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Street Trading Points and Traffic Volume Dynamics in Gombe Central Business District

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ABSTRACT

This study examines the relationship between street trading points and traffic volume in Gombe Central Business District (CBD) thereby investigating its implications for urban planning and policy. The study highlights the dual role of street trading as a vital informal economic sector that generates livelihoods while simultaneously contributing to traffic problems. Using a mixed-method approach, the research analyzes data collected from 939 respondents who are either street traders or non-street traders in order to evaluate their socio-economic characteristics, and how the activities within the street trading points affects traffic volume. Findings reveals that street trading points are majorly owned and patronized by the male gender in the study area. It also reveals a significant correlation between increased traffic volume and vehicular time delays, indicating that the occupation of streets by the street and non- street traders exacerbates traffic congestion. The study underscores the need for targeted urban planning strategies that balance the support for informal economic activities such as street trading with effective traffic management to enhance urban mobility and public safety. Recommendations include designating specific trading zones, implementing regulatory frameworks, and improving infrastructure to accommodate both street traders, pedestrians and vehicular traffic.

INTRODUCTION

Street trading and traffic volume dynamics in urban areas are two interrelated phenomena that significantly influence urban life and the economy (Ajakaiye *et al.*, 2020). Street trading, defined as the provision of goods and services on sidewalks and roadways, constitutes a widespread form of informal economic activity in numerous cities globally (Edward *et al.*, 2023; Vargas, 2023). The informal sector offers livelihood opportunities for a substantial segment of the urban population; however, it also contributes to congestion and other traffic-related issues in cities (Onolaja, 2021). Street traders frequently establish their stalls in high-traffic areas, resulting in heightened pedestrian and vehicle congestion, along with traffic jams and disturbances (John-Nsa & Chukwurah, 2023). The relationship between street trading and traffic volume is complex, influenced by various factors. On one hand, street trading can draw customers and shoppers to an area, enhancing foot traffic and potentially stimulating economic activities (Willemse, 2011). Nevertheless, the presence of street traders may result in congestion and disruption of traffic flow, particularly in areas characterized by narrow streets or limited parking availability. In certain instances, municipalities have enacted regulations and zoning laws to regulate street trading locations and alleviate their effects on traffic volume (Turner & Oswin, 2015).

As cities continue to expand and urbanize, it is essential for policymakers and urban planners to achieve a balance between facilitating informal economic activities, such as street trading, and effectively managing traffic volume (Kiaka *et al.*, 2021). Promoting street trading in designated

areas and implementing infrastructure improvements to support both pedestrians and vehicles can alleviate congestion and enhance traffic flow in urban areas (John-Nsa *et al.*, 2023). By examining the interplay between street trading and traffic volume, cities can formulate strategies and solutions that foster economic growth while ensuring a functional and efficient urban environment (Linares, 2018). The growth of street trading points in the Gombe Central Business District has resulted in heightened traffic congestion, presenting considerable challenges to urban mobility and economic development (Owusu-Sekyere *et al.*, 2016). Despite the significance of street trading as a livelihood for many, the unregulated nature of this activity has led to encroachment on roadways, pedestrian pathways, and other public spaces, thereby exacerbating traffic volume dynamics (Jose & Villanueva, 2023). Despite the increasing body of research on street trading and its effects on urban environments, a notable gap persists in comprehending the specific dynamics between street trading locations and traffic volume. Existing studies have predominantly concentrated on the socio-economic dimensions of street trading (Farinmade *et al.*, 2023), whereas others have analyzed the influence of street trading on traffic congestion in broad terms (John-Nsa & Chukwurah, 2023). However, limited research has examined the spatial relationships between street trading locations and traffic volume within a specific urban context, such as the Gombe Central Business District, with implications for urban planning and policymaking. This study aims to examine the correlation between street trading points and traffic volume, with the objective of

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recommending strategies to alleviate traffic congestion and encourage sustainable urban development.

Traffic Demand Forecasting and Street Trading Points

Travel demand forecasting process are essential models and statistical tools used by urban planners, policymakers, and transportation engineers to anticipate travel demand and facilitate future planning. Street trading points, as a significant land use activity, can influence travel demand and should therefore be included in travel demand forecasting. Street trading points are prevalent characteristics of the urban landscapes in numerous developing countries, including Nigeria. These points are typically situated in high-density areas, such as Central Business Districts, bus stops, and other commercial centres, attracting a significant number of individuals, including pedestrians and customers. Consequently, street trading points may create substantial travel demand, especially during peak times. One of the principal process utilized for forecasting travel demand related to trips generated by street trading activities is the gravity model (Keum, 2010). The gravity model is a statistical framework that forecasts the movement of individuals between two locations, predicated on the desirability of the destinations and the resistance to travel between them (Martinez-Zarzoso, 2003). In the context of street trading points, the gravity model can predict the number of individuals who will visit a specific street trading point, influenced by factors such as the location of the point, the types and quality of goods and services offered, and the accessibility of the street trading point (Blackburn, 2016). Trip generation analysis can quantify the number of trips produced by specific land use activities, including street trading points (Bas *et al.*, 2023). The trip generation model can estimate the number of trips produced by specific street trading points, considering factors such as size and type, the number of street and non-street traders, and the location of the street trading point (Ayo-Odifiri, 2022). In addition to the gravity and trip generation models, various other travel demand forecasting models may also be employed to predict travel demand generated by street trading points (Callaghan, 2012). For instance, mode choice models can predict the travel mode selected by individuals enroute to specific street trading points, whereas route choice models can forecast the routes taken by individuals traveling to those same street trading points. The utilization of travel demand forecasting models at street trading locations can assist transportation planners in designing and managing transportation infrastructure that is more efficient, safe, and sustainable (Akiyode, 2017). This is due to the influence of traffic distribution patterns on the location and operation of street trading points.

Relationship of Traffic Volume and Street Trading Activities

Street trading activities have become an integral part of urban economies, providing livelihoods for millions of people worldwide (Ikioda, 2016). However, these

activities often take place in public spaces, such as sidewalks, roads and intersections, which can have significant impacts on traffic volume. One of the causal factors of the relationship between traffic volume and street trading activities is the occupation of public spaces (Osoja, 2019). Street traders often set up their trading outlets on sidewalks, roads and intersections, reducing the available space for vehicular traffic. This can lead to traffic congestion, particularly during peak hours as vehicles are forced to navigate through narrower roads and sidewalks. Non-street traders on the other hand patronize the street traders which eventually increases foot and vehicular traffic. The attitude of street and non-street traders eventually reduces the road carrying capacity for vehicles (Mramba *et al.*, 2016). On the other hand, the congestion caused by street trading activities can lead to increased travel time, fuel consumption and air pollution. Furthermore, the reduced road capacity can also increase the risk of accidents, as vehicles may be forced to maneuver through tight road spaces (Amegah *et al.*, 2022). The presence of street trading points on pedestrian sidewalks can make them less accessible for pedestrians, particularly those with disabilities. Traffic noise is also an environmental problem created by the activities of street trading which can be a source of disturbance for nearby residents (Agyemang, 2021). In order to mitigate the negative effects of street trading activities on traffic volume, several solutions can be explored. One approach is for urban planners to designate specific areas for street trading activities, in order to reduce congestion and improve road safety (Wen *et al.*, 2019). Another solution is to implement regulations and enforcement mechanism to ensure that street traders do not occupy excessive space or obstruct traffic flow, while providing support and training to help them operate formally (Sodanango *et al.*, 2021). This can include measures such as licensing requirements, zoning restrictions and penalties for non-compliance. Policymakers should ensure that they provide the needed infrastructure such as waste management and sanitation facilities to support street traders. This will in turn help to maintain public health standards (Adama, 2020).

MATERIALS AND METHODS

Gombe Central Business District is located in Gombe metropolis which is bordered by Kwami Local Government Area in the North, Akko Local Government Area in the South West and Yamaltu Deba in the West. It lies between Latitude 10°12'N to 10°17'N of Equator and Latitude 11°10'E to 11°83'E of Greenwich Meridian. However, the CBD of Gombe metropolis is observable from Wuyo Biu Road, West of the Federal College of Education Roundabout to the North, and then stretches to the East to Tudun Wada and Gombe State University. It also stretches from the railway station to Sabon Layi Road and Pantami area which links up with the Wuyo Biu Road. The road corridors within these areas are the observable street trading clusters in Gombe Central Business District. The study employed a non-experimental research

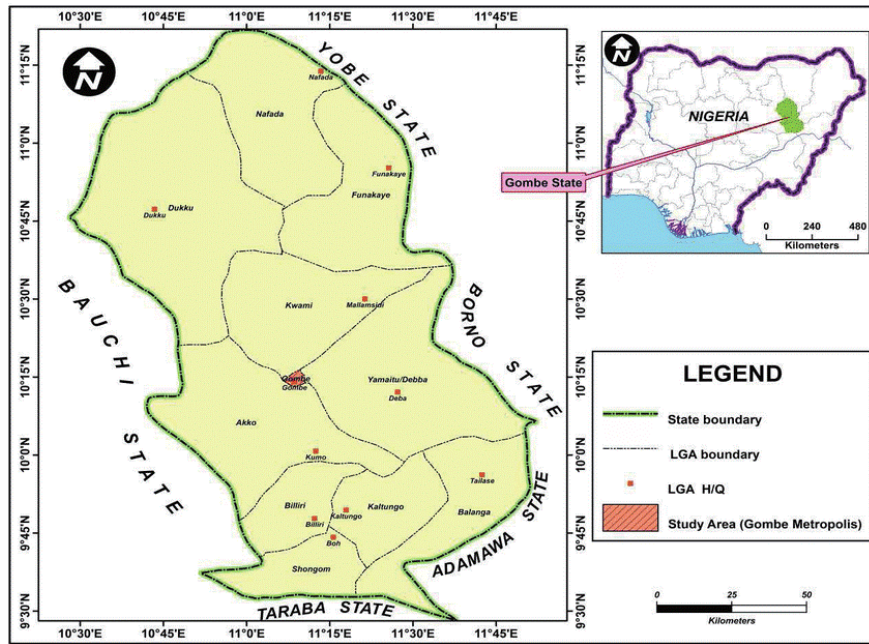


Figure 1: Gombe Metropolis in Gombe State, Nigeria
 Source: ArcGIS Version 10.6 Digitized by Researchers' (2024)

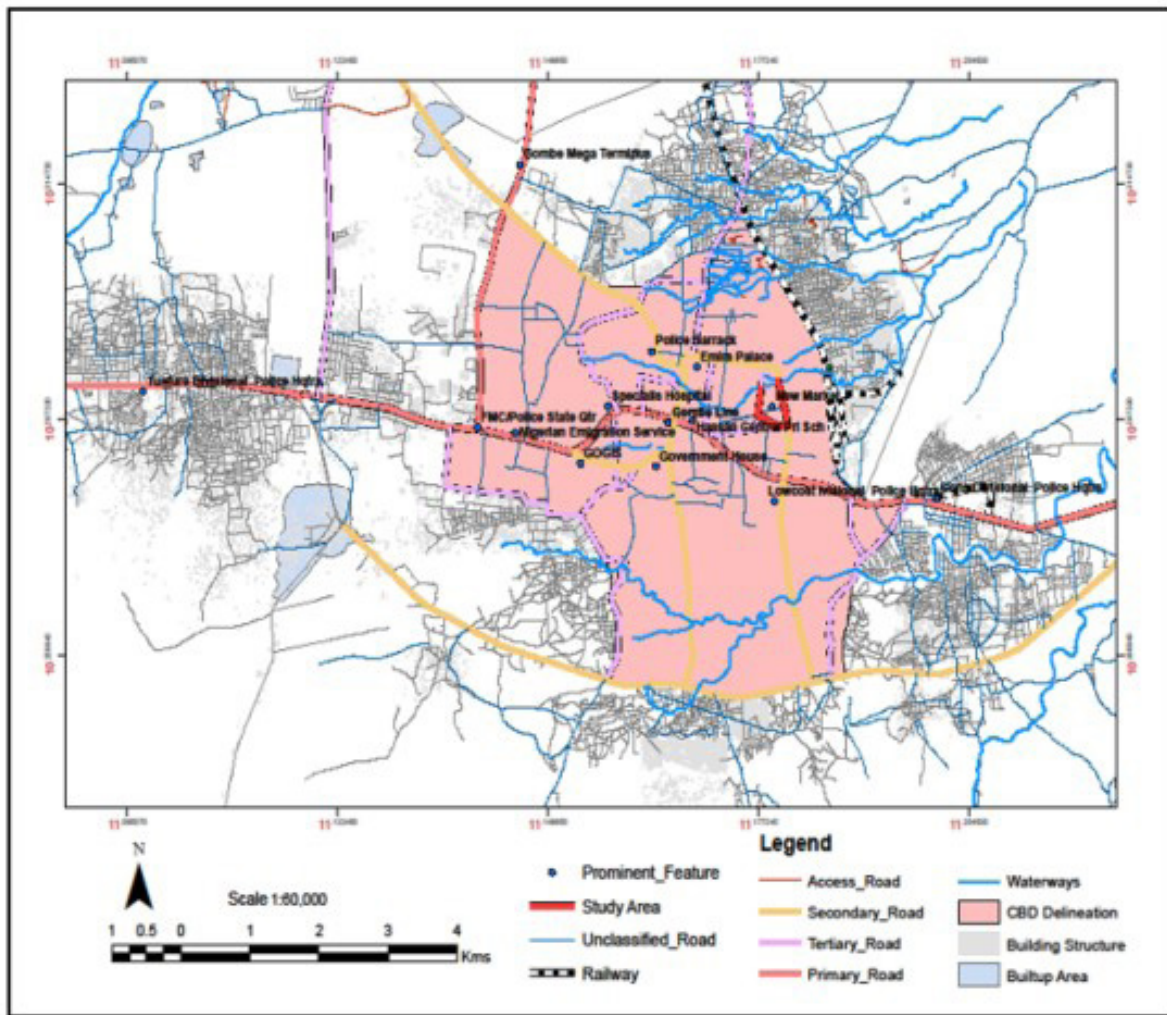


Figure 2: Gombe Central Business District
 Source: ArcGIS Version 10.6 Digitized by Researchers' (2024)

design. That is, the study specifically utilized a survey research approach. A mixed method of quantitative and qualitative data collection was utilized for the study. The study population consisted of street traders and non-street traders. Street traders are individuals engaged in the sale of goods or provision of services on the streets, while the non-street traders are individuals who

purchase street-traded goods and services within the street trading clusters located in the Central Business District of Gombe. Examples of non-street traders include urban residents, civil servants employed within the Central Business District (CBD), motorists, cyclists, and pedestrians who temporarily halt to acquire street goods and services (Figure 3).



Figure 3: Street Trading Activities at Herwa Gana Road, Gombe Central Business District

Source: Researchers' Fieldwork (2024)

The sampling frame is a list of elements that represents the target population of a study and from which a sample can be selected. For this study, the sampling frame will consist of the street trading clusters and their respective street trading points in Gombe CBD. Field observations were conducted to ascertain the number of street trading points within each street trading cluster. Eight (8) street

trading clusters were identified in the CBD, encompassing a total of one hundred and forty-four (144) street trading points (Table 1). The 144 street trading points were labelled by the researchers based on the indigenous language majorly used in the study area which is Hausa, and the nature of street good sold. For this study, three street trading clusters were chosen as the sampling frame.

Table 1: Street Trading Clusters and Street Trading Points in Gombe CBD

Street Trading Clusters	Street Trading Points
Pantami Road	9
Sabon Layi Road	11
Usman Shehu Abubakar Way	35
Herw Gana Road	32
Id el-Fitr Road	30
Tudun Wada Road	8
Jeka Da Fari Road	13
Yagwaram Shuwe Dukku Road	6
Total	144

Source: Researcher's Fieldwork (2024)

Id el-Fitr Road, Herwa Gana Road, and Usman Shehu Abubakar Way are the three street trading clusters that were chosen. These three (3) clusters were chosen as the sampling frame for this study primarily due to the volume of automobiles and street vendors that converge along these corridors on a daily basis, as well as the intensity of street trading activity. While other street trading clusters have street trading points ranging from 6 to 13 (Table 1), which is smaller in size when compared to the number of street trading points in the three street trading clusters

sampled for the study. The three chosen street trading clusters have at least 30 street trading points (Table 2). Therefore, the sampling frame for the study is the three (3) selected street trading clusters and their street trading points, which are ninety-seven (97) in total. Field observations in the form of street trader and non-street trader counts were conducted at each street trading point within the three street trading clusters on Mondays, Wednesdays, and Saturdays. The average of these three-day counts was then considered as the average daily count

Table 2: Sampling Frame for the Study

Street Trading Clusters	Street Trading Points
Usman Shehu Abubakar Way	35
Herwa Gana Road	32
Id el-Fitr Road	30
Total	97

Source: Researchers' Fieldwork (2024)

for street and non-street traders at each street trading point. Totals of 3,022, 3,213, and 3,465 were recorded as the average number of street and non-street traders for Id el-Fitr Road, Herwa Gana Road, and Usman Shehu Abubakar Way, respectively (Tables 3 – 5). In total, 9,700 street and non-street traders were counted across the 97 street trading points located within the three street trading

clusters. The researchers selected 10% of the street/non-street traders in each street trading cluster as the sample size for the study. This 10% sampling size was adopted after reviewing the work of Neuman (2011). Therefore, the final sample size for the study comprised 970 street and non-street traders (Table 6).

Instruments for data collection included 970 copies of

Table 3: Average Number of Street and Non-Street Traders Per Day at Id el-Fitr Road

S/No	Title of Street Trading Points	Mondays	Wednesdays	Saturdays	Average
1	Mai Sai Da Kayoyin Hakori (Toothbrush and Accessories Seller)	104	98	100	101
2	Mai Sai Da Kayan Abinchi (Raw Foodstuff Seller)	97	106	99	101
3	Mai makulle (Keys and Locks Seller)	102	94	105	100
4	Mai Litaffi (Books and Accessories Seller)	109	91	103	101
5	Mai Tebur (Table and Accessories Seller)	93	107	100	100
6	Mai Gado (Bed Frame Seller)	106	96	101	101
7	Mai Batri (Battery Seller)	99	103	102	101
8	Mai Kwalba (Camping Gear Seller)	101	99	106	102
9	Mai Kujera (Chair Seller)	105	95	104	101
10	Mai Kayan Aiki (Stationary Seller)	98	102	100	100
11	Mai Wayan Salula (Phone Seller)	107	93	105	102
12	Mai Sabulu (Soap Seller)	94	109	98	100
13	Mai Gashi (Hair Extension Seller)	100	96	107	101
14	Mai Kayan Kwaliya (Makeup Seller)	108	92	103	101
15	Mai Kwaliya (Body Cream Seller)	91	104	101	99
16	Mai Kwando (Basket Seller)	104	98	100	101
17	Mai Reke (Sugar Cane Seller)	97	106	99	101
18	Mai Agogo (Wristwatch Seller)	102	94	105	100
19	Mai Kayan Zinari (Jewelry Seller)	109	91	103	101
20	Mai Shayi (Tea and Coffee Seller)	93	107	100	100
21	Mai Kayan marmari (Fruit Seller)	106	96	101	101
22	Mai Nama (Meat Seller)	99	103	102	101
23	Mai Kifi (Fried Fish Seller)	101	99	106	102
24	Mai Riguna (Cloths Seller)	105	95	104	101
25	Mai Hula (Cap and Hats Seller)	98	102	100	100
26	Mai Takalami (Shoe Seller)	107	93	105	102
27	Mai Alura (Needles Seller)	94	109	98	100
28	Mai Taya (Car and Motorcycle Tyre Seller)	100	96	107	101
29	Mai zanin gado (Bedsheet and Accessories Seller)	108	92	103	101
30	Mai Sai Da Leda (Leather Seller)	91	104	101	99
	Total				3022

Source: Researchers' Fieldwork (2024)

Table 4: Average Number of Street and Non-Street Traders Per Day at Herwa Gana Road

S/No	Title of Street Trading Points	Mondays	Wednesdays	Saturdays	Average
1	Mai Sai Da Kwayoyin Hakori (Toothbrush and Accessories Settler)	104	98	98	100
2	Mai Sai Da Kayan Abinchi (Raw Foodstuff Seller)	97	106	97	100
3	Mai makulle (Keys and Locks Seller)	102	94	100	99
4	Mai Litaffi (Books and Accessories Seller)	109	91	85	95
5	Mai Tebur (Table and Accessories Seller)	93	107	100	100
6	Mai Gado (Bed Frame Seller)	106	96	101	101
7	Mai Batri (Battery Seller)	99	103	102	101
8	Mai Kwalba (Camping Gear Seller)	101	99	106	102
9	Mai Kujera (Chair Seller)	105	95	104	101
10	Mai Kayan Aiki (Stationary Seller)	98	102	100	100
11	Mai Wayan Salula (Phone Seller)	107	93	105	102
12	Mai Sabulu (Soap Seller)	94	109	98	100
13	Mai Gashi (Hair Extension Seller)	100	96	107	101
14	Mai Kayan Kwaliya (Makeup Seller)	108	92	103	101
15	Mai Kwaliya (Body Cream Seller)	91	104	101	99
16	Mai Kwando (Basket Seller)	104	98	100	101
17	Mai Reke (Sugar Cane Seller)	97	106	99	101
18	Mai Agogo (Wristwatch Seller)	102	94	105	100
19	Mai Kayan Zinari (Jewelry Seller)	109	91	103	101
20	Mai Shayi (Tea and Coffee Seller)	93	107	100	100
21	Mai kayan marmari (Fruit Seller)	106	96	101	101
22	Mai Nama (Meat Seller)	99	103	102	101
23	Mai Kifi (Fried Fish Seller)	101	99	106	102
24	Mai Riguna (Cloths Seller)	105	95	104	101
25	Mai Hula (Cap and Hats Seller)	98	102	100	100
26	Mai Takalami (Shoe Seller)	107	93	105	102
27	Mai Alura (Needles Seller)	94	109	98	100
28	Mai Taya (Car and Motorcycle Tyre Seller)	100	96	104	100
29	Mai zanin gado (Bedsheet and Accessories Seller)	108	90	103	100
30	Mai Sai Da Leda (Leather Seller)	91	104	101	99
31	Mai Sai Da Akwati (Box and Luggage Seller)	104	98	100	101
32	Mai Sai Da Kayan Miya (Soup stuff seller)	97	106	99	101
	Total				3213

Source: Researchers' Fieldwork (2024)

Table 5: Average Number of Street and Non-Street Traders Per Day at Usman Shehu Abubakar Way

S/No	Title of Street Trading Points	Mondays	Wednesdays	Saturdays	Average
1	Mai Sai Da Kwayoyin Hakori (Toothbrush and Accessories Settler)	102	94	105	100
2	Mai Sai Da Kayan Abinchi (Raw Foodstuff Seller)	109	91	103	101
3	Mai makulle (Keys and Locks Seller)	93	107	100	100
4	Mai Litaffi (Books and Accessories Seller)	106	96	101	101
5	Mai Tebur (Table and Accessories Seller)	99	103	102	101
6	Mai Gado (Bed Frame Seller)	101	99	106	102
7	Mai Batri (Battery Seller)	105	95	104	101

8	Mai Kwalba (Camping Gear Seller)	98	102	100	100
9	Mai Kujera (Chair Seller)	107	93	105	102
10	Mai Kayan Aiki (Stationary Seller)	94	109	98	100
11	Mai Wayan Salula (Phone Seller)	100	96	107	101
12	Mai Sabulu (Soap Seller)	108	92	103	101
13	Mai Gashi (Hair Extension Seller)	91	104	101	99
14	Mai Kayan Kwaliya (Makeup Seller)	104	98	100	101
15	Mai Kwaliya (Body Cream Seller)	97	106	99	101
16	Mai Kwando (Basket Seller)	102	94	105	100
17	Mai Reke (Sugar Cane Seller)	109	91	95	98
18	Mai Agogo (Wristwatch Seller)	93	107	100	100
19	Mai Kayan Zinari (Jewelry Seller)	106	96	97	100
20	Mai Shayi (Tea and Coffee Seller)	99	103	100	101
21	Mai Kayan marmari (Fruit Seller)	101	99	106	102
22	Mai Nama (Meat Seller)	88	98	98	95
23	Mai Kifi (Fried Fish Seller)	104	97	99	100
24	Mai Riguna (Cloths Seller)	111	94	90	98
25	Mai Hula (Cap and Hats Seller)	90	102	90	94
26	Mai Takalami (Shoe Seller)	103	104	91	99
27	Mai Alura (Needles Seller)	110	103	91	101
28	Mai Taya (Car and Motorcycle Tyre Seller)	105	102	93	100
29	Mai mai zanin gado (Bedsheet and Accessories Seller)	104	101	98	101
30	Mai Sai Da Leda (Leather Seller)	87	100	94	94
31	Mai Sai Da Akwati (Box and Luggage Seller)	93	91	98	94
32	Mai Sai Da Kayan Miya (Soup stuff seller)	106	104	90	100
33	Mai Manja (Palm oil seller)	79	92	90	87
34	Mai Shinkafa (Raw Rice seller)	90	110	94	98
35	Mai Maganin Gargajiya (Traditional Medicine Seller)	97	90	90	92
	Total				3465

Source: Researchers' Fieldwork (2024)

Table 6: Sample Size for the Study

Street Trading Clusters	Street Trading Points	Street/Non-Street Traders Daily	10% of Street/Non-street traders (Sample Size)
Usman Shehu Abubakar Way	35	3,465	347
Herwa Gana Road	32	3,213	321
Id el-Fitr Road	30	3,022	302
Total	97	9,700	970

Source: Researchers' Fieldwork (2024)

structured questionnaires administered to street and non-traders to examine their socioeconomic characteristics. A camera was used to capture images of street trading activities and trader set-ups. Manual count forms were also used to record traffic volume data. Statistical Package for Social Sciences (SPSS) was used for statistical analysis, while ArcGIS version 10.6 was used to determine the extent of the Central Business District of Gombe metropolis. The questionnaire administration

was conducted with the help of ten (10) field assistants in thirty (30) days using the simple random sampling technique. The time of administration was between the hours of 6am to 6pm. The field assistants and the researchers were each allocated specific street trading points to administer the questionnaires. The languages used during the questionnaire survey were Hausa, English, and Pidgin in order to eliminate communication barriers during the field survey. To determine the level of traffic

volume in the study area, traffic counts were conducted from 6am to 6pm. To confirm the consistency of the variables being examined, a pilot survey was conducted in some selected street trading points within the three street trading clusters chosen for the study. The copies of questionnaire were administered to various street and non-street traders over the course of one weekend using the test-retest approach, and were administered a second time the following weekend to validate the quality of the questions and responses. The study tools and the variables being measured were deemed reliable since the replies and scores were similar between the first and second questionnaire administrations. The academic supervisors of the Department of Urban and Regional Planning at Abubakar Tafawa Balewa University in Bauchi evaluated the copies of questionnaire based on their expertise. A total of 970 copies of the questionnaire were administered to street and non-traders in the three street trading clusters in Gombe CBD. However, only 939 were duly completed and returned, representing a response rate of 96%.

RESULTS AND DISCUSSIONS

These attributes include age of street traders, marital status, monthly income, sex, and level of education in Gombe CBD. It was important to capture this information for the purpose of designing intervention measures. According to Table 7, about 66% of the respondents are male, while 34% are female. Street trading in Gombe Central Business District is a male dominated activity and it can be inferred from the findings that there is a low percentage of female participation in street trading activities, which may suggest that women face barriers or limitations in accessing opportunities in the street trading business in Gombe CBD. This is in affirmation with the study of Baliyan and Srivastava (2016) which confirms that women are less mobile and more fearful about social sanctions. Hence, they tend to be more risk-averse than men and more conservative in their choice of investment projects. Furthermore, there is a likelihood that cultural and social norms also prevent women from participating in street trading activities, either by buying the street goods or possessing ownership of a street trading point. Majority of the respondents were married which accounted for 58%, while 26% were single and 16% were either separated or divorced. Culturally, especially in Northern Nigeria, married women have limited freedom

to move around and engage in street trading, particularly if their husbands disapprove of it. Ironically, societal expectations may perceive street trading as a masculine venture, which may discourage, to some degree, the participation of intending female street traders. Divorced women may engage in street trading in order to fend for their children and also face the harsh economic realities after the demise of their spouse. Married women may have more family responsibilities and for this reason, they may find it difficult to engage in street trading. This is in affirmation to Cloete *et al.* (2023) that most of the street traders engage in the activity to supplement family income. The income level of the street and non-street traders in the study area indicates that about 0.5% earn between 1 to 30,000 Naira only. Another set of respondents claimed they earn within the range of 30,001 to 60,000 Naira. The remaining respondents claimed they earn 60,001 – 90,000 (34.4%), 90,001 – 120,00 (45.5%) and 120,001 and above (16.9%) respectively. It could be inferred from these findings that street trading business is lucrative in Gombe Central Business District as about 62.4% of the respondents earn above the minimum wage in Nigeria. Street trading is a major source of income for certain households and for this reason there is tendency of an increase in this venture in the future (Herman & Harwina, 2023). The majority of respondents (75%) were between the ages of 19 and 42 years. This was attributed to the declining formal jobs for the youth in Nigeria. Hassan (2003) in a similar study found that those who engage in street trading activities had an age range of 20-45years. This implies that this working age groups are more engaged in street trading activities in Gombe CBD. In terms of level of education, majority of the sampled respondents (66%), who engage in the purchase or rendering of street trading services, had either primary or secondary education. About 24% have tertiary education, while those with no education or non-formal education accounted for 5% of the responses respectively. Street traders will higher educational qualifications such as University diplomas and bachelor's degrees may engage in street trading activities that require technical skill and knowledge. In contrast, those will little or no education may have to learn the art of street trading through apprenticeship and mentorship. Akpan and Uford (2024) confirmed that one of the socioeconomic determinants of practitioners of street trading is their low educational background.

Table 7: Socioeconomic Characteristics of the Street Trading Practitioners

Status	Frequency	Per cent
Marital Status		
Single	244	26
Married	545	58
Divorced/separated	150	16
Total	939	100
Gender		
Male	620	66
Female	319	34

Total	939	100
Income (monthly)		
< 30,000	5	0.5
30,001 – 60,000	25	2.7
60,001 – 90,000	323	34.4
90,001 – 120,000	427	45.5
120,001 and Above	159	16.9
Total	939	100
Age Distribution		
12-18	94	10
19-24	141	15
25-30	131	14
31-36	225	24
37-42	207	22
43-48	75	8
49 and Above	66	7
Total	939	100
Level of Education		
Primary	272	29
Secondary	348	37
Tertiary	225	24
Non-formal	47	5
No Education	47	5
Total	939	100

Source: Researcher's Fieldwork (2024)

Traffic Volume and Time Delay in the Sampled Street Trading Clusters

The correlation analysis presented in Table 9, indicates a positive correlation between traffic volume and vehicular time delay in Gombe CBD. The mean score for traffic volume is 4.25, with a standard deviation of 0.85,

suggesting that respondents perceive traffic volume to be high. The vehicular time delay has a mean of 4.10 and a standard deviation (SD) of 0.90, indicating that time delays are also significant. The correlation coefficient (r) of 0.65 signifies a moderate to strong positive relationship between traffic volume and vehicular time delay. This

Table 8: Traffic Volume and Time Delay along the Three Street Trading Clusters

Time Delay Duration	Street Trading Clusters		
	Usman Shehu Abubakar Way	Herwa Gana Road	Id el-Fitr Road
6:00 - 6:59 am	146	215	77
7:00 – 7:59 am	223	246	134
8:00 – 8:59 am	225	207	221
9:00 – 9:59 am	239	235	309
10:00 – 10:59 am	251	275	314
11:00 – 11:59 am	205	291	280
12:00 – 12:59 pm	244	231	214
1:00 – 1:59 pm	100	155	185
2:00 – 2:59 pm	271	350	257
3:00 – 3:59 pm	310	355	351
4:00 – 4:59 pm	410	373	627
5:00 – 5:59 pm	406	234	381

Source: Researcher's Fieldwork (2024)

suggests that as traffic volume increases, the time delay experienced by vehicles also tends to increase (Idris *et al.*, 2018). This finding highlights the interconnectedness of traffic volume and traffic delay, emphasizing the need

for effective traffic management strategies to mitigate the adverse effects of high traffic volume on vehicular movement within the street trading points in Gombe CBD.

Table 9: Correlation of Traffic Volume on Vehicular Time Delay

Variable	Mean	S.D	Traffic Volume	Vehicular Time Delay	Correlation Coefficient (r)
Traffic Volume	4.25	0.85	1.00	0.65	Positive Correlation
Vehicular Time Delay	4.10	0.90	0.65	1.00	Positive Correlation

Source: Researcher's Fieldwork (2024)

CONCLUSION

The study on street trading points and traffic volume dynamics in Gombe Central Business District reveals a complex relationship between informal economic activities and urban traffic volume. The findings highlight the need for effective urban planning and management strategies to mitigate the negative impacts of street trading on traffic flow. To achieve this, policymakers and urban planners should consider implementing designated street trading zones, improving infrastructure, and enhancing public transportation systems. Additionally, engaging with street traders and understanding their needs and concerns can help develop solutions that balance economic opportunities with traffic management. By adopting a nuanced approach, Gombe Central Business District can reduce traffic congestion, promote sustainable development, and support the livelihoods of street traders. Ultimately, this study contributes to a better understanding of the dynamics between street trading and traffic volume, informing evidence-based solutions for a more efficient and livable urban environment.

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