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Impact of the Punjab Highway Patrol on Road Crime Prevention and Traffic Management: Evidence from the Faisalabad Region, Pakistan

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Abstract

Road crime and traffic insecurity continue to be major threats to public safety in low and middle-income countries. Although the Punjab Highway Patrol (PHP) has been steadily expanding since its inception in 2004 as an all-eve-focused highway policing service, the hard evidence to support the service on a commuter basis is still limited. Since the existing literature mainly focuses on the Lahore area, with its unique crime rate, and the Faisalabad area is one of the busiest agro-industrial transport corridors in the province of Punjab, no study has been conducted to assess the performance of PHP in Faisalabad region. The present study redresses this void and makes several new contributions to the literature: it integrates for the first time, the institutional crime-trend records from 2004 to 2026 with a structured commuter survey; it compares the PHP against the federal National Highways and Motorway Police crime-trend records from 2004 to 2019 and against the international patrol-policing evidence; and it presents a composite PHP Effectiveness Index. A cross-sectional design was used in this study with 160 commuters in four districts, with bivariate associations tested using chi-square and gamma statistics.. Reported highway crime fell from a pre-PHP baseline of 687 incidents to an annual range of 3 to 53 cases across 2005 to 2026, though the decline was interrupted by a 2021-2022 rebound plausibly linked to post-COVID-19 conditions. Commuters reported largely favourable perceptions of PHP's integrity, crime-prevention effectiveness, and traffic management, and these perceptions were significantly associated with education, income, and satisfaction, though not with age. Benchmarked internationally, PHP's perceived effectiveness is high, but it still trails comparators on technology adoption. These findings fill a documented evidence gap for South Asian highway policing and offer a replicable, low-cost model for future research and policy use.

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1. Introduction

The overall economic and social activities of a country depends on road transport, which facilitates the transport of people, goods and services. These networks allow this movement but also road users to be vulnerable to crime and violence. Highway robbery, vehicle theft, dacoity and associated crimes are common in many low and middle-income countries, and are a challenge to the state's ability to ensure safe passage (Nazir, Nadeem, & Véronneau, 2016; Kayani, Fleiter, & King, 2014). In addition to the impact on the individual victim, these offenses give rise to a generalised fear among commuters and transport operators, and also have indirect repercussions on trade, tourism and the use of transport in everyday life.

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Pakistan is a typical case of this issue. Large and rapidly expanding highway systems link the nation's key agricultural, industrial and commercial centres, but highway police historically have been weak, resulting in long stretches of highway open to crime, whether organised or opportunistic. In response to this, the Government of Punjab has set up the Punjab Highway Patrol (PHP) as a dedicated province-wide highway police service, separate from the district police, with responsibilities that include continuous patrolling, crime prevention, crime detection, management of traffic flow, prompt assistance in emergencies, recovery of stolen vehicles, and a range of services provided to the public, including reuniting lost children with their families (PHP, 2017). Part of this build-out has been the steady increase in patrol posts from 181 in 2006 to 352 province-wide and 51 in the four districts of the Faisalabad Region at the time of the last institutional update (HTTP 2026).

While these are empirical questions to be answered, it remains to be determined whether this expansion has actually decreased the crime on the road, and whether the commuters find PHP to be effective and reliable. Administrative crime statistics may be influenced by reporting patterns and practices and institutional incentives and only provide an incomplete picture of policing quality (Razzak & Laflamme, 2005; Kayani et al., 2014). As officers patrolling the roads experience the impact of visibility, response times and officer behaviour firsthand, this direct evidence provides a complementary and more relevant measure of whether a highway policing model is meeting its purpose.

This study fills this evidence gap in the Faisalabad Region, one of the busiest transport corridors in Punjab which connects major agricultural, textile and industrial markets. The study relies on a structured survey of 160 commuters across the four constituent districts in the region and on regional crime-incident data from 2004 to 2026 to document the pre-PHP and post-PHP trends in reported highway crime in the region, to assess commuters' attitudes toward PHP's integrity and its effectiveness in crime prevention and traffic management, and to determine if there are systematic differences between commuters in their attitudes as a function of their socio-economic characteristics. In doing so, it addresses the geographic, methodological, and comparative gaps set out in Section 3.4, and delivers the five contributions described in Section 3.6, which span geographic coverage, data-triangulation method, temporal scope, cross-institutional benchmarking, and a new composite effectiveness metric, in order to inform ongoing investment in highway policing across the province.

2. Institutional Background: The Punjab Highway Patrol

The PHP was conceived by the then Inspector General of Police Punjab, Syed Kamal Shah, in June 2004, under the government of Chief Minister Chaudhry Pervaiz Elahi, with the explicit aim of projecting a more approachable, service-oriented image of highway policing (PHP, 2017). Its core functions include day-and-night patrolling, prevention and detection of highway crime (dacoity, highway robbery, smuggling, vehicle theft and snatching), traffic law enforcement and education, and emergency assistance to stranded or injured road users. Responsibility for province-wide traffic management was formally assigned to PHP in 2009.

By 2026, PHP's Faisalabad Region comprised 51 patrol posts distributed across Faisalabad (22), Jhang (18), Toba Tek Singh (7), and Chiniot (4) districts, supported by roughly 1,227

officers of various ranks, 60 patrol vehicles, and 26 motorcycles, alongside standard firearms and traffic-management equipment such as accident kits, speed-checking devices, and vehicle cutters (PHP, 2017, 2026). Institutional records show that combined reported cases of highway robbery, dacoity, and motor-vehicle snatching in the study area fell from 687 incidents in the years before PHP's establishment to an annual total ranging between 3 and 53 cases across full calendar years 2005 to 2025, with a further 2 cases recorded in the partial year to 30 June 2026 (Figure 1; Section 6.1 gives a fuller account of this non-monotonic trend, including a 2021-2022 rebound). Over the same period, commuter assistance rose from roughly 122,000 to 156,000 people helped annually, and traffic-fine collection efficiency improved from 52% in 2016 to 77% in 2017.

3. Literature Review

3.1 Theoretical framework: Deterrence and visible policing

This notion of specialised highway patrols and their ability to deter road crime is based on classical deterrence theory which suggests that the speed of apprehension and certainty of punishment—not the severity of punishment—are the primary determinants of whether a decision to commit a crime will be made (Becker, 1968; Nagin, 2013). In policing this means that if an offender knows his chances of getting caught are higher, he should be less likely to commit an opportunistic or organised crime on the highway. This mechanism is also supported by the empirical policing literature, as it has been found that there are measurable general deterrent effects of concentrated, high-visibility policing at known "hot spots" without just displacing crime into neighboring areas not patrolled (Sherman & Weisburd, 1995). However, this literature also includes a significant and less often-mentioned nuance: the certainty of detection outweighs the severity of PHP's response to an offence, and thus the value of a patrol model is not so much in how PHP responds to any given offence as in how often commuters see officers on the road to update their estimation of odds of getting caught. This is the theoretical trajectory of this study, looking at PHP as a deterrent institution and directly inquiring of commuters about patrol visibility and responsiveness, not outcomes.

3.2 International evidence on highway safety enforcement

There exists a large international research literature connecting road safety to the four E's, enforcement, engineering, education and emergency response, and there's a good deal of truth to the fact that this literature is mixed. However, systematic reviews of crash risk factors have highlighted recurrence of enforcement gaps like lax licensing, weak enforcement of speed limits, and inconsistent compliance with traffic laws as risk factors for crashes (Wang, Quddus, & Ison, 2013; Theofilatos & Yannis, 2014) and have also observed mixed associations between traffic volume and crash rates, and variation in speeds and crash rates, across studies, suggesting that context matters more than any single enforcement lever. Comparative, systems-level analyses take a deeper step and suggest that coordinated institutional action is needed to effect lasting improvements in road safety, as the quality of road infrastructure, vehicle standards and driver behaviour are all interdependent with policing effort in predicting road crash and crime outcomes (Larsson, Dekker, & Tingvall, 2010; Wegman & Oppe, 2010). However, even in this context, the evidence is not straightforward:

Papadimitriou and Yannis (2013) explicitly tested this proposition in a sample of European countries, and concluded that there was no clear relationship between the level of road safety management and the level of road safety performance; cultural context and driver attitudes seem to shape the link between management and performance in this aspect. For police forces with low budgets, like most of the developing world, this leads to increasing patrol capacity at hot spots and times and not everywhere. (Dupont, Papadimitriou, Martensen, & Yannis, 2013; Kumar & Toshniwal, 2016).

3.3 Road safety and highway crime in Pakistan

Pakistan-specific research documents a persistently high burden of road traffic injury and highway crime, and it is just as consistent in documenting weaknesses in how that burden gets measured. Hyder, Ghaffar, and Masood (2000) characterised motor-vehicle crashes as an "emerging epidemic" driven by rapid motorisation that outpaced enforcement capacity, and later work has shown just how large the resulting data problem is: comparisons of police, ambulance, and hospital records for the same road section have found the three sources capturing wildly different numbers of injury cases, with police figures consistently the lowest of the three (Bhatti, Razzak, Lagarde, & Salmi, 2011). Razzak and Laflamme (2005) and Kayani, Fleiter, and King (2014) trace this underreporting partly to fatalism, the belief that a crash is one's fate rather than something the state is responsible for preventing, which in turn discourages both victims and police from treating crashes as matters requiring formal investigation. Survey work from Lahore adds a second, related theme: road users there describe perceived corruption, inconsistent enforcement, and limited trust in police as recurring obstacles to effective traffic policing (Batool, Carsten, & Jopson, 2012). Commercial-vehicle and driver-risk studies point to a further set of gaps in licensing, vehicle fitness, and training that continue to drive road insecurity (Mir, Razzak, & Ahmad, 2013; Masood Rafi, Hashmat Lodi, & Effendi, 2014), and national commentators have repeatedly called for stronger enforcement capacity, better crash-reporting infrastructure, and technology-enabled policing as reform priorities (Nazir et al., 2016; Shamim, Razzak, Jooma, & Khan, 2011). What is notably absent from all of this work, however, is any sustained attempt to evaluate a specialised highway-policing institution on its own terms, from the perspective of the people it is meant to serve, rather than through crash statistics alone.

3.4 Research gap

Despite PHP's expansion since 2004 and its explicit mandate to prevent highway crime, evaluation of its performance from the perspective of the commuters it serves remains limited. Most Pakistan-focused research to date has examined road traffic injury surveillance, crash epidemiology, or driver risk factors rather than the institutional performance of a specialised highway patrol service, and this literature is heavily concentrated on Lahore and other major urban centres (Batool, Carsten, & Jopson, 2012; Shamim, Razzak, Jooma, & Khan, 2011). No prior published study, to the authors' knowledge, has evaluated PHP's performance specifically in the Faisalabad Region, despite its status as one of Punjab's busiest agro-industrial transport corridors with a socio-economic and crime profile distinct from Lahore's. A further gap concerns method: existing Pakistani road-safety studies rely almost exclusively on either administrative crash and crime records or commuter perception surveys taken in

isolation, rather than triangulating the two, and none situates a provincial highway-policing institution such as PHP within a comparative framework alongside Pakistan's federal highway policing model or the international patrol-policing evidence base. These three gaps, geographic, methodological, and comparative, collectively motivate the present study and are addressed directly in Section 3.6.

3.5 Recent advances in highway and traffic policing research (2019–2024)

More recent, methodologically rigorous evaluations have sharpened the deterrence-based case for visible patrolling summarised above, though not always in the direction one might expect. An updated Campbell Collaboration systematic review and meta-analysis of 65 studies found that concentrated hot-spots policing produces a statistically significant, if modest, reduction in crime at treatment locations, with the benefit diffusing into surrounding areas rather than simply displacing crime elsewhere (Braga, Turchan, Papachristos, & Hureau, 2019). A 2024 systematic review reached a more cautious conclusion for patrol increases spread over larger areas, closer in scale to PHP's own jurisdiction, finding only small average crime-reduction effects across the available experimental and quasi-experimental evidence (Weisburd, Petersen, Telep, & Fay, 2024). Traffic-specific evidence tells a similarly qualified story: Wu, Lum, and Koper (2021) found that everyday proactive patrol produced short-term crash reductions concentrated at the most serious crash hot spots but limited effects elsewhere, while Park and Lum (2023) showed that the spatial concentration of traffic crashes does not always line up with the spatial concentration of general crime. The practical implication is that patrol strategies built to control crime will not automatically improve traffic safety, and the two objectives may need to be planned for separately rather than assumed to move together.

A second recent strand of evidence complicates the community-policing recommendations that commuters in this study frequently offered. A large multi-country randomised evaluation of community-policing reforms, run across six Global South sites including a region of Punjab, found that structured community-engagement interventions did not significantly increase citizen trust in police or reduce crime relative to standard policing (Blair et al., 2021). That result is worth sitting with, because it suggests the intuitive appeal of community policing to residents and reform-minded institutions alike is not always backed by rigorous causal evidence. At the same time, work on police legitimacy indicates that the manner of police contact, rather than how often it happens, is what actually shapes public perceptions of legitimacy (Bolaji & Metcalfe, 2024), which fits with this study's finding that PHP officers' perceived politeness and honesty correlate strongly with commuters' overall assessment of the organisation.

Within Pakistan specifically, recent survey work continues to document a gap between infrastructural and legislative reform on one hand and road users' compliance behaviour on the other: a 2023-2024 cross-sectional study in Hyderabad found generally non-compliant attitudes toward traffic regulations despite adequate awareness of the rules themselves (Memon et al., 2024). Recent crash-injury research has also identified continuing risk concentrated among motorcyclists and commercial-vehicle occupants, groups that make up a substantial share of highway traffic in the Faisalabad Region (Mansoor, Jamal, Su, Sze, & Chen, 2023). A parallel and growing literature examines technology-enabled enforcement,

automatic number-plate recognition (ANPR), GPS fleet tracking, and AI-assisted vehicle detection, as a way to extend patrol capacity without a proportional increase in personnel (see the critical review of ANPR system types in Nosheen, Naseer, & Jalal, 2024). This last strand connects directly to the equipment and technology gaps that commuters in the present study identified on their own (Section 6.6).

3.6 Novelty and contribution of the present study

Building directly on the gaps identified in Section 3.4, this study makes five specific contributions to the literature on highway policing in Pakistan and South Asia:

- Geographic: this is the first published commuter-based evaluation of PHP performance in the Faisalabad Region, extending an evidence base previously concentrated on Lahore to one of Punjab's largest agro-industrial transport corridors.
- Methodological: the study is, to the authors' knowledge, the first to triangulate institutional crime-trend records with a structured commuter survey for a Pakistani highway-policing institution, rather than relying on either data source alone, so that perceived effectiveness can be checked against documented crime trends.
- Temporal: the institutional crime-trend series runs from a pre-PHP baseline through June 2026, substantially longer than prior Pakistani policing evaluations, and is the first to document a post-2020 non-monotonic rebound in highway crime, plausibly linked to pandemic-era disruption, that a shorter-horizon study would have missed entirely.
- In Section 7, for the first time, PHP is included in a single framework to benchmark against the performance of Pakistan's federal National Highways and Motorway Police and the international meta-analytic evidence on hot-spots policing and preventive-patrol policing, allowing PHP's performance to be compared not just with Pakistani police performance, but with a world benchmarking reference.
- Analytical: The study has developed a composite PHP Effectiveness Index (Section 6.8), which is a simple, transparent and transferable summary measure developed from the item-level perception data and is an easy to use tool that can be used by future studies of Pakistani or comparable highway-policing institutions.

These contributions collectively move the literature on deterrence theory and highway policing beyond its current urban, Lahore-centric focus and directly address the geographic, methodological and comparative gaps identified in Section 3.4. The remaining sections (Objectives, Methods, Results, and the State-of-the-Art Comparison, Section 7) hone these five contributions, and the Discussion and Conclusion (Sections 8 and 11 respectively) revisit each of these again.

4. Research Objectives and Hypotheses

4.1 Objectives

The study aimed at achieving the following specific objectives:

- To develop a database of trends in reported highway crime cases in Faisalabad Region prior to and following the inception of the Punjab Highway Patrol.

- To assess commuters' perceptions of the integrity, accessibility and quality of service of PHP.
- To determine the effectiveness of PHP in preventing highway robbery, dacoity and vehicle snatching among the commuters.
- To assess commuters' perceptions of the effectiveness of PHP for traffic management and accident reduction.
- To explore the relationship between commuters' socio-economic factors, age, education, income and satisfaction with the effectiveness of PHP.
- To uncover commuters' suggestions to improve PHP's operational strength and public perception.

4.2 Hypotheses

Building on the deterrence-theoretic and empirical literature reviewed above, four hypotheses were formally tested:

- H1: Perceived PHP effectiveness is higher among older commuters.
- H2: Perceived PHP effectiveness is higher among more educated commuters.
- H3: Perceived PHP effectiveness is higher among higher-income commuters.
- H4: Perceived PHP effectiveness is higher among commuters who report being satisfied with PHP's overall performance.

5. Materials and Methods

5.1 Research design and study area

A cross-sectional survey design with a quantitative approach was adopted to assess the perception of the effectiveness of PHP among the commuters. This design was appropriate for measuring perceptions at one point in time and assessing correlations among socio-economic characteristics and perceived effectiveness of policing. The study was carried out in the Faisalabad Region of Punjab, Pakistan, which included Faisalabad, Jhang, Toba Tek Singh and Chiniot Districts, and which was characterized as having high levels of agricultural, commercial and industrial traffic, and 49 to 51 PHP posts (see Section 2) on the basis of institutional records.

5.2 Universe and sampling

The universe of the study was the highway network of the Faisalabad Region. Simple random sampling was used to select 8 highways (2 highways from each of the 4 constituent districts). In this frame a random sample of 160 commuters was sampled, 40 from each district, resulting in an equal-parts allocation throughout the region. Random sampling is very common and practical for intercept surveys of transient travelers using the highway and for which there is no known sampling frame, but has limitations in terms of statistical generalisability (see Section 10, Limitations).

5.3 Instrument development and data collection

The method employed to gather primary data is structured interview schedule comprising 28 closed-ended questions which was designed in consultation with the research supervisor and research committee, based on the relevant literature and used after a pilot test with 15 respondents before the actual test administration. The pilot test eliminated questions that were sensitive or ambiguous, and found that there was a clear understanding among the respondents of the questions, despite differences in their literacy levels. Interviews were conducted in person, and participation was voluntary, in May. Some were initially hesitant to even talk about policing issues and the purpose of the study was briefly explained, and that was sufficient in practice to create some rapport.

5.4 Variables

Independent variables included were socio-economic factors, age, education level, marital status, household size and type, occupation, and monthly income of the commuters, as well as their responses to questions regarding satisfaction with the performance of PHP. A composite score based on respondents' answers to substantive items of the survey was constructed as the main dependent variable and categorized as Low, Medium, and High for bivariate analyses to get a general impression of perceived PHP effectiveness in traffic management and in the prevention of road-crime.

5.5 Data analysis

The Statistical Package for the Social Sciences (SPSS) was used for coding, entry and analysis of the data. The respondent characteristics and perceptions were summarised using univariate analysis (frequencies and percentages) across the 32 survey items. Bivariate analysis was performed based on contingency tables and Pearson's chi-square statistic,

The χ^2 test ($\chi^2 = \Sigma\ (O - E)^2 / E$) was used to test whether there was statistical independence between socio-economic characteristics and the effectiveness of PHP as perceived by the respondents. Both variables were ordinal scaled, so the Goodman–Kruskal gamma statistic, was used.

The strength and direction of the association was also computed using $\gamma = (N_s - N_ə) / (N_s + N_ə)$, where N_s and $N_ə$ are the numbers of concordant and discordant pairs. All tests were carried out at 5% level of significance ($\alpha = 0.05$).

5.6 Ethical considerations

The study was designed as a voluntary participation with the respondent being informed about the scientific objective of the study before the interview. Confidentiality and anonymity was ensured during the collection, coding and reporting of the data and no personally identifying data were kept or shared.

6. Results

Results are presented in six parts: (6.1) institutional crime trends; (6.2) the socio-demographic profile of respondents; (6.3) perceptions of PHP integrity and service quality; (6.4) perceptions of road-crime prevention; (6.5) perceptions of traffic management; (6.6) commuters' suggestions for improvement; and (6.7) bivariate tests of the study's four hypotheses.

6.1 Institutional crime trends, 2004–2026

Table 1 summarises reported cases of the three highway-crime categories tracked in PHP institutional records for the study area, updated to include data through the first half of 2026. Combined reported incidents fell from 687 in the years preceding PHP's establishment (270 highway robbery, 206 dacoity, 211 motor-vehicle snatching) to an annual total ranging between 3 and 53 cases across full calendar years 2005–2025, with a further 2 cases recorded in the partial year to 30 June 2026 (Figure 1). The trend was not strictly monotonic: after a broad decline from the 2010 peak (53 cases) to a low of 10 cases in 2016–2017, reported cases rose again to 45 and 47 cases in 2021 and 2022 respectively, close to the 2010 peak, before declining sharply to 34, 18, and 3 cases in 2023, 2024, and 2025. The 2021–2022 rebound coincides with the period immediately following COVID-19-related mobility restrictions in Pakistan and plausibly reflects some combination of temporarily reduced patrolling capacity, disrupted institutional reporting, and a rebound in highway traffic and associated opportunistic crime as movement restrictions eased; institutional records available to this study do not permit a definitive attribution, and this interpretation should be treated as tentative.

Table 1. *Reported highway-crime cases in the Faisalabad Region, pre-PHP baseline and 2005–2026.*

Year	Highway robbery	Dacoity	Motor-vehicle snatching	Total
Pre-PHP baseline (≤ 2004)	270	206	211	687
2005	18	3	5	26
2006	20	5	15	40
2007	15	11	14	40
2008	16	11	13	40
2009	25	7	15	47
2010	32	13	8	53
2011	16	7	5	28
2012	23	6	12	41
2013	23	6	9	38
2014	17	3	7	27
2015	10	1	2	13
2016	5	0	5	10
2017	8	0	2	10
2018	7	0	6	13
2019	18	2	1	21
2020	8	0	1	9
2021	30	1	14	45
2022	31	0	16	47
2023	20	0	14	34
2024	13	1	4	18
2025	1	0	2	3
2026 (through 30 June)	2	0	0	2

Source: Institutional records of the Punjab Highway Patrol, Regional Office, Faisalabad (PHP, 2026). The pre-PHP baseline aggregates cases recorded prior to 2004; the 2026 figure covers January–June only and is not directly comparable to full-year totals.

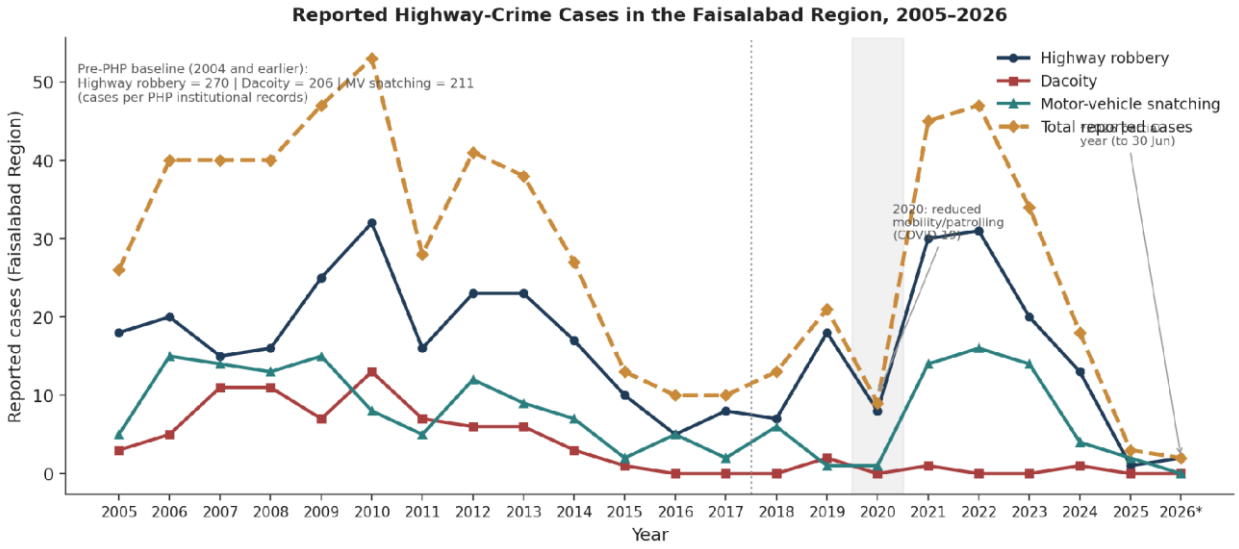

Figure 1. *Reported highway-crime cases in the Faisalabad Region, 2005–2026, by offence type.*

6.2 Socio-demographic profile of respondents (N = 160)

Just over half of respondents (52.5%) were aged 31–49 years, with 34.4% aged up to 30 and 13.1% aged 50 or above. Educational attainment was concentrated in the primary-to-middle (38.1%) and matric-to-intermediate (32.5%) categories, with 18.1% illiterate and 11.3% educated to graduation level or above. The large majority of respondents were married (77.5%), living in joint family systems (70.6%), and earning up to PKR 15,000 per month (39.4%) or between PKR 15,001 and 25,000 (35.6%). Private-sector employment was the most common occupation (56.3%), followed by labour (38.1%) and government service (5.6%).

Table 2. *Socio-demographic profile of sampled commuters (N = 160).*

Characteristic	Category	f	%
Age (years)	Up to 30	55	34.4
	31–49	84	52.5
	50 and above	21	13.1
Educational level	Illiterate	29	18.1
	Primary–Middle	61	38.1
	Matric–Intermediate	52	32.5
	Graduation and above	18	11.3
Marital status	Married	124	77.5

Characteristic	Category	f	%
	Single	34	21.3
	Widow	2	1.3
Household size	1–3 members	32	20.0
	4–5 members	38	23.8
	6–7 members	36	22.5
	7–8 members	29	18.1
	Above 8 members	25	15.6
Family type	Nuclear	42	26.3
	Joint	113	70.6
	Extended	5	3.1
Occupation	Labour	61	38.1
	Government job	9	5.6
	Private job	90	56.3
Monthly income (PKR)	Up to 15,000	63	39.4
	15,001–25,000	57	35.6
	Above 25,000	40	25.0

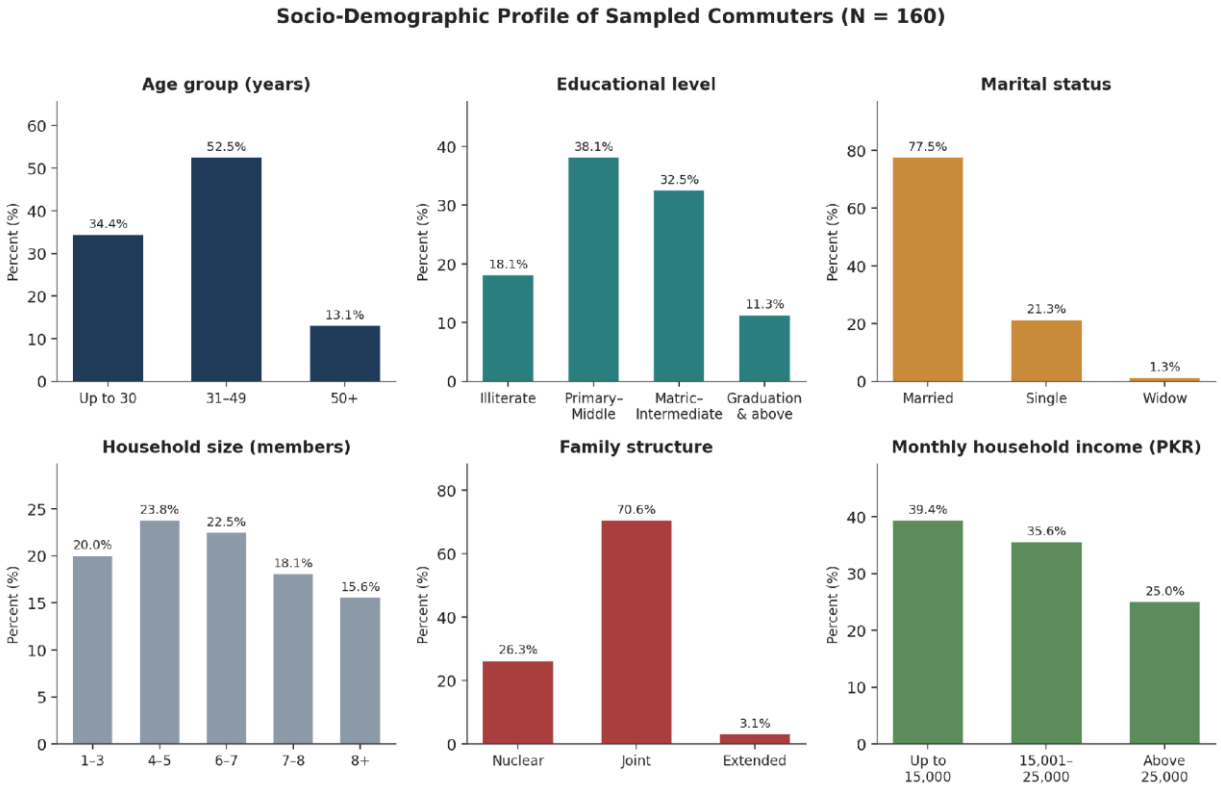

Figure 2. *Socio-demographic profile of sampled commuters: age, education, marital status, household size, family type, and income.*

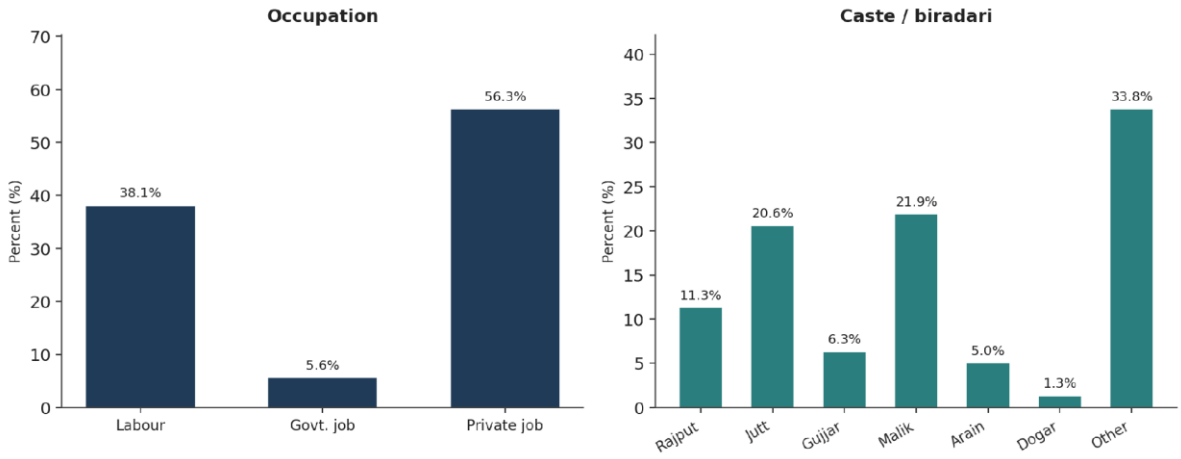

Figure 3. *Occupational distribution and caste/biradari composition of sampled commuters.*

6.3 Perceptions of PHP integrity and service quality

Most respondents (77.5%) reported having visited a PHP post directly. A large majority perceived PHP as treating commuters equally (86.9%), performing duty with honesty (77.5%), functioning well within its jurisdiction (82.5%), and reported overall satisfaction with PHP's performance (86.3%). Only 12.5% of respondents perceived PHP as involved in corruption, while officer conduct was rated as polite by 63.7% of respondents and normal by a further 31.9%, with only 4.4% reporting harsh treatment. Consistent with these findings, 68.8% of respondents described their overall attitude toward PHP as good, 17.5% as average, and 13.8% as bad.

Table 3. *Commuters' perceptions of PHP integrity and service quality (N = 160).*

Item	Response	f	%
Ever visited a PHP post	Yes	124	77.5
	No	36	22.5
PHP treats commuters equally	Yes	139	86.9
	No	21	13.1
PHP performs duty with honesty	Yes	124	77.5
	No	36	22.5
PHP functions well in own jurisdiction	Yes	132	82.5
	No	28	17.5
Satisfied with PHP performance	Yes	138	86.3
	No	22	13.8

Item	Response	f	%
PHP perceived as involved in corruption	Yes	20	12.5
	No	140	87.5
Attitude of PHP officers on duty	Polite	102	63.7
	Normal	51	31.9
	Harsh	7	4.4
Overall commuter attitude toward PHP	Good	110	68.8
	Average	28	17.5
	Bad	22	13.8

Figure 4. *Commuters' perceptions of PHP integrity, honesty, satisfaction, and corruption.*

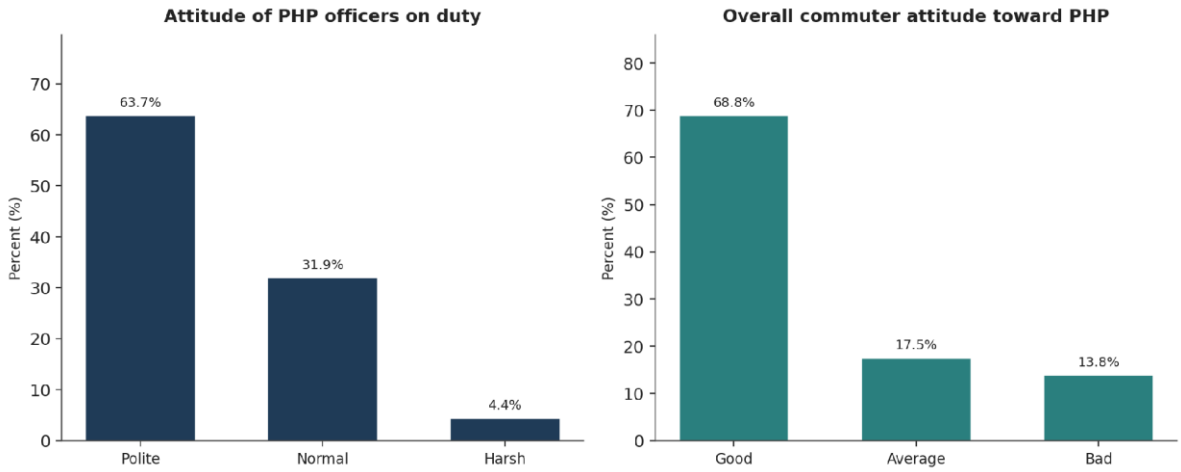

Figure 5. *Perceived attitude of PHP officers and commuters' overall attitude toward PHP.*

6.4 Perceptions of road-crime prevention

A substantial majority of respondents (85.6%) believed that PHP had reduced the incidence of highway crime in the region; among those who disagreed, outdated PHP vehicles (12.5%) and institutional negligence (1.9%) were cited as the principal reasons. Consistent with a deterrence interpretation, 88.8% of respondents reported feeling safer travelling on highways because of patrol presence, and an overwhelming 97.5% confirmed that patrol police were visibly active in their area. PHP's weaponry was rated as adequate ("good") by 96.3% of respondents.

Table 4. *Commuters' perceptions of PHP's role in road-crime prevention (N = 160).*

Item	Response	f	%
PHP has reduced highway-crime rates	Yes	137	85.6
	No	23	14.4
– if no, reason: PHP negligence		3	1.9
– if no, reason: outdated vehicles		20	12.5
Feel safer travelling due to patrol presence	Yes	142	88.8
	No	18	11.3
Patrol police visibly active in area	Yes	156	97.5
	No	4	2.5
Perceived adequacy of PHP weaponry	Good	154	96.3
	Poor	4	2.5
	Very poor	2	1.3

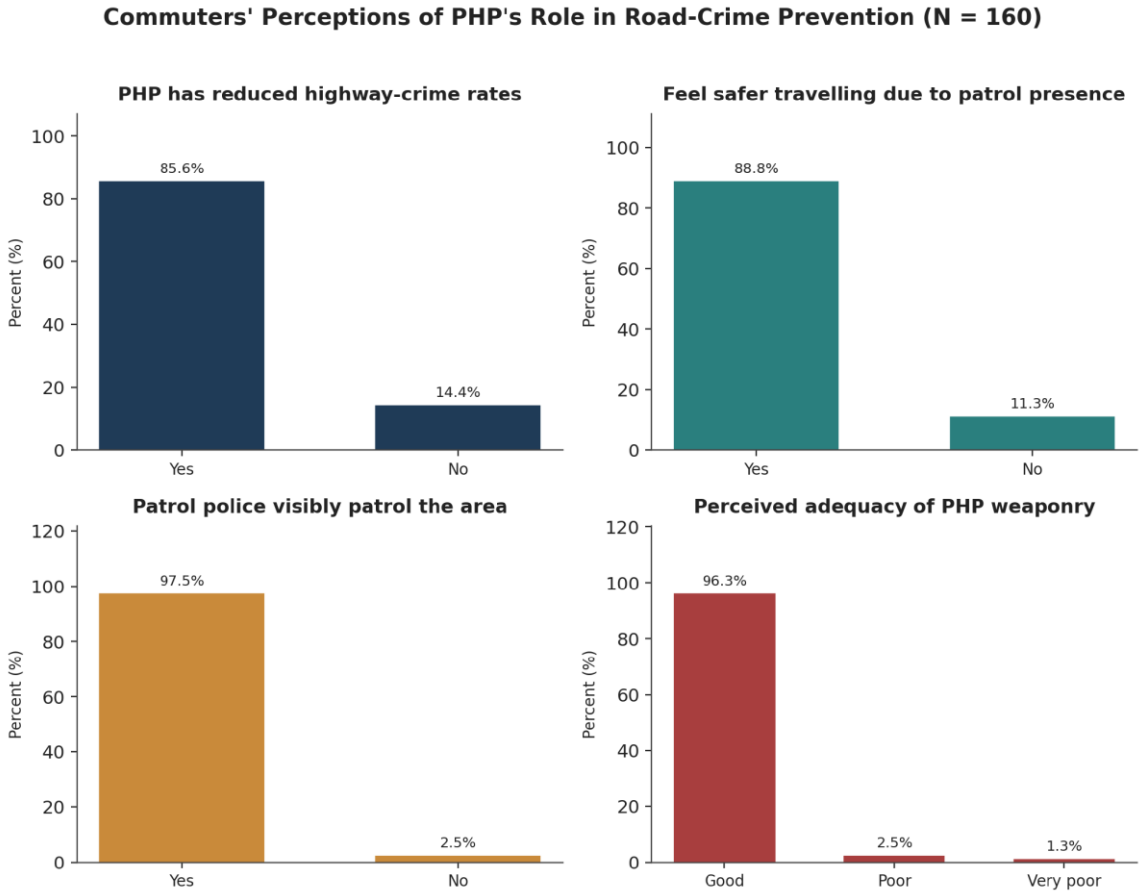

Figure 6. *Commuters' perceptions of PHP's role in road-crime prevention.*

6.5 Perceptions of traffic management

Just over half of respondents (56.9%) held a valid driving licence, of whom 92.3% reported obtaining it by qualifying a driving test rather than through informal means. A large majority perceived that PHP had reduced accident rates on highways (90.6%) and rated PHP's overall traffic-management performance as good (77.5%). Response speed following accidents was rated as quick by 68.8% of respondents, with poor response (12.5%) attributed mainly to outdated vehicles (11.3%) rather than carelessness (1.3%). Media influence on PHP's conduct was perceived to operate "to some extent" by 44.4% of respondents and "to a great extent" by 21.3%, while 34.4% perceived no media influence at all.

Table 5. *Commuters' perceptions of PHP's role in traffic management (N = 160).*

Item	Response	f	%
Holds a valid driving licence	Yes	91	56.9
	No	69	43.1
Method of obtaining licence (n = 91)	By qualifying test	84	92.3
	Without test	7	7.7
PHP has reduced accident rates	Yes	145	90.6

Item	Response	f	%
	No	15	9.4
Quality of PHP traffic management	Good	124	77.5
	Average	23	14.4
	Bad	13	8.1
Speed of PHP accident response	Quick	110	68.8
	Average	30	18.8
	Poor	20	12.5
Perceived media influence on PHP	Great extent	34	21.3
	Some extent	71	44.4
	Not at all	55	34.4

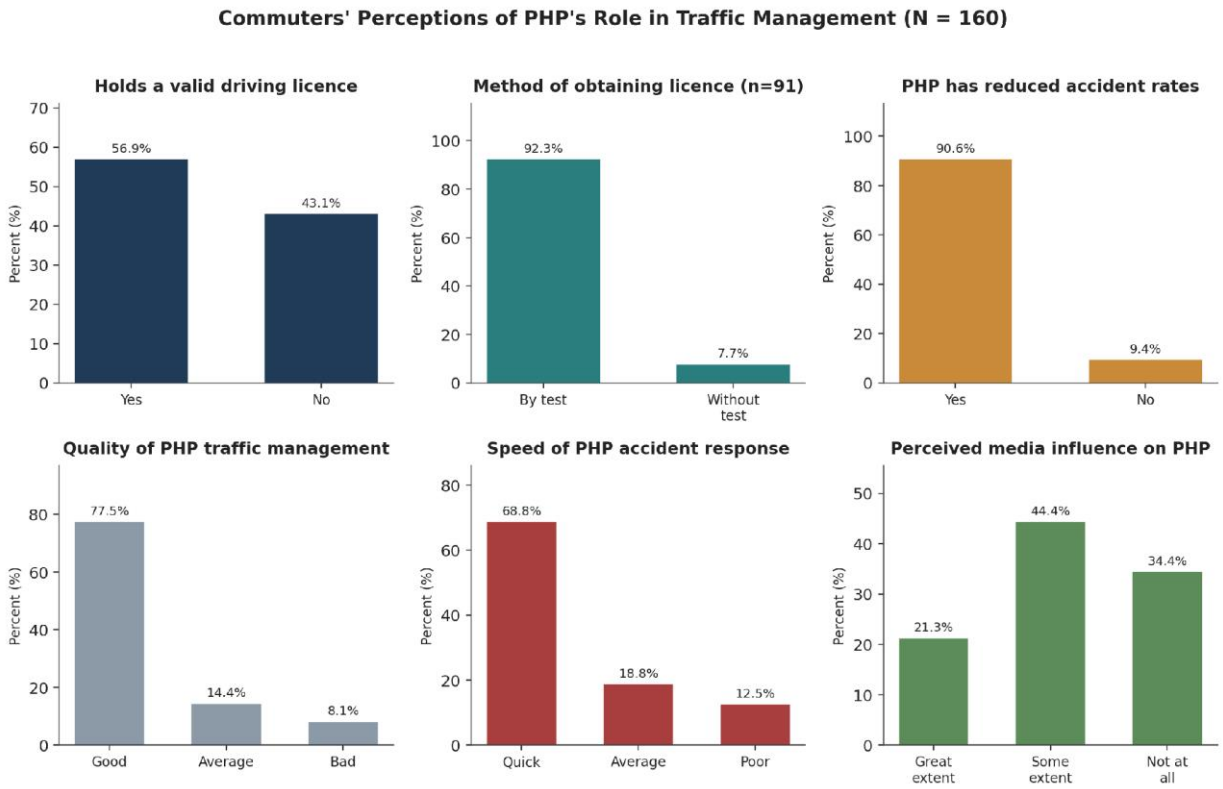

Figure 7. *Commuters' perceptions of PHP's role in traffic management, licensing, and accident response.*

6.6 Suggestions for strengthening PHP performance

Asked how PHP could best improve its duty performance, most respondents pointed to new vehicles (81.9%), followed by better officer training (11.9%) and modern weaponry (6.2%). On strengthening the institution more broadly, respondents favoured merit-based recruitment (36.3%), stronger incentives and promotion pathways for officers (34.4%), and more public-friendly policing policies (29.4%). To improve PHP's public image, the most common

suggestion was simply politer public conduct (38.1%), followed by community policing initiatives (32.5%) and better publicity for PHP's existing good work (29.4%).

Table 6. *Commuters' suggestions for strengthening PHP performance (N = 160).*

Domain	Suggestion	f	%
Priority for improving duty performance	Provide new vehicles	131	81.9
	Improve officer training	19	11.9
	Provide modern weaponry	10	6.2
Institutional strengthening	Merit-based recruitment	58	36.3
	Public-friendly policies	47	29.4
	Promotions / incentives for officers	55	34.4
Improving public image	Publicise good work	47	29.4
	Expand community policing	52	32.5
	Polite public conduct	61	38.1

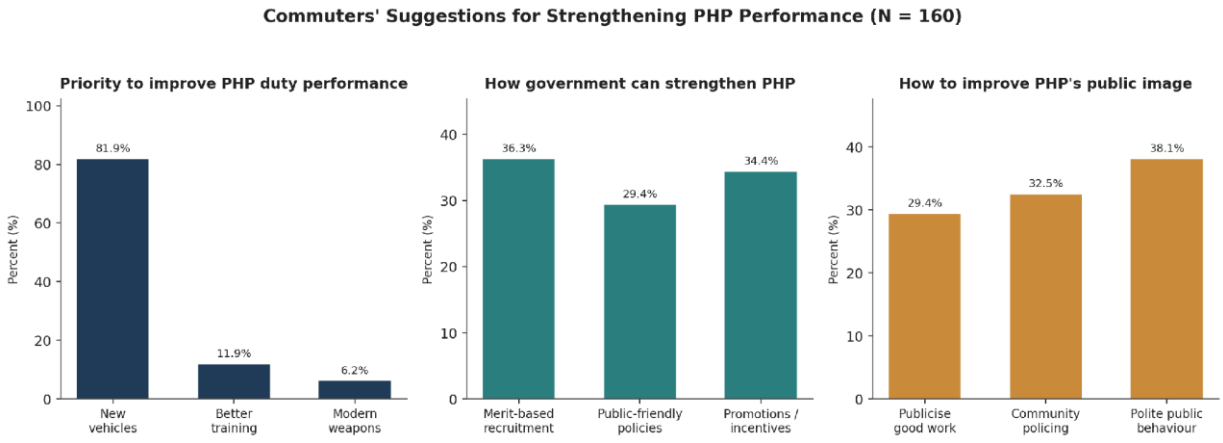

Figure 8. *Commuters' suggestions for improving PHP duty performance, institutional strength, and public image.*

6.7 Bivariate analysis: tests of the study hypotheses

Table 7 through Table 10 present the chi-square and gamma statistics for the association between commuters' socio-economic characteristics and their perceived level of PHP effectiveness in traffic management and road-crime prevention (classified as Low, Medium, or High). A summary of hypothesis outcomes is given in Table 11 and Figure 9.

H1: Age and perceived PHP effectiveness

Table 7. *Relationship between commuters' age and perceived PHP effectiveness.*

Age group (years)	Low	Medium	High	Total
Up to 30	7 (12.7%)	10 (18.2%)	38 (69.1%)	55 (100.0%)
31–49	10 (11.9%)	12 (14.3%)	62 (73.8%)	84 (100.0%)
50 and above	5 (23.8%)	6 (28.6%)	10 (47.6%)	21 (100.0%)
Total	**22 (13.8%)**	**28 (17.5%)**	**110 (68.8%)**	**160 (100.0%)**

$\chi^2 = 5.45$, df = 4, p = .244 (ns); $\gamma = -.137$, p = .326 (ns). The association was not statistically significant: perceived PHP effectiveness did not differ meaningfully across age groups, and H1 was not supported.

H2: Education and perceived PHP effectiveness

Table 8. *Relationship between commuters' educational level and perceived PHP effectiveness.*

Educational level	Low	Medium	High	Total
Illiterate	7 (24.1%)	12 (41.4%)	10 (34.5%)	29 (100.0%)
Primary–Middle	5 (8.2%)	5 (8.2%)	51 (83.6%)	61 (100.0%)
Matric–Intermediate	5 (9.6%)	6 (11.5%)	41 (78.8%)	52 (100.0%)
Graduation and above	5 (27.8%)	5 (27.8%)	8 (44.4%)	18 (100.0%)
Total	**22 (13.8%)**	**28 (17.5%)**	**110 (68.8%)**	**160 (100.0%)**

$\chi^2 = 30.70$, df = 6, $p < .001$ (highly significant); $\gamma = .131$. Educated commuters, particularly those with primary-to-intermediate schooling, reported higher perceived PHP effectiveness than illiterate commuters, supporting H2, although the modest gamma coefficient indicates the relationship is not strictly monotonic across all education categories: respondents with graduate-level education reported comparatively lower perceived effectiveness than those with primary-to-intermediate schooling.

H3: Income and perceived PHP effectiveness

Table 9. *Relationship between commuters' monthly income and perceived PHP effectiveness.*

Monthly income (PKR)	Low	Medium	High	Total
Up to 15,000	12 (19.0%)	15 (23.8%)	36 (57.1%)	63 (100.0%)
15,001–25,000	5 (8.8%)	6 (10.5%)	46 (80.7%)	57 (100.0%)
Above 25,000	5 (12.5%)	7 (17.5%)	28 (70.0%)	40 (100.0%)
Total	**22 (13.8%)**	**28 (17.5%)**	**110 (68.8%)**	**160 (100.0%)**

$\chi^2 = 7.80$, df = 4, p = .099; $\gamma = .231$. The chi-square association falls just inside the conventional 10% threshold, and the gamma coefficient indicates a weak-to-moderate positive

relationship, suggesting that higher-income commuters tend to hold somewhat more favourable perceptions of PHP effectiveness than lower-income commuters, though the evidence is markedly weaker than for H2 or H4. H3 was thus only weakly/partially supported.

H4: Satisfaction and perceived PHP effectiveness

Table 10. *Relationship between overall satisfaction with PHP performance and perceived PHP effectiveness.*

Satisfied with PHP performance	Low	Medium	High	Total
No	11 (50.0%)	6 (27.3%)	5 (22.7%)	22 (100.0%)
Yes	11 (8.0%)	22 (15.9%)	105 (76.1%)	138 (100.0%)
Total	**22 (13.8%)**	**28 (17.5%)**	**110 (68.8%)**	**160 (100.0%)**

$\chi^2 = 33.62$, df = 2, $p < .001$ (highly significant); $\gamma = .795$, $p < .001$. This was the strongest association observed in the study: commuters who reported overall satisfaction with PHP were substantially more likely to perceive PHP as highly effective in traffic management and road-crime prevention, strongly supporting H4.

Table 11. *Summary of hypothesis-testing results, including Cramér's V effect sizes.*

Hypothesis	Predictor	χ^2 (df)	p-value	Gamma	Cramér's V	Decision
H1	Age	5.45 (4)	.244	−.137	.13 (small)	Not supported
H2	Education	30.70 (6)	< .001	.131	.31 (medium)	Supported
H3	Income	7.80 (4)	.099	.231	.16 (small)	Weakly/partially supported
H4	Satisfaction with PHP	33.62 (2)	< .001	.795	.46 (medium–large)	Strongly supported

Note: ns = not significant. Cramér's $V = \sqrt{[\chi^2 / (N \times (k - 1))]}$, where k is the smaller of the number of rows or columns; computed from the reported χ^2 and N = 160. Magnitude bands follow conventional benchmarks for effect sizes with 2 degrees of freedom (Cohen, 1988). Gamma coefficients are reported as point estimates of association strength and direction; formal significance testing of gamma was not performed.

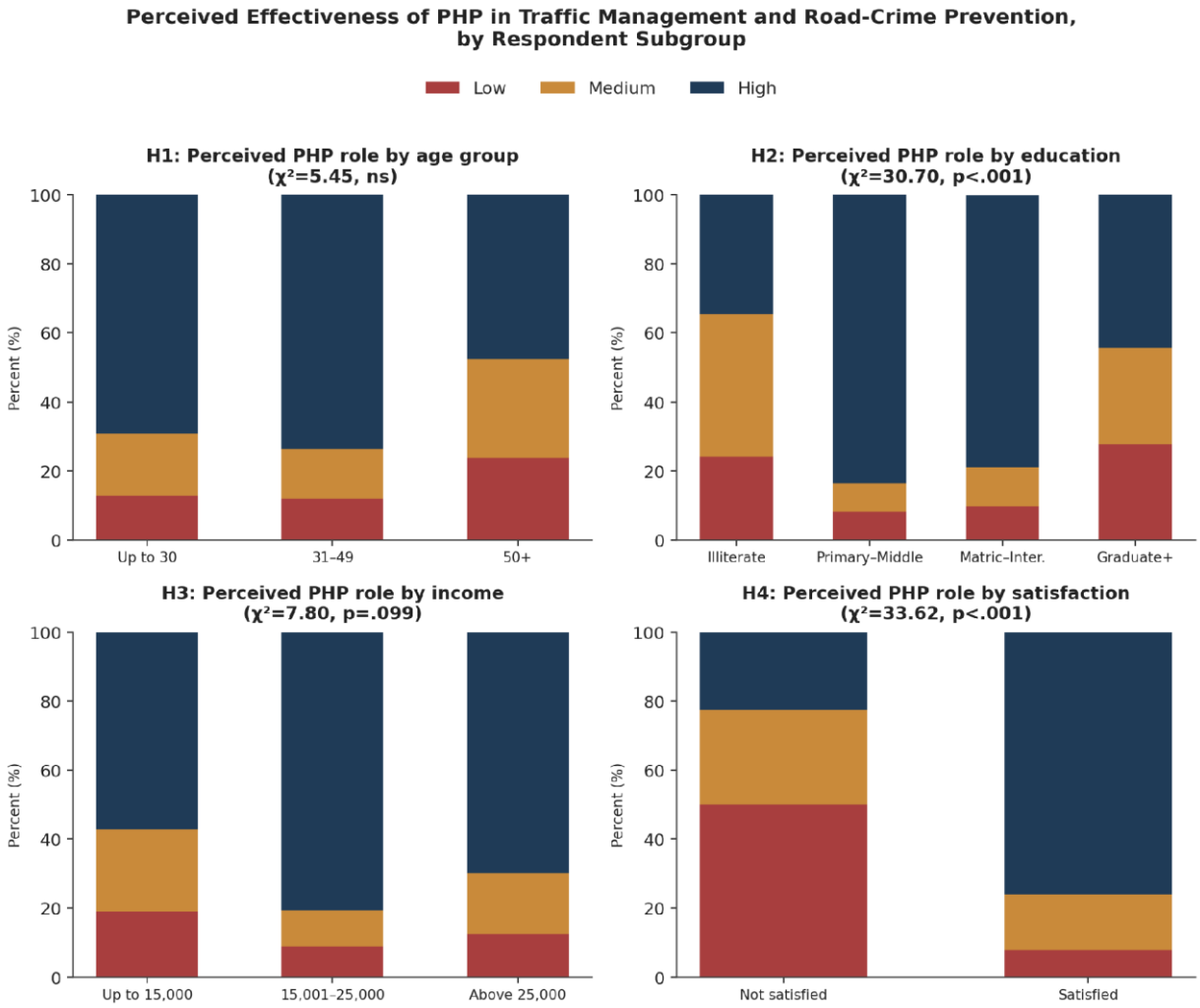

Figure 9. *Perceived effectiveness of PHP in traffic management and road-crime prevention, by respondent subgroup (age, education, income, and satisfaction).*

6.8 Composite PHP Effectiveness Index

To summarise the results across the three substantive domains examined in Sections 6.3–6.5, a simple, transparent composite index was constructed by averaging the positive-response percentages of the relevant items within each domain: integrity and service quality (Table 3: equal treatment, honesty, functioning well, satisfaction, absence of corruption, polite officer conduct, and good overall attitude; 7 items), road-crime prevention (Table 4: reduced highway-crime rates, feeling safer, patrol visibility, and adequate weaponry; 4 items), and traffic management (Table 5: reduced accident rates, good traffic-management quality, and quick accident response; 3 items, excluding respondents' own licence-holding status, which reflects commuter rather than PHP behaviour). The three domain scores were then averaged, unweighted, to form an overall composite index.

Table 12. *Composite PHP Effectiveness Index, by domain.*

Domain	Items averaged	Index score (%)
Integrity and service quality	7	79.0

Domain	Items averaged	Index score (%)
Road-crime prevention	4	92.1
Traffic management	3	79.0
Overall composite index	**3 domain means**	**83.4**

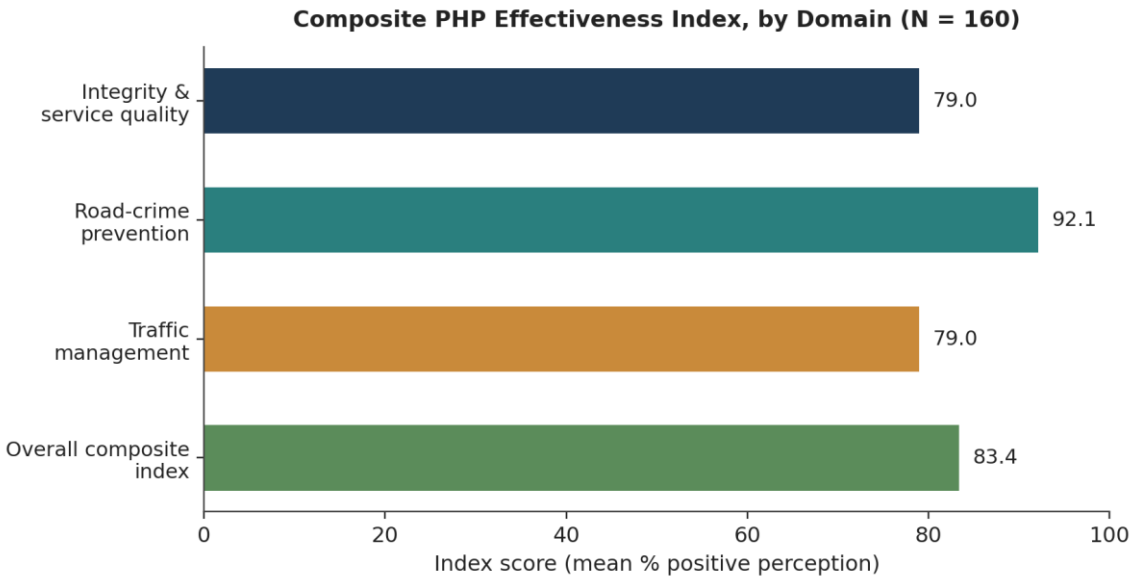

Figure 10. *Composite PHP Effectiveness Index, by domain (unweighted mean of positive-response percentages, N = 160).*

The composite index (83.4 out of 100) confirms that commuters' most favourable domain of assessment was road-crime prevention (92.1), followed closely by integrity/service quality and traffic management (79.0 each). This index is a descriptive summary rather than a validated psychometric scale: because item-level raw responses were not available for this analysis, internal-consistency statistics (e.g., Cronbach's alpha) could not be computed, and the equal weighting of items and domains is a simplifying assumption rather than an empirically derived one. It is presented to aid interpretation and cross-study comparison (Section 7) and should be read alongside, not instead of, the item-level results in Tables 3–5.

7. State-of-the-Art Comparison

To place PHP's performance within both the national institutional landscape and the international evidence base on patrol-based and community-based policing, Table 13 benchmarks the present findings against three reference points: Pakistan's federal National Highways and Motorway Police (NHMP), the country's other major specialised road-policing institution; meta-analytic evidence on hot-spots and large-area preventive patrol drawn mostly from high-income settings; and a large multi-country randomised evaluation of community policing that included a Punjab study site.

Table 13. *State-of-the-art comparison: PHP against national and international policing benchmarks.*

Institution / evidence base	Scope & establishment	Policing model	Technology / resourcing	Reported effectiveness evidence
Punjab Highway Patrol (this study)	Faisalabad Region, Punjab; established 2004; 51 posts (region), 352 posts (province, 2017)	Visible continuous patrol; community-oriented service ethos; emergency helpline (1124)	Standard vehicles/motorcycles and firearms; basic traffic-management kits; no ANPR/CCTV network reported	85.6% of commuters perceive reduced highway crime; institutional records show crime falling from a baseline of 687 to an annual range of 3–53 cases (2005–2025), with a temporary 2021–2022 rebound; composite effectiveness index = 83.4/100
National Highways & Motorway Police, Pakistan (NHMP)	Federal; c. 4,700 km of motorways/national highways; established 1997 (renamed 2001)	Merit-based recruitment; standardised operating procedures; e-ticketing	GIS-geo-tagged e-ticketing, speed/ANPR cameras, officer performance tracking	Widely cited as among Pakistan's least corrupt public institutions, attributed to merit recruitment, pay, and training (Arain & Arain, 2015; USIP, 2013); not directly benchmarked against PHP in commuter-survey terms
Hot-spots / large-area preventive patrol (international meta-analyses)	Multi-jurisdictional, primarily US and other high-income settings; studies	Concentrated high-visibility patrol at identified crime hot spots or	Varies; many departments use CompStat, ANPR, and body-worn cameras	Hot-spots patrol: small but statistically significant crime reduction, no adverse displacement (Braga

Sources: this study; PHP (2017, 2026) institutional records; Arain & Arain (2015); NHMP (2023); Braga, Turchan, Papachristos, & Hureau (2019); Weisburd, Petersen, Telep, & Fay (2024); Blair et al. (2021).

7.1 Interpreting PHP's position relative to the evidence base

Two things stand out from this comparison. First, the level of perceived effectiveness commuters report for PHP, an 83.4 composite index score, with 85.6% crediting PHP with reduced highway crime, sits well above the modest average effect sizes typically documented in rigorous experimental and quasi-experimental evaluations of patrol-based policing internationally (Braga et al., 2019; Weisburd et al., 2024). That gap is not necessarily a contradiction. PHP operates in a lower-baseline-enforcement environment, where even partial gains in patrol visibility and response capacity can produce larger perceived improvements than they would in an already heavily policed, resource-rich setting, and the region's crime-trend data in Table 1 independently support a substantial absolute decline since 2004. At the same time, self-reported perceptions of a service one is being asked about directly are more susceptible to social-desirability and acquiescence bias than the official crime and crash counts used in most international patrol evaluations. The two evidence bases are not strictly

comparable, so this gap should be read cautiously rather than as proof that PHP outperforms the international patrol literature on a like-for-like basis.

Second, PHP lags its principal domestic comparator, NHMP, on technology adoption and standardised, data-driven performance monitoring. NHMP's GIS-geo-tagged e-ticketing and ANPR infrastructure allow continuous, auditable performance tracking of a kind the present survey-based approach can only approximate periodically. That comparison reinforces the equipment and technology priorities commuters themselves named in Section 6.6, new vehicles (81.9%) and modern weaponry (6.2%), and it suggests that closing this specific gap, rather than simply expanding patrol posts further, may offer the largest additional return on investment.

Finally, the null results of the Global South community-policing RCT (Blair et al., 2021), which included a Punjab site, are a reason for caution about this study's own respondents' strong endorsement of "community policing" as a route to improving PHP's public image (Table 6). The RCT evidence suggests that the specific design and implementation of community-engagement reforms, not simply their adoption in name, is what determines whether they actually improve trust or reduce crime. PHP leadership should probably read commuters' enthusiasm for community policing as a signal of demand for more respectful, engaged policing in general, rather than as validated evidence that any particular community-policing programme will deliver measurable crime reduction.

8. Discussion

Read against the five contributions set out in Section 3.6, the findings extend the evidence base in each of the intended respects. Geographically, this study provides the first commuter-based evidence specific to the Faisalabad Region, and PHP's perceived effectiveness there looks broadly comparable to, if anything slightly more favourable than, the picture painted by Lahore-centric prior research. Methodologically, triangulating institutional crime-trend records with commuter perceptions (Sections 6.1 and 6.3 to 6.7) shows the two data sources telling a broadly consistent story of improvement, which neither source could have demonstrated alone. Temporally, it is the extended 2004 to 2026 crime series that makes the 2021-2022 rebound discussed below visible at all; a shorter-horizon study would have missed that pattern entirely. In comparison, the benchmarking exercise conducted in Section 7, to the best of the authors' knowledge, is the first baseline to compare PHP with NHMP and with the international literature on patrol-policing in a common frame. As an analytic tool, the composite PHP Effectiveness Index provided in Section 6.8 provides a solid and repeatable measure of effectiveness for future comparative analyses. The remainder of this section follows the specifics of the contributions that are supported by the findings.

The results offer consistent institutional data and commuter perceptions that the inception and growth of PHP have coincided with a significant decrease in the number of highway crime cases reported in the Faisalabad Region, with commuters attributing the improvement to the patrolling activities of PHP that they can see and hear. It is congruent with classical deterrence theory (Becker, 1968) and the updated meta-analysis that found that visible, concentrated police patrol has real and although modest, general-deterrent effect on crime rather than just

displacement (Sherman & Weisburd, 1995; Braga et al., 2019). Significantly, 97.5% of respondents indicated that active patrol visibility in their neighbourhood had occurred and 88.8% said it made them feel safer, a near textbook example of the perceived-certainty mechanism by which active patrol visibility is believed to have an impact on offending. This success is tempered, however, by the fact that the extended institutional record in Table 1 is not truly linear. While the uptick in reported cases may be due to disruption caused by the pandemic and not an actual change in PHP's actions, the increase is a reminder that a measured improvement in deterrence is not a lasting one, and it requires ongoing monitoring, not an annual assessment such as this. And as Section 7 shows, the size of commuters' perceived improvement actually exceeds the modest average effect sizes typically found in rigorous, large-area preventive-patrol evaluations elsewhere (Weisburd, Petersen, Telep, & Fay, 2024). The most likely reason for this difference is that PHP's enforcement baseline is much lower than the international evidence base prior to 2004, it's not that PHP actually performs better than the international evidence base.

This picture is further refined by the hypothesis tests. It is reassuring from the legitimacy point of view that the perceived effectiveness of PHP is not just a phenomenon of the older generation or younger generation of road users, the absence of the age effect (H1, Cramér's V = .13) indicates that the assessment of PHP's effectiveness is a relatively widespread one. The significant medium sized education effect (H2, V = .31) is not clean. Commuters with primary to intermediate schooling found PHP most favourably, whereas neither illiterate respondents nor respondents with graduate level schooling were quite as positive. A possible explanation is that the people who are illiterate have less interaction with formal channels of complaint or service, and those with a higher education have higher expectations from the service, influenced by their exposure to modern technology and international policing standards, and consequently a more critical view of PHP's current resources.

There is a small positive relationship of perceived effectiveness with income (H3) just within the 10% boundary (V = .16). This is consistent with a recurring trend in the literature: abundant and positive experiences with highway authorities are correlated with increased income levels among road users, who are also more likely to be owners and/or frequenters of the highway network. Nevertheless, this is the most tenuous of the three statistically supported correlations, and should be interpreted as indicative but not definitive. The strongest correlation was with a large margin between overall satisfaction and perceived effectiveness (H4, $\gamma = .795$, V = .46). This is not surprising, since there is conceptual similarity between the two constructs: however, it does indicate that dissatisfied commuters are much less likely to attribute a reduction in road crime to the daily service provided by PHP as would be suggested by institutional statistics in Table 1. This is also consistent with recent research showing that the type and nature of police interactions rather than the frequency of police contact influences perceptions of legitimacy (Bolaji & Metcalfe, 2024).

Two additional points are important to note. First, while the vast majority of respondents were satisfied with the integrity and honesty of PHP, a significant minority (from 12.5% to 22.5% across items) expressed concerns that PHP is corrupt, treats people inconsistently, or is dishonest. A perception of misconduct, even at a minority level, can lead to a gradual loss of institutional legitimacy, so the general policing literature is pretty clear that it is perceived

procedural fairness, not crime reduction, that encourages people to cooperate with the police and maintain trust in them: Second, the operational constraints respondents voiced, outdated vehicles (reported by 12.5% as a reason why PHP had not controlled road traffic crime to its full extent, and by 11.3% as a cause of slow response to accidents) and limited surveillance technology, concur with previous reports in the wider literature on road safety in Pakistan of under-investment in the road network's enforcement infrastructure compared to the size of the road network being policed (Nazir, Nadeem, & Véronneau, 2016; Mir, Razzak, & Ahmad, 2013). They are also significantly different from the 'technology intensive' and GIS based approach that is currently implemented in Pakistan at NHMP (Section 7).

These results sit against a highway-safety literature that consistently stresses the interdependence of enforcement, engineering, and driver behaviour (Wang, Quddus, & Ison, 2013; Larsson, Dekker, & Tingvall, 2010), and against recent evidence that traffic-crash concentration does not always coincide spatially with general crime concentration (Park & Lum, 2023; Wu, Lum, & Koper, 2021). The practical takeaway is that patrol strategies need to be calibrated separately for crime-reduction and crash-reduction goals rather than assumed to transfer automatically from one to the other. One further finding fits this pattern: only 56.9% of respondents held a valid driving licence, and 43.1% drove without one, which shows that licensing enforcement remains a real gap even where patrol visibility and crime-prevention performance are perceived favourably. This lines up with recent Pakistani survey evidence of widespread non-compliance with traffic regulations despite adequate awareness of the rules themselves (Memon et al., 2024), and it is a reminder that highway safety depends on several, only partly overlapping, policy levers working at once.

9. Policy Implications and Recommendations

Based on the study's findings, and on the priorities commuters raised directly, the following recommendations are proposed for PHP and Punjab's policing leadership:

- A modernisation of fleet and equipment. Operational constraint most frequently mentioned was vehicle shortages and/or outdated equipment which was associated with slower accident response and residual highway crime. Commuters' most frequent requests for improvements were about fleet renewal (81.9%).
- Investment in surveillance equipment. If CCTV, automatic number-plate recognition (ANPR), GPS vehicle tracking and, where possible, drone assisted monitoring is added to high-risk corridors, it would make deterrence more effective than visible patrolling and provide the kind of objective, real-time data information that currently does not exist in institutional crime records. This would also seal a concrete and measurable technology gap from the Federal National Highways and Motorway Police (FNHMP) of Pakistan who already have GIS-geo-tagged e-ticketing and camera based enforcement systems that produce continuous, auditable performance data.
- Recruitment and incentives based on merit. More than a third of respondents cited merit-based recruitment (36.3%) and better promotion/incentives (34.4%) as priorities for institutional strengthening. Taking action on these would also likely

lower the percentage of respondents who had concerns about corruption "to some degree" (12.5%).

- Continuous professional training. Support for training in the use of modern surveillance and traffic-management technology, crime prevention, and investigation was a secondary priority (11.9%) and would support equipment investment.
- Driving-licence enforcement. License verification by cooperation between PHP, Licensing Authorities and District Police would be of considerable value to do in order to reduce highway risk without necessarily improving crime-prevention performance, in the absence of a valid driver's license (43.1%).
- Policing in the community and public communication. The most common association the respondents made with the enhancement of PHP's public image was through the conduct of officers, which was associated with polite officers with 38.1% of the respondents, and the implementation of more community policing initiatives with 32.5% of the respondents; demonstrating that these statistics alone would not give legitimacy to PHP, and hence, maintaining investment in soft-skills training, and introducing more community policing initiatives would be worth the while.
- Institutionalised performance monitoring. A standing performance-monitoring framework, tracking crime trends, response times, licence compliance, and periodic commuter-satisfaction surveys similar to this one, would let PHP leadership track the impact of the above investments over time and adjust resource allocation accordingly.

10. Limitations

Several limitations are worth keeping in mind when interpreting these findings. First, the study was restricted to the Faisalabad Region and its four constituent districts, so the findings may not generalise to PHP's performance elsewhere in Punjab. Second, convenience sampling, while a practical choice for an intercept survey of highway commuters, limits statistical generalisability and may under- or over-represent particular commuter subgroups. Third, the study relies on self-reported perceptions rather than independent observation of PHP operations or externally audited crime statistics, and perceptions of policing are known to be shaped by social-desirability effects and by how politically salient policing happened to be at the time of data collection, either of which could inflate or deflate reported satisfaction relative to actual performance. Fourth, the survey data were collected at a single point in time, while the institutional crime-trend series in Table 1 has since been extended to mid-2026, so commuters' perceptions cannot speak directly to the 2018-2026 period. The cross-sectional design also cannot establish causality between PHP's activities and the observed decline in reported highway crime, which may partly reflect broader socio-economic trends, changes in reporting behaviour, or the activity of other law-enforcement agencies working the same corridors. Fifth, the institutional crime-trend data in Table 1 come from PHP's own administrative records, which, as the wider Pakistani road-safety literature documents, are subject to underreporting and recording inconsistencies more generally (Razzak & Laflamme,

2005; Kayani, Fleiter, & King, 2014). An earlier draft of this dataset contained internal arithmetic discrepancies for 2011, 2020, and 2021, along with an inconsistent regional post-count; both have since been reconciled against updated PHP institutional records (Table 1; Section 2), but the underlying administrative data should still be treated as indicative rather than definitive. Finally, the 2026 figure in Table 1 covers only the first six months of the year and should not be read as a full-year comparator to the earlier rows.

11. Conclusion

This study is empirically based and commuter oriented to demonstrate the positive role of the Punjab Highway Patrol in the prevention of road crime and safety of road users in Faisalabad Region since inception of the PHP in 2004. The number of cases of highway robbery, dacoity and vehicle-snatching has significantly decreased from the pre-PHP baseline, and this institutional shift has been documented up to and until mid-2026, while commuters largely agree that PHP has been reducing highway crime, enhancing traffic management and making them feel safer on the region's highways. The longer crime-trend record indicates that this drop was recorded not continuously. There was a rebound in reported crime rates during 2021–2022, likely related to the post-COVID-19 era, but this was followed by a renewed and larger downward trend through 2025, a reminder that trends in the number of highway crimes do not necessarily continue in a downward direction once it has begun. Perceived effectiveness was significantly related to commuters' education, income, and most strongly overall satisfaction with PHP's service delivery level but not significantly related to age. Meanwhile, commuters cited real-world and specific limitations – the need for specific vehicles, technology that is still emerging, lingering corruption issues, and weak licensing compliance – that dampen an otherwise rosy outlook and speak directly to where investments in the future should be directed.

Against this research gap and novelty, this study is the first to provide a Faisalabad specific commuter evidence of PHP performance; extends the methodological gap by combining institutional crime-trend evidence with primary survey evidence, instead of relying on either alone; adds a new, transferable analytical tool: composite PHP Effectiveness Index (Section 6.8); and documents PHP performance growth through mid-2026, including a previously undocumented 2021-2022 rebound. Taken together, these findings extend a thin empirical literature on specialised highway policing in Pakistan and South Asia more broadly, and offer a replicable, low-cost model, combining institutional crime-trend data with structured commuter surveys, for evaluating highway policing services in comparable settings going forward.

12. Future Research Directions

- Multi-regional and longitudinal studies. Future research should extend data collection to additional PHP regions and use panel or repeated cross-sectional designs to track changes in perceived effectiveness over time and strengthen causal inference about PHP's impact on highway crime.

- Comparative institutional analysis. Comparing PHP, the National Highways and Motorway Police, and district police forces directly would clarify the relative strengths of the different specialised-policing models operating on Pakistan's road network.
- Linking perception data to objective outcomes. Future work should pair commuter-survey data of the kind collected here with independently verified crash and crime records, ideally drawn from multiple institutional sources, to cross-check perceived effectiveness against actual outcomes.
- Technology-enabled policing. Given commuters' strong demand for modern equipment, and the technology gap identified relative to NHMP in Section 7, future research should test the incremental impact of specific technologies, ANPR, GPS fleet tracking, predictive-policing analytics, and GIS-based hotspot mapping, on both crime outcomes and public perceptions, ideally through a formal before-after or matched-comparator design against NHMP-policed corridors.
- Validated composite measures. The descriptive PHP Effectiveness Index introduced in Section 6.8 should be developed into a psychometrically validated scale in future surveys, with item-level raw data retained so reliability (Cronbach's alpha, for instance) and factor-analytic testing become possible.
- Mechanisms of institutional trust. Further qualitative or mixed-methods work could usefully dig into why respondents with graduate-level education reported lower perceived effectiveness than those with intermediate schooling, and what specific service failures or expectations are behind that pattern.

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