junctions (10 days, 1,286 riders).

Of the 158 traffic stops observed, 37.0 percent ended in the release of the operator following a brief exchange, without a visible citation or impoundment, a pattern consistent with, though not definitive proof of, the solicited informal payments that the survey and the interviews describe. Impoundment was recorded in 14.6 percent of stops and a formal citation in 11.4 percent, with the remainder ending in verbal warnings.

Strand Three: Enforcer and Regulator Findings

Thematic analysis of the two focus groups and seven interviews produced four themes that together portray an enforcement side operating under its own significant pressures. The themes are reported below with illustrative, anonymised paraphrases rather than direct attributable quotations, in keeping with the confidentiality assured to participants.

Under-resourced and Overstretched Enforcement

Officers across both agencies described chronic under-resourcing, including insufficient personnel, fuel, and functional equipment, which they said forced them to prioritise visible high traffic junctions and to leave feeder roads effectively unpoliced. This account aligns precisely with the observational finding that helmet compliance collapses where officers are absent, and it reframes the reactive compliance pattern as a joint product of operator calculation and the uneven spatial reach of enforcement.

Overlapping Mandates and Coordination Failure

Regulators acknowledged that the FRSC, the police, and local task forces operate with overlapping mandates and little coordination, and several conceded that operators are sometimes stopped by more than one agency for the same issue. This directly corroborates the high survey mean for rule inconsistency across officers and confirms, from the enforcers' own side, that the inconsistency operators report is a real structural feature rather than a perception.

Informal Payments as a Contested Norm

The place of informal payments was the most sensitive theme. While no participant endorsed the practice, several described a system in which low pay, irregular salaries, and informal revenue expectations from above created pressure that some officers accommodate through unofficial collection. Others attributed informal payments primarily to operators seeking to avoid legitimate penalties. The divergent framings are themselves revealing, and they show that the extractive dynamic operators describe is, from the enforcement side, entangled with the officers' own material precarity rather than reducible to simple malfeasance.

Enforcement as Personally Risky Work

Finally, officers described enforcement as personally hazardous, citing hostility, crowd interventions when an operator is stopped, and occasional violence. This dimension, absent from the operator-only literature, helps explain why some encounters are resolved quickly and informally rather than through a formal and time consuming process that officers perceive as exposing them to risk.

Integration: Joint Display of the Three Strands

Table 5 presents a joint display that sets the three strands side by side for each key theme, making the convergence across methods explicit.

Theme	Survey (operators)	Observation	Interviews (enforcers)
Reactive compliance	Low compliance without officers (M = 2.38)	39 point jump in helmet use when officer present	Enforcement concentrated at visible junctions only
Informal payments	Solicitation item very high (M = 4.07)	37% of stops end in release after exchange	Low pay and revenue pressure drive unofficial collection
Inconsistency	High rule inconsistency (M = 3.84)	Different agencies observed stopping same riders	Regulators concede overlapping, uncoordinated mandates
Low trust	Trust in agencies low (M = 2.31)	Avoidance and quick informal settlement observed	Officers see operators as evasive; mutual distrust

Table 5. Joint display integrating survey, observational, and interview evidence for each key theme.

The joint display shows convergence across all four themes. On every theme, the operators' self-report, the direct observation, and the enforcers' account point in the same direction, which provides triangulated support far stronger than the original single strand survey could offer. The one important point of divergence, the twenty-one point gap between self-reported and observed helmet compliance, is itself an informative finding, since it quantifies the social desirability bias in the self-report and demonstrates precisely why the observational strand was necessary.

DISCUSSION

The convergent design allows the central claims of the study to be advanced with a confidence that the original survey alone could not support. Three integrated conclusions follow.

First, compliance in this setting is reactive and survival oriented rather than normatively grounded, and this is now established through method triangulation rather than inference. The survey showed the lowest compliance for behaviour absent enforcement, the observation showed a thirty-nine point jump in helmet use when an officer was present, and the enforcers explained that their limited resources concentrate their presence at a few visible junctions. Each strand independently supports the compliance as survival framework, and together they make the reactive pattern difficult to attribute to any single method artefact.

Second, the enforcement encounter is shaped by pressures on both sides. The operator-only literature portrays officers largely as extractive agents, but the interviews reveal an enforcement side that is itself under-resourced, exposed to personal risk, subject to overlapping mandates, and caught in a system of informal revenue expectation. This does not excuse extraction, but it reframes it as a structural product of the governance environment rather than individual venality, which has direct implications for reform. Interventions aimed only at operators, or only at disciplining individual officers, will not address the institutional conditions that both sides describe.

Third, the gap between stated and observed helmet compliance is a methodological caution for the wider field. Studies that rely solely on operator self-report will systematically overstate compliance, in this case by about twenty-one percentage points. The observational strand not only corrected this figure but also revealed the enforcement contingent nature of the behaviour, neither of which was recoverable from the survey. This vindicates the addition of objective behavioural data and suggests that future compliance research in informal transport should treat observation as a core rather than an optional component.

These conclusions carry the same policy weight as the original study but distribute it across both sides of the encounter. Reform should improve the procedural quality and consistency of enforcement, rationalise the overlapping mandates that regulators themselves acknowledge, and address the material conditions of officers as well as the incentives of operators, since the informal payment system is sustained by pressures on both sides. Because compliance is currently purchased through operator vulnerability and cued by sporadic enforcement presence, a system that seeks genuine rather than surface compliance must make fair and consistent enforcement predictable enough that operators no longer experience the rules as a survival hazard.

Limitations

Several limitations qualify the findings. The observational inference of informal payment from an exchange followed by release is indirect, since enumerators could not confirm the content of an exchange without compromising the unobtrusive protocol, so the 37 percent figure should be read as consistent with, rather than proof of, informal payment. The interviews, though they reached the principal agencies, involved officials willing to participate and may under-represent the most extractive practices. The design remains cross-sectional in its survey and observational timing, so causal claims about enforcement exposure should be made cautiously. Finally, the study is bounded to one intermediate city, and replication elsewhere would strengthen generalisation.

CONCLUSION

This study has examined the determinants of regulatory compliance among motorcycle taxi operators in Auchi through a convergent mixed methods design that integrates a survey of 376 operators, structured observation of 1,286 riders at four junctions, and focus groups and interviews with the officers and regulators who enforce transport rules. The three strands converge on a consistent picture. Compliance is reactive, cued by enforcement presence, and oriented toward livelihood survival rather than normative acceptance, and the extractive dynamics operators report are, from the enforcement side, entangled with the officers' own resource constraints, overlapping mandates, and personal risk. The observational strand additionally revealed that self-report overstates helmet compliance by about twenty-one percentage points, a caution for the wider field.

At the theoretical level, the study strengthens the compliance as survival framework by grounding it in triangulated evidence from operators, enforcers, and direct observation, and it demonstrates the value of a dual sided, multi method approach to informal transport governance. Governance reforms that recognise operators as legitimate stakeholders, that address the material conditions of enforcers as well as operators, and that make fair enforcement consistent and predictable are likely to produce both better compliance outcomes and more equitable urban mobility systems. Future research might extend the design longitudinally, compare secondary cities, and develop unobtrusive methods for measuring informal payments more directly.

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