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Determinants of Accessibility to Markets in Ibadan, Nigeria

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ABSTRACT

Shopping as an activity involves the purchase of daily needs. Easy access to the markets is required to enjoy the numerous products being sold. This study examines the accessibility of shoppers to markets in Ibadan, Nigeria. The study randomly selects 15 out of 59 political wards in the five local government areas that constitute the metropolitan area of Ibadan for survey. The study employed systematic random sampling technique to select respondents in the selected wards for questionnaire administration. A structured questionnaire was administered on one household head in each of the selected buildings for sampling. The total of 883 questionnaire were administered out of which 810 that were properly filled were used for the analysis. The findings reveal that disparity exists in the number and types of market in different parts of the city. The majority of respondents shop in organized markets although indigenous people prefer to shop in traditional markets while the rich and foreigners shop in supermarkets. The majority of respondents travel up to 8km, spent about 2 hours and commute in public transport on shopping trip. The logistic regression model result indicates that the coefficients of mode of transport (β = 3.157; $p \leq 0.01$), distance travelled (β = -2.233; $p \leq 0.01$), travel time (β = -1.998; $p \leq 0.01$), transport fare (β = 1.333; $p \leq 0.01$) and gender (β = -0.504; $p \leq 0.05$) statistically and significantly determine accessibility of shoppers to markets in Ibadan. The study concludes that shoppers have moderately high accessibility to markets in the study area.

Key Words: Accessibility, Markets, Shopping centres, Shoppers, Commercial centre

1. INTRODUCTION

Mobility and quality of life are some of the most challenging issues that the development process of a city must take into account (Rodrigues, Ramos and Tobias, 2016). This is because the urban public facilities and services are essential to improve the quality of life of citizens. The socio-economic activities such as workplace, education, health, shopping and recreation are spatially distributed in cities and are beneficial to the well being of the people. One of the most important activities is shopping. The shopping centre or market is a private space used by the public (Capron, 2002). People visit markets to purchase items such as food, drinks, clothing, electronic etc. to meet their daily needs. Yusof et al (2011) identified five categories of shopping centres which include neighbourhood, community, regional, super-regional and special centres. In addition, a typical African city and Nigeria in particular has traditional, periodic and night markets along with the earlier mentioned categories of shopping centres where people shop for items needed for their consumption. These shopping centres offer varied range of products to the populace. Shopping centres that offer wider range of products are more attractive because they allow consumers to buy many different kinds of goods without spending much time and money commuting between shops (Brandao, Correia da-Silva and Pinho, 2010).

Shoppers' access to the spatially distributed markets is important for their sustenance and economic productivity of the

city. Accessibility analysis is based on the measurement of distance between populations and amenities (Hewko et al, 2002). Accessibility is the ease with which residents of a given location can reach different types of facilities. This requires that some form of spatially operating sources of friction like time and/or distance be overcome (Ingram 1971). Accessibility increases where good levels of socio-economic interactions are assured (Handy and Niemeier, 1997). Most of the markets and shopping centres are located at the centre in cities (Rivera and Tiglao, 2005). This made the central business district (CBD) to contain most of employment and retail activities thereby making it the focus of both work and non-work travel. The location of activities and destinations has impact on accessibility and should be done such that it provides access to residents irrespective of their locations within the city.

Several studies have been conducted to measure spatial accessibility of facilities to users in cities. The spatial accessibility of school to students was measured by (Truelove, 1993), public parks (Wojuade, 2017; Bakar, Malek and Mansor, 2016; Karusisi et al, 2013 & Talen, 1998), health facilities (Kwaku, 2008 & Melhado, 2007) and workplaces (Primerano and Taylor, 2005 & Handy and Clifton, 2000). Furthermore, spatial accessibility of shopping centres to shoppers was measured by (Mamun et al, 2014; Yusol et al, 2011; Smith et al, 2010 & Song and Sohn, 2007). The available studies on spatial accessibility of shopping centres focused more on developed countries. There are few studies on developing countries but none was conducted in Nigeria. As a result, the aim of this study is to examine the level of accessibility of shoppers to markets in Ibadan, Nigeria. The study identifies the distribution of markets within the city, socio-demographic and transport attributes of shoppers and factors determining accessibility to markets.

2. LITERATURE REVIEW

The empirical study on accessibility of commercial activities to consumers' in cities reveals that distance between homes and markets, travel time and cost and socio-economic characteristics of shoppers' are the major determinants. The literature established that there is difference in the level of accessibility to these facilities among the residents. Jordaan (1997) evaluates the accessibility of rural dwellers in Mokerong II in South Africa to socio-economic facilities using travel time by public transport and distance travelled to socio-economic facilities under an hour as the measure of accessibility. The study posits that about half of the inhabitants fall below the stipulated measure of accessibility, which indicates a low accessibility among the rural inhabitants in this area. The low accessibility to socio-economic facilities experienced was due to low economic status of the rural inhabitants. Also, Kanth (2003) observes imbalance in the distribution of economic activities within Cape Town even though these economic activities are decentralised. Travel pattern of commuters in low and middle income suburbs shows dependence on taxi and bus transport modes while the high income suburbs are highly dependent on private vehicles. The study concludes that high income suburbs have access to highest number of economic activities while low income suburbs have access to lowest number of activities on the average within the standard considered for the study. The need for integrated land-use transport planning approach is stressed to improve accessibility to economic activities in the study area.

Furthermore, Halden (2002) employ quantitative and qualitative approaches to measure the level of accessibility to service provision in the rural areas of Scotland using travel time, patterns of accessibility to other settlements, shopping opportunities and regional health care facilities. He conclude that the need for improved coordination of rural transport services be

considered as a high priority in the study area. Another study by Smith et al (2010) investigates the variations in spatial accessibility to grocery stores based on neighbourhood deprivation in urban and rural areas using travel time along road network in Scotland. The result reveals that the most deprived neighbourhoods have the best accessibility to grocery stores and stores selling fresh fruit and vegetables due to shorter commuting time. Also, the stratified analysis of locations indicates that the least deprived neighbourhoods have better accessibility to grocery stores in urban neighbourhoods than their counterparts in island, small town and rural areas.

The accessibility to commercial centres reveals that shorter distance increases access to the centres. Song and Sohn (2007) in measuring the spatial accessibility to retail centre of household in single family houses in Hillsboro, Oregon, indicates that houses with a higher level of accessibility to retail services are more expensive and this fall with increasing distance from the commercial centre. This shows the importance of location of retail activities in relation to residence of consumers. Reimers and Clulow (2004) examine the extent of retail concentration between shopping centres and shopping strips using spatial convenience, methods of achieving spatial convenience and spatial juxta-positioning of shopping centres in Victoria, Australia. The finding shows that across the three measures of retail concentration shopping centre offers shoppers greater spatial convenience in the form of one-stop shopping, greater selection of shopping services and extended trading hours. The demise of shopping strip could be linked to its inability to satisfy the needs of a convenience-oriented society while the shopping strip may be at a competitive disadvantage in terms of spatial convenience, market mechanisms such as Bid Rent Theory provided a better-than-expected spatial juxta-positioning of its businesses especially as one moves inwards from the periphery to the core of the shopping strip. This finding implies that accessibility in terms of distance, time, cost and mode of transport and wider availability of products influence consumers access to the shopping centres.

Yusof et al (2011) analyze the locational pattern and economic impact of shopping centres in Klang Valley, Kuala Lumpur. They classified the shopping centres in Klang Valley into five: neighbourhood, community, regional, super-regional and special centres. These shopping centres vary depending on distance, travel time and range of products being sold, captured market and areas of service. The majority of the 96 shopping centres especially super-regional and regional centres are concentrated within Kualar Lumpur's golden triangle, central business district as well as the western and eastern part of the city thereby strengthening the economic development of these zones by attracting local and international shoppers. Shopping is confined to only community and neigbourhood shopping centres in the northern and southern part of the city thereby making the prospect of economic development to look slow. This finding indicate that shoppers in some part of the city have better accessibility to shopping centres with a wide range of products than other areas. Mamun et al (2014) determined the trip attraction rates of small and medium shopping centres located at Dhanmondi, Gulshan and Siddeswari within Dhaka city. They found that the average attraction for small shopping centres is much higher than the medium size shopping centres using 1000 square feet gross floor area, per 100 employees per shop and per 10 parking space. The variation is likely influenced by accessibility of shoppers to the commercial centres in terms of travel distance, time and cost.

The reviewed literature shows that distance, transport and socio-demographic characteristics of shoppers play an important role in the coordination of spatially distributed activities in cities.

There exist disparity in accessibility of markets to people living in different part of cities. This reduces the utilization of these facilities and lowers the standard of living of inhabitants. Studies on accessibility of residents to markets in developing countries are rare which necessitate this study.

3. MATERIALS AND METHODS

The study was conducted in Ibadan the capital of Oyo State, Nigeria. Ibadan is located at a distance of 142km from Lagos the commercial centre of the country and 659km from Abuja, the federal capital territory. The city covers a total land area of 3,080 square kilometres. The city is an important political, social, educational, commercial, recreational, health and administrative centre in the country. Ibadan being an ancient town has many traditional and modern markets where resident shop for their daily needs. The municipal area comprising of Ibadan north, Ibadan northeast, Ibadan northwest, Ibadan southeast and Ibadan southwest local governments was adopted as the study area. The five local government areas have a population of 1,343,147 (NPC, 2007). The commuters rely essentially on private sector run para-transit modes like mini bus, taxi, tricycle and motorcycle to satisfy their travel needs. This has been adjudged to have low occupancy capacity and grossly inadequate to move the city population adequately.

This study employed primary data to obtained necessary information on shoppers' accessibility to markets in the study area. The five local governments have 59 political wards out of which 15 were randomly selected (3 in each local government) for the questionnaire survey. Systematic random sampling technique was employed to select sample because the buildings lack adequate numbering and record of streets were absent. The first building to be sampled was selected randomly between the 1st and 20th building and starting with that number every 20th building was subsequently selected following the line of accessibility. One household head in each of the selected buildings was sampled. The total of 883 questionnaire were administered on the respondents out of which 810 questionnaire that were correctly filled were used in the analysis. The respondents provided information on market they shop for their basic needs, socio-demographic and travel attributes.

This study adopted distance, travel time and transport cost to measure accessibility of residents to markets in the study area. The aggregate of these factors determine the level of accessibility of shoppers to markets. The first category assigned (0) has value equal or less than median score while the second category assigned (1) has value greater than median score. The summation of the scores in each category was used to define accessibility with those having two or less allocated (0) indicating low access while those having three allocated (1) indicating high access. This study employed logistic regression model to ascertain the factors influencing accessibility of shoppers to markets. The probability of an event occurring or not occurring is usually between 0 and 1. The mathematical form of logistic regression model is expressed as:

$$\pi = \frac{e^{\alpha + \beta_{1x1} + \beta_{2x2} + \ldots\beta_{nxn}}}{1+e^{\alpha + \beta_{1x1} + \beta_{2x2} + \ldots\beta_{nxn}}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\text{(i)}$$

π - probability of the outcome of interest/event

α - Y intercept

β - regression coefficient

x - predictors

e - 2.71828 base of the system of natural logarithm

The computed values for this study are as follows:

Y = accessibility (Dummy = 1 if high, otherwise = 0)

X_1 = gender of respondent (Dummy = 1 if male, otherwise = 0)

X_2 = age in years

X_3 = household size

X_4 = educational level (Dummy =

1 if educated, otherwise = 0)

X_5 = monthly income in Naira

X_6 = vehicle ownership (Dummy = 1 if own vehicle, otherwise = 0)

X_7 = mode of transport (Dummy = 1 if travelled in private vehicle, otherwise = 0)

X_8 = distance travelled in kilometre

X_9 = fuel consumed in litres

X_{10} = transport fare in Naira

X_{11} = travel time in minutes

The STATA statistical analysis software version 11 was used to analyse the data. The logistic regression coefficients are estimated using the maximum likelihood method. Also, descriptive statistics such as tabulation and graph was used to analyse the socio-demographic characteristics and travel attributes of the respondents. The findings of the questionnaire survey were discussed moving forward.

4. RESULTS AND DISCUSSION

4. 1 Distribution of markets

There were predominantly traditional, organized, periodic and night markets and supermarkets in the study area where buying and selling take place everyday. The distribution of markets in the study area is shown in table 1. The analysis showed that 13 markets each were located in Ibadan North and Ibadan Southwest local government. The local government areas recorded the highest number of market possibly due to their large population and land sizes. The local governments have well organized modern markets such as Bodija, Agbowo, Aleshinloye and Sango which residents patronise for their daily needs. Also, Northwest local government has 10 markets and Southeast local government has 11 markets respectively while Northeast local government has the least number of markets in the study area. This local government housed mostly traditional markets some of which are Oje, Beere, Agugu and Labo.

Table 1: Distribution of markets

Local government	Market
North	13
Northeast	7
Northwest	10
Southeast	11
Southwest	13
Total	**54**

The analysis of market where shopping is done by respondents in figure 1 reveals that 43.8 per cent patronised organized markets. This is due to the fact that organized markets provide wider variety of goods and products to the shoppers than other types of market. They sell raw and canned food, clothing, plastics, electronics, fruits and baby toys. This is followed by traditional markets where 27.3 per cent shop for their daily needs. Traditional markets sell mostly foodstuffs and the prices of goods are relatively cheap. Most of the indigenous people prefer to shop in this market due to proximity and cheap prices. Furthermore, those that shop in supermarkets account for 17.5 per cent. This set of shoppers is mostly elite, rich and foreigners who reside in the city. The prices of goods were expensive in supermarkets compared to any other markets in the study area. The reasons are due to the level of hygiene that is maintained in supermarkets, imported goods are mostly sold, employees are paid and the high cost of rent or constructing the buildings. All these conditions are rarely found in other markets except the organized market. The periodic market usually holds every five days interval. This market accounts for 8.4 per cent of the shoppers in the study area. They sell special traditional items such as local mats, beads, traditional attires as well as foodstuffs. Finally, night markets account for the least where only 3.0 per cent of respondents shop. This market is more common in the indigenous areas and is mostly patronised by those who returned home late from work in the night.

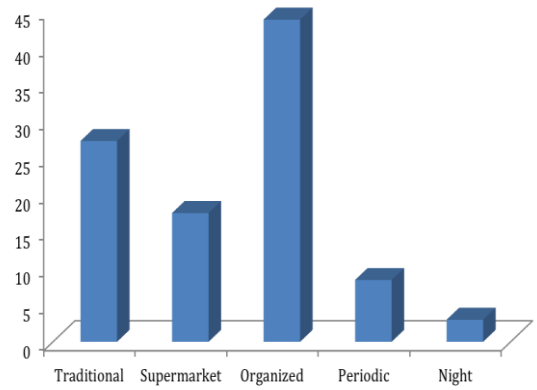

Figure 1: Types of market

4.2 Socio-demographic characteristics of respondents

The socio-demographic characteristics of shoppers are as indicated in table 2. The finding reveals that 69.9 per cent of the respondents were male while the remaining 30.1 per cent were female. This means that a large percentage of households surveyed were male heads. The age structure of the respondent's show that 11.2 per cent were less than 30 years old. This age bracket accommodates majority of spinsters and bachelors and or new couples. The majority of respondents 80.2 per cent are adult within the age bracket of 31-60 years old. They are mostly married and have children. The remaining 8.5 per cent are aged respondents above 60 years old. The majority of those sampled were above 30 years old indicating that they were mature adults who have high likelihood of engaging in shopping activities in the study area. The household size of respondents reveals that 1-2 persons account for 9.3 per cent in the study area. The most prominent household size is 5-6 person's family members accounting for 32.2 per cent. Furthermore, household with more than 8 persons account for as high as 16.2 per cents of those sampled. The household size is high which demonstrated similar trend as in most developing countries. The household size of respondents has impact on their accessibility to socio-economic facilities. The level of education can influence travel behaviour of respondents and their accessibility to different activity areas within the city. The educational attainment of respondents reveals that 8.1 per cent had no formal education. The result of those that have formal education indicate that 75.5 per cent have either secondary or tertiary education which indicate high literacy level among the sampled respondents. The presence of many educational institutions and the study area being a city, may be responsible for the high literacy level.

Table 2: Socio-demographic characteristics of respondents

Variable	Frequency	Per cent
Gender		
Male	566	69.9
Female	244	30.1
Total	**810**	**100.0**
Age		
Less than 30 years	91	11.2
31 – 40 years	227	28.0
41 – 50 years	256	31.6
51 – 60 years	167	20.6
Above 60 years	69	8.5
Total	**810**	**99.9**
Household size		
1-2 persons	75	9.3
3-4 persons	167	20.6
5-6 persons	261	32.2
7-8 persons	176	21.7
Above 8 persons	131	16.2
Total	**810**	**100.0**
Education		
No formal education	66	8.1
Primary education	132	16.3
Secondary education	278	34.3
Tertiary education	334	41.2
Total	**810**	**99.9**
Income		
Below ₦50,000	442	54.5
₦50,001 - ₦100,000	165	20.4
₦100,001 - ₦150,000	103	12.7
₦150,001 - ₦200,000	31	3.8
Above ₦200,000	34	4.2
Unemployed	35	4.3
Total	**810**	**99.9**
Vehicle ownership		
Own vehicle	387	47.8
No vehicle	423	52.2
Total	**810**	**100.0**

US$1 = ₦365

The income distribution of respondents reveals that 24.4 per cent earn below ₦50,000 monthly. The result further reveals that 20.4 per cent earn between ₦50,001-₦100,000, 12.7 per cent earn between ₦100,001-₦150,000 while only 8 per cent earn above ₦150,000 monthly income in the study area. The vehicle ownership by respondents indicates that minority 47.8 per cent own vehicle while the remaining 52. 2 per cent do not own any

vehicle. This result implies that majority of the residents depend on public transport for their mobility in the study area. This may likely affect their accessibility to activity areas in terms of travel time and ease of movement.

4.3 Travel attributes of respondents to markets

The travel attributes of respondents to market are documented in table 3. The result indicates that 39.5 per cent travel below 4km to the markets. Also, the result shows that 30.7 per cent travel between 4km-8km, 15.9 per cent travel between 8km-12km while the remaining 12.8 per cent travel more than 12km to markets. The result reveals that more than 70 per cent of the respondents travel less than 8km to markets. This suggests that respondents travel short distance to the markets. The mode of transport used to commute to markets reveal that 29.5 per cent of the respondents commute in private vehicle.

Table 3: Travel attributes of respondents to markets

Variable	Frequency	Per cent
Distance travelled		
Below 4 km	320	39.5
4 - 8 km	249	30.7
8 - 12 km	129	15.9
12 - 16 km	78	9.6
Above 16 km	34	4.2
Total	**810**	**99.9**
Mode of transport		
Private car	239	29.5
Taxi	127	15.7
Bus	211	26.0
Motorcycle	119	14.7
Trekking	114	14.1
Total	**810**	**100.0**
Travel time		
Below 1 hour	393	48.5
1 - 2 hours	342	42.2
2 - 3 hours	63	7.8
3 - 4 hours	12	1.5
Total	**810**	**100.0**
Transport fare		
Below ₦100	73	17.1
₦100 - ₦200	259	60.5
₦200 - ₦300	77	18.0
Above ₦300	19	4.4
Total	**428**	**100.0**
Fuel consumed		
Below 5.0 litres	157	58.6
5.1 – 10 litres	106	39.6
Above10 litres	5	1.9
Total	**268**	**100.1**
Accessibility		
Low	377	46.5
High	433	53.5
Total	**810**	**100.0**

Furthermore, 56.4 per cent commute in commercial vehicles while the remaining 14.1 per cent trek to the markets. The result indicates that majority of the respondents depend on public transport to commute to markets.

The duration it took respondents to travel to markets indicates that 48.5 per cent spent below 1 hour on each trip to market. The result further reveal that 42.2 per cent spent between 1-2 hours while the remaining 9.3 per cent spent more than 3 hours on each trip to market. This result indicates that majority 90.7 per cent of the respondents spent below 2 hours on each trip to market. This result is in agreement with short distance travel to the markets by respondents. The transport fare paid by respondents that commute in public transport to markets shows that majority 60.5 per cent paid between ₦100-₦200 on each trip to market. The result further reveals that 17.1 per cent paid below ₦100, 18 per cent paid between ₦200-₦300 while the remaining 4.4 per cent paid more than ₦300 as transport fare on each trip to market. The pattern of fuel consumption by vehicles of respondents that commute to markets in private cars show that 58.6 per cent consume below 5 litres, 39.6 per cent between 5.1-10 litres and the remaining 1.9 per cent consume more than 10 litres on each trip to market. The findings reveal that majority of the respondents' vehicles consume less than 5 litres on each trip to market. The analysis of accessibility of market to respondents indicates that 53.5 per cent have high accessibility while the remaining 46.5 per cent have low accessibility. This result shows that slightly above half of the respondents has high accessibility to markets in the study area. This implies that something must be done to improve their level of accessibility.

4.4 Factors influencing accessibility of shoppers to markets

The result of logistic regression model is reported in table 4. The negative maximum log likelihood -295.077 has a good fit between the model and the data.

The logistic regression model is significant at $p \leq 0.05$. The R^2 value indicates that 45.2 per cent of variance in accessibility of markets in the study area was accounted for by the determinant variables. The coefficients of mode of transport (X_7) and transport fare (X_{10}) have positive effects while gender (X_1), distance travelled (X_7) and travel time (X_8) have negative effects on accessibility of shoppers to market in Ibadan.

The analysis of regression coefficients reveals that mode of transport (β = 3.157; $p \leq 0.01$) has the greatest influence on accessibility to market. The result implies that commuting in private vehicles increase probability of accessibility to market by 3.157 in the study area. Also, the regression coefficients show that distance travelled (β = -2.233; $p \leq 0.01$) has huge impact on accessibility to markets in Ibadan. The result indicates that for every unit increase in distance travelled, there is a significant and corresponding decrease of 2.233 in probability of accessibility to market. The result suggests that increase in distance travelled by the shoppers would reduce accessibility to market. Furthermore, the coefficient of travel time (β = -1.998; $p \leq 0.01$) influences accessibility to market in the study area. The result reveals that for every unit increase in travel time there is a significant and corresponding decrease of 1.998 in probability of accessibility to market. This means that as travel time increases accessibility to market decreases. Therefore shorter travel time should be encouraged to have higher accessibility to market. Another factor that determines the accessibility to market is transport fare. The regression coefficient reveals that transport fare (β = 1.333; $p \leq 0.01$) has influence on accessibility to market. The result implies that for every unit increase in transport fare there is a significant and corresponding increase of 1.333 in probability of accessibility to market. The implication is that increase in transport fare enhances accessibility to market. The explanation for this is that commuting in transport mode such as private car or chartered vehicle that comes at higher cost has the probability of increasing accessibility to market than commuting in the general public transport. Finally, gender of the shoppers determines their accessibility to market. The regression coefficient reveals that gender (β = -0.504; $p \leq 0.05$) influences accessibility to market. The result implies that being a female shopper reduces the probability of accessibility to market by 0.504 in the study area. This result affirmed the findings of Kwan (1998) that men have accessibility to more opportunities than women in Kentucky region in the United States.

Table 4: Logistic regression coefficients of factors influencing accessibility of shoppers to markets

Independent variable (X_i)	Coefficients/ log odds β	Standard error	Z value	Sig. Z
Gender (X_1)	-0.504*	0.237	-0.080	0.033
Age (X_2)	0.122	0.089	0.018	0.171
Household size (X_3)	-0.058	0.091	-0.009	0.525
Educational level (X_4)	0.443	0.343	0.058	0.197
Monthly income (X_5)	0.013	0.081	0.002	0.876
Vehicle ownership (X_6)	0.248	0.333	0.037	0.455
Mode of Transport (X_7)	3.157**	0.822	0.593	0.000
Distance travelled (X_8)	-2.233**	0.242	-0.332	0.000
Fuel consumed (X_9)	-0.299	0.306	-0.045	0.328
Transport fare (X_{10})	1.333**	0.197	0.198	0.000
Travel time (X_{11})	-1.998**	0.257	-0.297	0.000
Constant	3.771	0.641		0.000
R^2	0.452			
Maximum log. Likelihood		-295.077		
Notes: $N = 810$ *$p \leq 0.05$; **$p \leq 0.01$				

5. CONCLUSION

This study examines the accessibility of shoppers to markets in Ibadan, Nigeria. The finding reveals that there is disparity in the distribution of markets in different parts of the city. The modern, well-planned areas

tend to have organized markets and supermarkets while the indigenous core areas are characterised by traditional and periodic markets. Furthermore, most of the shoppers have to travel up to 8 km to their desired markets in order to purchase needed products. This takes them about 2 hours in journey time and they mostly commute in public transport to the markets. The result of logistic regression model indicates that mode of transport, distance travelled, travel time, transport fare and gender of shoppers are the determinants of accessibility of shoppers to markets in the study area in that order respectively. Based on the findings, the study concludes that shoppers have moderately high accessibility to markets in Ibadan.

This calls for policy decision that can improve spatial distribution of markets and public transport systems in the study area. This will make shoppers to have better access to markets where they can purchase their daily needs with ease. The study suggests that the city government should address the lopsided distribution of markets and shopping centres especially in the core areas that lack organized markets so that it will be located within short distance to them. This may sound not economical because they shop mostly in traditional markets but easy access to these shopping centres can serve as motivation and encourage them to patronise organized markets. Also, due to increase in spatial size and population in the city for the past few decades, there is need to provide more organized markets in the new areas to reduce distance and travel time to the markets. This will increase shoppers' accessibility to markets and also boost the economic base of the city. The public transport in operation should be re-organised for better performance in transporting passengers within the city.

This study could be improved upon by conducting further research on other factors that influence accessibility to markets but were not included in this study. This will enhance our understanding of how other factors influence accessibility to markets in cities.

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