



Consumer Perception and Urban Environmental Impacts of Outdoor Advertising Signage in Dhaka: A Case Study of Farmgate

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ABSTRACT

This study evaluates governance effectiveness, consumer perception, signage distribution, and urban environmental impacts in the hyper-dense transit node of Farmgate in Dhaka, Bangladesh. Using a mixed-methods approach, data were gathered via a household survey ($n = 120$), spatial GIS tracking of 1,436 signage units, and six Key Informant Interviews (KIIs). The empirical findings reveal severe visual pollution (82%), widespread traffic hazards (61%), and high civic dissatisfaction with enforcement frameworks (76%), with 91% of respondents favoring stricter regulatory controls. High-density signage at primary intersections aggravates visual-spatial conflicts. Overlapping institutional mandates, low public awareness, and structural enforcement deficits impede code compliance. To balance commercial goals with urban livability, this study proposes an integrated framework incorporating spatial digital zoning, micro-design criteria, LED luminosity caps, and citizen-led GIS-based asset monitoring.

1.0 INTRODUCTION

Rapid urbanization has worsened various types of contamination, threatening human health and ecological balance (Thu, 2013). Among these, visual pollution, a result of uncoordinated visual components such as advertisements, signage, and overhead wires, has become a serious problem that degrades urban aesthetics, spatial clarity, and overall environmental happiness (Gao et al., 2024). It comprises intrusive and erratic visual cues that change the appearance and cohesiveness of

metropolitan areas, including oversized posters, impromptu posters, and aesthetically discordant installations. For drivers and pedestrians alike, high-density commercial hubs in Dhaka, such as Farmgate, create sensory overload due to excessive signage, LED screens, and rooftop displays. These unedited exhibitions impair spatial organization (Bankole, 2013), restrict circulation, and lower their visibility. Furthermore, moving or flashing visual stimuli enhance mental exhaustion by directing unconscious

attention and upsetting the tranquility of the environment (Jensen et al., 2014). Although outdoor advertising enhances brand communication and supports economic vitality, the lack of adequate regulation in Dhaka has turned it into a source of urban discontent. Research in developing nations has shown that uncontrolled advertising expansion upsets visual harmony and reduces urban aesthetic identity (Azumah et al. 2021).

In addition to degrading visual quality, excessive outdoor advertising affects how people cognitively and emotionally experience urban environments. Environmental psychology suggests that visually complex and overstimulating environments increase cognitive load, reduce psychological comfort, and weaken satisfaction with the environment. Likewise, the Place Attachment Theory argues that individuals develop stronger emotional bonds with places that provide coherent, attractive, and psychologically supportive environments. When visual disorder dominates public spaces, residents' attachment to the place, environmental identity, and willingness to engage in civic stewardship may gradually decline. Recent studies have further demonstrated that the aesthetic qualities of outdoor advertising influence public satisfaction differently depending on whether the signage complements or conflicts with the surrounding urban character, highlighting the need to evaluate outdoor advertising as both a communication medium and a component of urban environmental governance.

In contrast, evidence from Addis Ababa suggests that employing digital control methods for outdoor media can improve both visual cohesion and governance effectiveness (Beco et al., 2024). Rarely linking spatial mapping with user perception or regulatory performance at the micro-urban scale, earlier research has investigated the signage patterns and aesthetic effects. Emphasizing the farm gate area, the present study seeks to solve this interrelationship by investigating consumer perception and the urban environmental consequences of outdoor advertising signs in Dhaka. Set against this backdrop, Farmgate, Dhaka, is presented as a microcosm to explore how uncontrolled outdoor advertising shapes commercial purpose and urban livability.

1.1 Research Question

In Farmgate, Dhaka, how does outdoor advertising signage influence consumer perception and the quality of the urban environment, and what integrated regulatory and design-based techniques can optimize signage management?

1.2 Research Objectives

1. To map the visual characteristics and spatial distribution of outdoor advertising signage in the Farmgate node.
2. To evaluate the impact of unmanaged visual pollution on urban aesthetics, pedestrian mobility, public safety, and consumer response.
3. To diagnose institutional governance gaps and formulate a unified spatial framework for sustainable sign control.

1.3 Scope and Limitations

The geographical scope of this study is restricted to the 1.76 km² hyper-dense transit node of Farmgate in Dhaka. The empirical cross-validation framework integrates a household survey (n = 120), spatial tracking of 1,436 active signage installations, and six elite Key Informant Interviews (KIIs). Data collection occurred between January and May 2025; long-term seasonal variations or shifts in political campaigns were not captured. The sample size (n=120) provides a preliminary baseline that limits broad statistical generalization across the entire metropolitan area of Dhaka, and perception-based metrics introduce inherent, subjective variability.

2.0 LITERATURE REVIEW

Outdoor advertisements have become a fundamental component of Dhaka's cityscape, particularly along important business routes. Especially in developing settings where institutional control is inadequate and left unmanaged, these systems can change a city's sensory and spatial experience, resulting in disorganized, disorderly, and visually deteriorated surroundings (Wakil et al., 2016). Uncontrolled signage growth continues to compromise urban beauty because of poor enforcement and divided legal systems, as shown in the case of Dhaka (Reza, 2012). In contrast, research in more developed metropolitan areas reveals that visual pollution is proactively controlled by planning regulations that prioritize aesthetics, security, and

livability. This discrepancy emphasizes the crucial role of organizational power and regulatory alignment in preserving visual harmony (Swallehe & Mwilongo, 2022). Recent research has demonstrated that the aesthetic perception of outdoor advertising is determined by multiple visual attributes, including placement, proportionality, lighting, environmental adaptability, cultural compatibility, and message clarity. These attributes influence both public satisfaction and the perceived quality of the urban environment, suggesting that aesthetically integrated signage contributes to effective communication and an improved city image (Chen et al., 2025). Variability in billboard design and size disrupts the general visual rhythm of streetscapes and divides urban coherence (Adam et al., 2022). Urban growth also correlates with greater advertising density, producing more perceptual congestion (Koeck & Warnaby, 2014). Moreover, excessively saturated designs and sporadic fonts can confuse viewers and disturb the aesthetic equilibrium of the metropolitan areas (Ahmed et al., 2019). The emotional and psychological consequences of visual clutter are also significant. Evidence points to the fact that continuous exposure to crowded advertising settings causes inhabitants tension, irritability, and diminished pleasure, symptoms linked with visual overstimulation (Otamendi & Martín, 2020). These impacts are exacerbated when combined with other urban stressors, such as noise and traffic density (Jensen et al., 2014). Safety issues arise from the interaction between driver behavior and visual contamination. Dynamic or lighted signage located near junctions has been associated with distraction and slowed reaction times, thereby increasing the possibility of traffic accidents (Alemdar et al., 2023). Dhaka's experience reflects these worldwide results: structural instability and regulatory neglect have produced several billboard collapses, causing injuries and property damage (Reza, 2012). Critical examples include the events in Gulshan ("Billboard Crash Kills 2," 2010) and Motijheel ("Billboard Collapses in Motijheel," 2015). By 2012, only a fraction of the roughly 2, 500 huge billboards in the city were legally approved, with several exceeding formal size restrictions (Reza, 2012). Through focused enforcement, authorities have attempted to stop the spread. Hundreds of unauthorized billboards were destroyed as a result of drives carried out in Gulshan, Banani, and Pragati Sarani ("DNCC Removes

Illegal Billboards," 2022; Nafiu, 2020). Recently, the government has attempted to enact new signage regulations limiting displays on flyovers and requiring the withdrawal of unapproved digital billboards. Notwithstanding these efforts, ongoing differences in agency coordination and monitoring capacity present difficulties in long-term implementation. Policy changes worldwide have placed increasing importance on integrated frameworks combining digital monitoring systems, urban planning, and spatial design. Using design guidelines to control scale, brightness, and proportionality can help signage match the architectural beat of neighboring environments (Adam et al., 2022). Similarly, spatial decision-support tools provide intriguing means for charting high-risk visual areas and directing evidence-based action (Wakil et al., 2016). Few Dhaka-based studies have examined outdoor advertising using a mix of spatial analysis, consumer behavior, and institutional management. Formulating sensitive urban design and policy measures that reconcile economic interests with visual harmony, environmental safety, and urban livability depends on filling this vacuum (Beco et al., 2024). Place Attachment Theory suggests that individuals develop stronger emotional bonds with places that satisfy fundamental psychological needs, such as autonomy, competence, and relatedness. Conversely, environments perceived as visually degraded or environmentally stressful weaken these bonds, resulting in lower environmental satisfaction and reduced psychological well-being (Ariccio et al., 2021). According to

the Environment and Social Development Organization (ESDO, 2023), approximately 270,000 children in Dhaka suffer from eye fatigue and severe headaches each year due to visual pollution, highlighting the significant public health implications of an unmanaged visual environment. Unfortunately, child health concerns have not been addressed in previous studies. significant public health implications of an unmanaged visual environment. Unfortunately, child health concerns have not been addressed in previous studies.

2.1 Conceptual Framework

To systematically analyze these dynamics, this study establishes a structural relationship mapping multi-dimensional visual characteristics (Independent Variables) against consumer behavioral and urban environmental outcomes (Dependent Variables), moderated by institutional governance mechanisms.

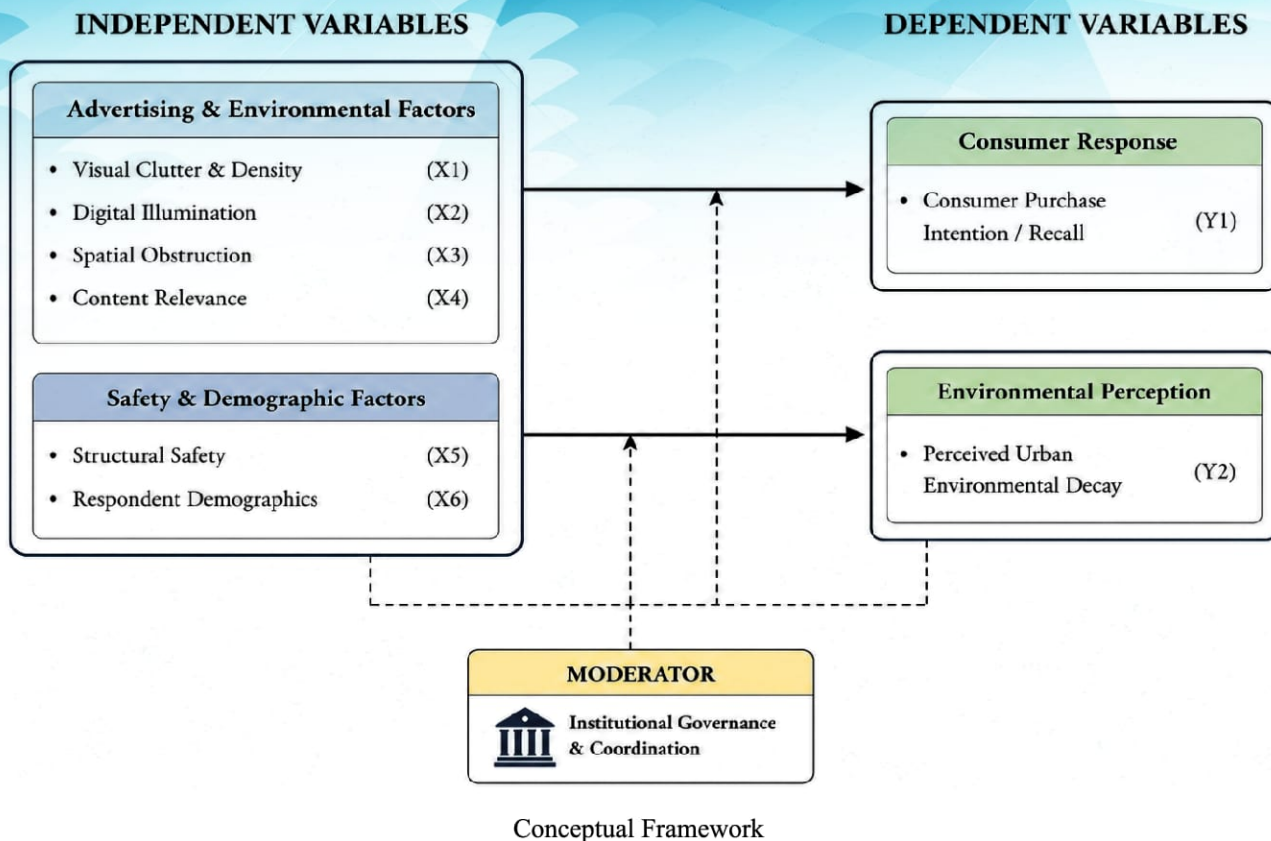


Figure 1.

2.2 Research Hypotheses

- H₁: Advertisement content relevance (X₄) positively influences consumer purchase intention and brand recall (Y₁).
- H₂: Visual clutter (X₁) and unmanaged digital illumination (X₂) are statistically significant predictors of perceived urban environmental decay (Y₂).
- H₃: Spatial footpath obstruction (X₃) negatively affects pedestrian mobility and transit safety (Y₂).
- H₄: Perceptions of signage-induced safety risks significantly vary across distinct demographic groups (X₆).

2.3 Research Gap Identification

Although the existing literature separately documents individual aspects of visual pollution, advertising psychology, and municipal zoning, there remains a critical research vacuum integrating spatial GIS mapping, consumer perception metrics, and institutional governance analyses within a single micro-urban framework. This study directly addresses this gap by evaluating the specific case of Farmgate, Dhaka,

and establishing empirical baselines to balance corporate commercial interests with environmental liveability.

3. METHODOLOGY

3.1 Research Design

This study employed an integrated mixed-methods research design. Quantitative profiles were derived via structured questionnaire surveys and GIS-based field mapping, while qualitative insights were extracted through elite Key Informant Interviews (KIIs) to triangulate spatial parameters against consumer behaviors and governance functions.

3.2 Study Area

Farmgate was selected because it is one of Dhaka's most hyper-dense commercial and transit junctions. Covering a compact 1.76 km², it converges inter-district highways, elevated expressways, metro rail corridors, intense corporate retail competition, and overlapping municipal jurisdictions, making it an ideal model for the spatial conflict analysis.

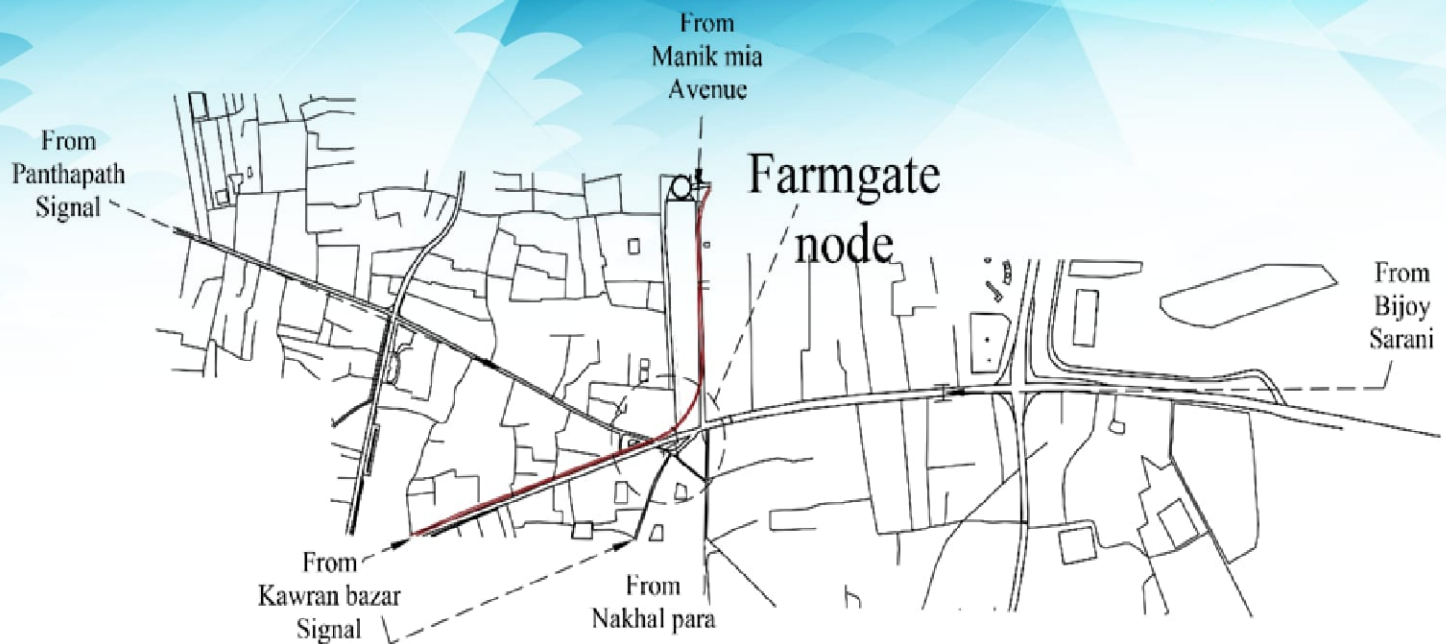


Figure 2. Surveyed node Farmgate, Dhaka, Bangladesh; (not in scale)

3.3 Sample Size Determination

The target population (N) for this study comprised residents, commercial users, commuters, and workers within the Farmgate urban node area. Based on the estimated urban population density of 36,500 persons per km² and the delineated study area of 1.76 km², the finite target population was calculated as

The estimated target population was $N = 36,500 \times 1.76 = 64,240$ individuals.

To determine the required minimum sample size, Cochran's formula for finite populations was applied:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

Where,

$$n_0 = \frac{Z^2 p(1 - p)}{e^2}$$

The following parameters were used:

- Confidence level (90%): $Z = 1.645$
- Margin of error: $e = 0.075$
- Population proportion: $p = 0.50$ (conservative estimate maximizing sample variability)

Substituting these values into Cochran's equation:

$$n_0 = \frac{(1.645)^2 \times 0.50(1 - 0.50)}{(0.075)^2} = 120.27$$

Applying the finite population correction for, $N = 64,240$:

$$n = \frac{120.27}{1 + \frac{120.27 - 1}{64,240}} = 120.04$$

Therefore, the corrected minimum sample size was approximately 120 respondents. Accordingly, a final field sample of 120 respondents was adopted, which satisfies the statistical requirements for a 90% confidence level with a 7.5% margin of error and is considered adequate for the quantitative analysis of consumer perception and urban environmental impacts of outdoor advertising signage in Farmgate area.

3.4 Variable Operationalization Matrix

Variable Code	Construct/ Domain	Specific Scale Measure Items (5- Point Likert Scale)
X₁ to X₄	Consumer Perception (CP) Scale (Target: $\alpha \geq 0.70$)	CP1: Attention capture. CP2: Product discovery. CP3: Informational utility and message usefulness. CP4: Actionable purchase/conversion drive. CP5: Positive purchase influence/ density barrier
X₅ / Y₂	Urban Environmental Impact (EI) (Target: $\alpha \geq 0.70$)	EI1: Visual clutter and aesthetic degradation of the environment. EI2: High-brightness glare and nighttime visual discomfort. EI3: Walkway/foot-over-bridge physical spatial obstruction. EI4: Motorist/ rickshaw puller transit distraction hazard. EI5: Cognitive sensory overload and mental stress were assessed. EI6: Structural maintenance voids and storm-induced risk.
Y₁ / Y₂	Aggregate-behavioral Outcomes (AO)	AO1: Net environmental cost-benefit appraisal. AO2: Negative impacts outweigh corporate benefits. AO3: Civic demand for stricter zoning policies. AO4: Projected hub liveability optimization via signage reduction.

Table 1. Variable Operationalization Matrix

3.5 Socio-Demographic Profile

Variable	Category	Frequency (n)	Percentage (%)
Age	5–12 years	8	6.7
	13–18 years	20	16.7
	19–35 years	45	37.5
	36–59 years	38	31.7
	>60 years	9	7.5
	Total	120	100.0
Gender	Male	74	61.7
	Female	46	38.3
	Total	120	100.0
Education	Illiterate	3	2.5
	Primary	20	16.7
	Secondary/Higher Secondary	46	38.3
	Bachelor's	30	25.0
	Professional/Postgraduate	21	17.5
	Total	120	100.0
Income	≤10,000 BDT	22	18.3
	10,001–25,000 BDT	41	34.2
	25,001–50,000 BDT	34	28.3
	50,001–100,000 BDT	17	14.2
	>100,000 BDT	6	5.0
	Total	120	100.0
Occupation	Student	42	35.0
	Service	34	28.3
	Business	21	17.5
	Homemaker	12	10.0
	Retired	6	5.0
	Others	5	4.2
	Total	120	100.0

Table 2. Demographic Findings (n = 120), Source: Field survey (2025)

The empirical sample ($n = 120$) displayed a diverse cross-section of the public. Age tiers showed concentrations between 19 and 35 years (37.5%) and 36 and 59 years (31.7%), followed by 13–18 years (16.7%), over 60 years (7.5%), and 5–12 years (6.7%). The gender distribution included 61.7% male and 38.3% female participants. The educational profiles indicate secondary/higher secondary completion at 38.3%, bachelor's degrees at 25.0%, professional/postgraduate qualifications at 17.5%, primary education at 16.7%, and illiterate status at 2.5%. Income segments show that 34.2% earn 10k–25k BDT, 28.3% earn 25k–50k BDT, 18.3% earn less than 10k BDT, 14.2% earn 50k–100k BDT, and 5.0% earn more than 100k BDT. Occupational categories included students (35.0%), service sector workers (28.3%), business owners (17.5%), homemakers (10.0%), retired individuals (5.0%), and others (4.2%).

3.6 Data Collection and Sampling Execution

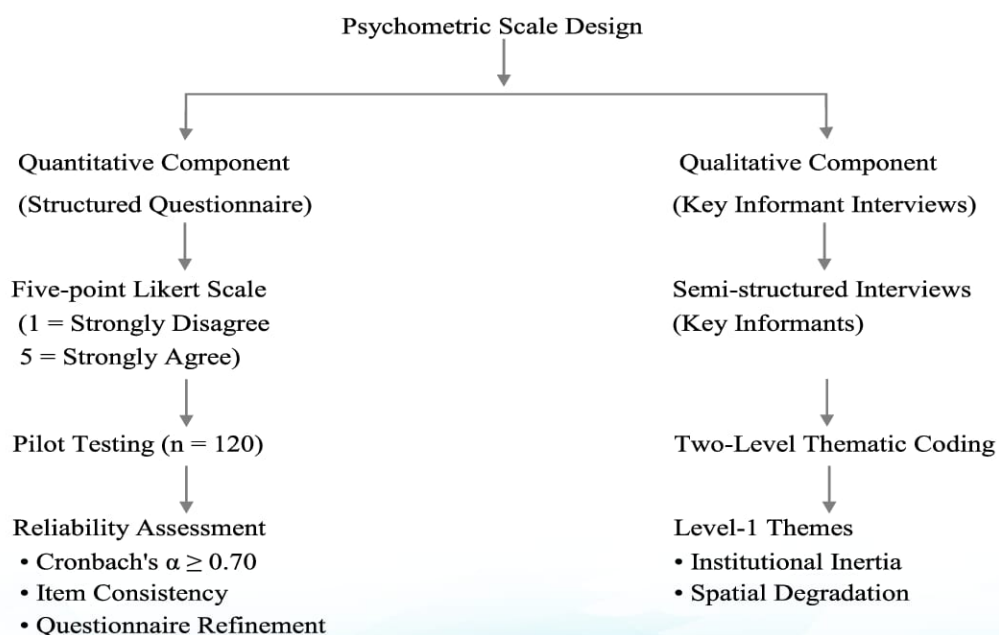
- **Field Survey Questionnaires:** Administered uniformly across the 120 tracked respondents using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).
- **Key Informant Interviews (NKII = 6):** Purposive elite sampling captured institutional oversight realities, including one Senior Urban Planner from RAJUK, two Municipal Executives from the Dhaka North City Corporation (DNCC) Town Planning/Ad-leasing departments, one Traffic Assistant

Commissioner from the Dhaka Metropolitan Police (DMP), one executive member of the Outdoor Advertising Association, and one environmental liveability NGO advocate.

- **GIS Spatial Mapping:** Conducted over a strict four-stage pipeline tracking 1,436 outdoor advertising installations. Coordinates were logged using handheld GPS units, imported into ArcGIS Pro, and projected to determine spatial hotspots overlaid on local road networks, walkways, and transit terminals.

3.7 Psychometric Scale Design and Reliability Framework

To ensure high internal consistency and clean factor loadings within a compact sample field ($n = 120$), data collection relied on a highly optimized psychometric instrument. Pre-testing design rules dictate a reliability threshold of Cronbach's $\alpha \geq 0.70$ for both principal sub-scales to verify internal instrument stability before executing the multiple regression models. Transcripts from the qualitative KIIs were processed using a systematic two-level thematic coding framework. Level-1 themes targeted Institutional Inertia and Spatial Degradation, split into operational tracking markers including Overlapping Jurisdictions (GOV-OVL), Enforcement Absences (GOV-ENF), Sidewalk Encroachment (SPA-ENC), View Corridor Interruptions (SPA-VPO), LED Blinding Screen Blurs (HAZ-VIS), and Unstable Storm Vulnerabilities (HAZ-STR).



Validated Measurement

Operational Coding Framework

GOV–OVL Overlapping Jurisdictions

GOV–ENF Enforcement Deficiency

SPA–ENC Sidewalk Encroachment

SPA–VPO View Corridor Obstruction

HAZ–VIS Visual Hazard from Digital Glare

HAZ–STR Structural Hazard Vulnerability

Integrated Mixed-methods analysis
(Multiple Regression + Thematic Interpretation)

Figure 3. Psychometric Scale Design and Reliability Framework

3.8 Ethical Considerations

The study protocol adhered to the strict institutional review board ethics. All participants received comprehensive research disclosures, and verbal or written informed consent was obtained prior to recording. To protect privacy, all personal markers were scrubbed and replaced with unique alphanumeric identification tags ranging from RESP-001 to RESP-120. Participants retained the absolute right to withdraw at any stage of the research without penalty or explanation.

4.0 RESULTS

4.1 Spatial Distribution and Characteristics of Outdoor Advertising

Empirical mapping logged 1,436 active signage units across Farmgate, revealing an intensely crowded visual landscape. Together, these five categories constitute approximately 90% of the advertising ecosystem. The inventory is dominated by temporary and low-cost formats:

Rank	Signage Type	Frequency (N)	Percentage (%)
1	Banner/Digital-Printed Posters	548	38.16
2	Back-lit Panaflex Signage	211	14.69
3	Balcony/Projected Architectural Signs	192	13.37
4	Back-lit Poly Carbon/Vinyl Sheets	180	12.53
5	Wall Signs	152	10.58
Subtotal (Top Five Categories)		1,283	89.33

6	Billboards	52	3.62
7	Neon Signs	43	2.99
8	Bell Signs	25	1.74
9	Vehicular Signs	14	0.97
10	Marquee Signs	9	0.63
11	Unipole Signs	5	0.35
12	Overhead Signs	2	0.14
13	LED Screen Signs (Sign Column/Banner/Trailer)	1	0.07
14	Tri-Vision Signs	0	0.00
15	Mega Signs	0	0.00
Grand Total		1,436	100.00

Table 3. Distribution of signage types (N = 1,436), Source: Field survey (2025).

Interpretation

The spatial distribution mirrors the systemic absence of material and dimension standards. The dominance of low-grade vinyl sheets and banners demonstrates market-driven placement, focusing on maximum exposure near heavy traffic points without architectural coordination. High-capacity backlit panels crowd skyline zones, whereas dense banners create severe congestion at pedestrian levels. Signs are haphazardly stacked, vertically piled, and anchored onto building fronts without design logic, degrading spatial legibility, and creating physical vulnerability.

4.2 Urban Environmental Impacts

Field evaluations and user feedback confirm extensive negative environmental impacts:

Interpretation:

The observed pattern closely aligns with the study's mixed-methods framework. The quantitative findings are corroborated by the qualitative operational codes SPA-ENC (Sidewalk Encroachment), SPA-VPO (View Corridor

Obstruction), HAZ-VIS (Visual Hazard from Digital Glare), and HAZ-STR (Structural Hazard Vulnerability), which collectively characterize the broader theme of Spatial Degradation. Furthermore, the regression analysis identified Visual Clutter ($X_{\square}$) as a significant predictor of Perceived Urban Environmental Decay ($Y_{\square}$), indicating that increasing signage intensity is associated with progressively poorer evaluations of urban environmental quality.

Key analytical finding: The convergence of survey responses, qualitative coding, and regression results suggests that visual clutter is the principal mechanism through which uncontrolled outdoor advertising degrades urban environmental quality, emphasizing the need for integrated signage regulations, coordinated institutional governance, and context-sensitive urban design standards.

4.3 Consumer Perceived Effectiveness

Among Farmgate respondents, outdoor advertising effectiveness is perceived to reflect a mixed, yet mostly positive, opinion on its marketing and communicative worth.

Rank	Environmental Impact	Respondents (n)	Percentage (%)	Interpretation
1	Visual Clutter/ Scenery Spoilage	35	29.17	The most frequently perceived impact was the deterioration of streetscape coherence and urban visual quality.
2	Blocked Pedestrian Walkways	30	25.00	Signage encroachment restricts pedestrian movement and reduces the walkability.
3	Motorist Visibility Obstruction	27	22.50	Poorly positioned advertisements obstruct sightlines and increase the perception of traffic safety risks.
4	Environmental Litter/ Torn Posters	22	18.33	Deteriorated advertising materials contribute to environmental pollution and poor maintenance.
5	Structural Instability/ Storm Risk	12	10.00	Weakly maintained structures increase the vulnerability of the area during adverse weather conditions.
6	Visual Fatigue/ Sensory Overload	9	7.50	Continuous exposure to dense signage creates psychological and visual discomfort.
7	Declining Property Values	3	2.50	The least frequently reported impact reflects indirect economic concerns associated with visual degradation.

Note. Respondents were permitted to identify more than one environmental impact; therefore, percentages do not sum to 100%.

Table 4. Urban environmental impacts (n = 120), Source: Field survey (2025).

Perception Category	Frequency (n)	Percentage (%)	Interpretation	Planning Implication
Highly Effective	48	39.17	Strong attention and brand recall.	Advertising remains effective in such cases.
Effective	31	25.83	Positive communication performance.	Supports commercial visibility.
Moderately Effective	54	45.00	Visual saturation reduces distinctiveness.	Better spatial planning is required.
Somewhat Effective	19	15.83	Limited engagement.	Improving the design and placement.
Ineffecti	18	15.00	Visual clutter we impact.	Strengthen regulation.

Note. Respondents were permitted to identify more than one environmental impact; therefore, percentages do not sum to 100%.

Table 5. Consumer perceived effectiveness (n = 120), Source: Field survey (2025).

Interpretation

Table 5 indicates that respondents generally recognized outdoor advertising as an effective communication medium for attracting attention and supporting brand awareness. Nevertheless, perceptions became less favorable as signage density increased, reflecting a visual saturation effect. These findings are consistent with the Consumer Perception Scale (CP1–CP5) and qualitative evidence, suggesting that excessive visual competition, poor placement, and inadequate design reduce message recall and consumer engagement. Overall, advertising effectiveness depends not only on message content but also on its spatial context, highlighting the importance of coordinated sign planning and institutional governance.

4.4 Governance Analysis

Dhaka's outdoor advertising architecture suffers from severe institutional fragmentation and weak code enforcement. The DNCC serves as the primary licensing body but struggles with irregular field monitoring and compliance. RAJUK holds authority over structural engineering approvals but lacks explicit urban design standards, allowing visually jarring installations to bypass aesthetic reviews. The DMP manages traffic-related safety but operates within overlapping and conflicting operational zones. This uncoordinated framework allows profit-driven advertising agencies to operate with low environmental accountability, enabling the proliferation of unregulated signage across key transit corridors.

4.5 Mixed-Methods Integration Matrix

Research Theme	Survey Findings	Field Observation	KII Codes	Integrated Interpretation
Visual Clutter	High public concern	Dense signage concentration	SPA-VPO	Reduced urban legibility
Pedestrian Mobility	Sidewalk obstruction	Encroached walkways	SPA-ENC	Declining walkability
Safety	Driver visibility issues	Unsafe installations	HAZ-VIS, HAZ-STR	Increased urban risk
Governance	Public dissatisfaction	Weak monitoring	GOV-OVL, GOV-ENF	Institutional fragmentation

Table 6. Mixed-Methods Integration Matrix.

5.0 DISCUSSION

5.1 Governance Challenges

The findings demonstrate that the environmental impacts of outdoor advertising in Farmgate are primarily attributable to institutional fragmentation and inadequate spatial governance rather than outdoor advertising itself. Integrating field observations, household surveys, and Key Informant Interviews reveals that excessive signage density has transformed Farmgate into a visually saturated commercial corridor where economic visibility frequently overrides environmental quality, pedestrian safety, and architectural coherence.

The mixed-methods findings consistently indicate that visual clutter, pedestrian encroachment, and traffic visibility constraints are the interconnected outcomes of weak regulatory coordination. Operational codes relating to institutional fragmentation (GOV-OVL; GOV-ENF) and spatial degradation (SPA-ENC; SPA-VPO; HAZ-VIS; HAZ-STR) illustrate how fragmented governance has enabled the uncontrolled expansion of signage without adequate planning or enforcement. Consequently, the challenge is not the presence of outdoor advertising but the absence of an integrated

management framework capable of balancing commercial activity with public space quality.

5.2 Comparative Perspectives

International experiences reinforce this interpretation in several ways. Nigeria illustrates that regulatory standards alone cannot improve urban environmental quality without consistent enforcement and institutional capacities. In contrast, São Paulo's Clean City Law demonstrates that comprehensive regulation can restore streetscape identity and public acceptance while maintaining commercial vitality. Likewise, Hong Kong and Tokyo show that high-density commercial districts can accommodate extensive outdoor advertising through centralized governance, rigorous structural standards, pedestrian-protection measures, and context-sensitive urban design.

Compared with these examples, Farmgate lacks coordinated institutional oversight and standardized design criteria, allowing commercial interests to dominate public spaces. Therefore, the comparative evidence suggests that improving urban environmental quality depends less on reducing advertising volume than on strengthening governance, enforcing design standards, and integrating advertising into broader urban planning objectives.

5.3 International Comparative Governance Matrix

Dimension	Farmgate	Nigeria	Sao Paulo	Hong Kong	Tokyo	Lesson for Dhaka
Governance	Fragmented	Weak enforcement	Integrated	Centralized	Integrated	Unified authority
Design Control	Weak	Moderate	Strong	Strong	Strong	Urban design standards
Safety Regulation	Limited	Moderate	High	High	High	Mandatory inspection
Public Space Protection	Poor	Moderate	Excellent	Excellent	Excellent	Pedestrian priority

Table 7. International Comparative Governance Matrix.

The present findings support recent evidence that increasing the quantity of outdoor advertising does not necessarily improve its effectiveness in terms of sales. Instead, aesthetically coordinated, context-sensitive, and environmentally compatible signage generates greater public acceptance and reduces visual conflict within urban landscapes (Chen et al., 2025).

6.0 RESEARCH CONTRIBUTIONS AND POLICY IMPLICATIONS

6.1 Research Contributions

This study contributes to the literature in three principal ways- First, it demonstrates that advertising effectiveness is context-dependent, showing that increasing signage density does not necessarily enhance communication. Instead, excessive visual concentration produces a saturation effect that diminishes message effectiveness while simultaneously degrading environmental quality.

Second, the study advances understanding of urban signage governance by integrating consumer perception, environmental assessment, and institutional analysis within a mixed-methods framework. This interdisciplinary perspective extends conventional advertising research by positioning outdoor

advertising as a component of urban environmental governance rather than solely a marketing instrument.

Third, Farmgate provides an empirical case representing rapidly urbanizing commercial centres across the Global South, where competing institutional mandates and rapid commercial expansion frequently outpace planning capacity. The proposed governance framework therefore offers practical relevance beyond the immediate case study.

6.2 Policy Implications

The findings indicate that improving outdoor advertising management requires an integrated planning approach rather than isolated regulatory interventions. Four complementary policy priorities emerge.

1. Regulation regarding Form, Size, and Placement of Signage

- To reduce visual clutter, standardize the dimensions, height, and material of outdoor advertisements.
- To maintain coherences of streetscape, ensure signage placement respecting pedestrian pathways, intersections, and building facades.

- Oversized or poorly aligned signage should be limited at the high-traffic nodes in priority basis.

2. Incorporate Signage into Urban Design

- Visually appealing signage that complements architecture and urban character should be encouraged.
- Placement of signage should be treated as part of landscape planning for decent visual effect without obstructing public spaces or sightlines.
- Integrate specialist, like- architect, urban designer, engineers, and others whose are directly or indirectly related to this industry.

3. Temporary and Context-Sensitive Signage

- Ephemeral signage, like- political, educational, religious or cultural should be provisional, with clear timelines for removal.
- Community engagement regarding responsible posting and timely removal to prevent clutter.

4. Encourage Alternative- Media and Paperless Advertising

- Reduce dependency on banners and posters by encouraging radio, television, and digital platforms.
- Promote environmentally sustainable advertising practices, such as digital-only campaigns and low-waste signage materials.

5. Strengthen Regulatory Oversight and Coordination

- Agencies responsible for outdoor advertising like- DNCC, RAJUK, and DMP should coordinate via a unified framework.
- Enforcement should go beyond revenue collection to actively monitor compliance, issue penalties, and remove unauthorized or unsafe signage.
- Periodic audits of installed signs should be conducted to maintain urban order and safety.

6. Consumer-Centered Governance and Public Participation

- Over 90% of respondents supported stricter regulation, indicating strong civic demand.
- Mechanisms such as mobile reporting apps, hotlines, and public awareness campaigns can align policy enforcement with citizen expectations.
- Engaging consumers in monitoring can enhance compliance and create shared responsibility for urban aesthetics.

7. Sustainable and Safe Signage Practices

- Encourage low-energy, solar-powered, or environmentally friendly materials for signs.
- Establish structural safety guidelines for rooftop and large-format signage to minimize hazards during storms or high winds. Collectively, these measures would enable outdoor advertising to remain commercially valuable while enhancing environmental quality, pedestrian safety, and urban livability.

7.0 CONCLUSION

This study demonstrates that the principal challenges associated with outdoor advertising in Farmgate originate from fragmented governance and inadequate spatial regulation rather than from outdoor advertising itself. Integrating survey findings, field observations, and qualitative evidence reveals that excessive signage density contributes to visual clutter, pedestrian obstruction, safety concerns, and declining urban environmental quality while simultaneously reducing the effectiveness of commercial communication.

The international comparative analysis further shows that cities facing similar challenges have achieved improved outcomes through coordinated governance, context-sensitive urban design, and consistent regulatory enforcement. These experiences suggest that sustainable outdoor advertising depends on balancing commercial visibility with environmental responsibility rather than prioritizing either objective in isolation.

Accordingly, this research proposes an integrated governance framework combining institutional coordination, urban design guidance, engineering safety standards, and participatory monitoring. Beyond informing future policy in Dhaka, the framework offers a transferable model for managing outdoor advertising in rapidly urbanizing metropolitan centres throughout the Global South. By repositioning outdoor advertising within the broader context of sustainable urban governance, the study contributes to ongoing debates on creating commercially vibrant, visually coherent, and pedestrian-oriented cities.

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AUTHOR CONTRIBUTIONS

The author was solely responsible for the conceptualization, data collection, data analysis, documentation, drawing preparation, critical feedback, and writing process of the manuscript. Author reviewed and approved the final version of the manuscript.

CONFLICT OF INTEREST

The author declare that he has no conflicts of interest related to this study.

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