RESEARCH PAPER

THE PRESENCE AND IMPACT OF URBAN ROAD CORRIDOR COMMERCIALIZATION ON ABUTING BUILDINGS: THE CASE OF EJISU, GHANA

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ABSTRACT
A prevailing characteristic of the 21st century has been the high rate of urbanization of 3.6 per cent in developing countries. This rate has propelled an influx of varying commercial activities along road corridors in urban settlements. The study investigated the factors responsible for the presence of road corridor commercialization and their impacts on buildings within the corridors, using Ejisu, an urban area in Ghana, as the case. The study adopted the mixed method approach in gathering data. The findings revealed that, the factor 'Attraction of potential buyers along the corridor' was the primary driver, followed by 'Consistency with tradition'. Other factors responsible for the current intensity and volume of road corridor commercialization along Ejisu's portion of the N6 Highway included 'Limited space within the existing market' and 'Cost effectiveness'. The study also showed that the influx of informal commercial activities has great influence in attracting formal commercial activities along the corridor, which in turn influenced the changes in the forms and uses of the buildings within the corridor. The study unveiled that, most of the changes in the use of buildings were from residential uses to purely commercial uses and from residential uses to mixed-use buildings. In a time of mounting housing deficit in Ghana, this finding serves as a caution to city authorities.

Keywords: *Road corridor commercialization, building transformation, urbanization, Ejisu*

INTRODUCTION

The 21st century is characterized by an accelerated rate of urbanization induced by rapid growth of population and migration. Urbanization which was a predominant feature of the industrial age and which led to the developmental successes of the currently developed countries, has taken the central stage in developing countries too (Songsore, 2009). Globally, population is growing at a faster rate and it is associated with the changing trend of urbanization. According to the United Nations (2014), the world urbanization is growing at a rate of 2.05 per cent annually. However, developing countries have the highest urbanization growth rate at 3.6 per cent. Even though urbanization is inevitable, its rapidity in Africa is due extensively to the continent's demography rather

than its economic development.

Urban population in Ghana has cognizably increased from 43.8 per cent in 2000 to 50.9 per cent in 2010 (Ghana Statistical Service, 2012) and in 2017 it was 55.3 per cent (CIA World Factbook, 2018). Further projections put it at 63 per cent by the year 2030 based on the fact that any settlement of 5000 or more people is considered urban in Ghana (Ghana Statistical Service, 2012). It is asserted that Ghana's urbanization growth rate of 3.4 per cent which exceeds its population growth rate of 2.5 per cent, is mainly due to the transformation of its many rural areas to peri-urban areas and subsequently to urban areas without much transformation in economic development, but mainly due to increase in population. Thus, urbanization in Ghana is characterized by an outward expansion of the cities into peri-urban areas which in effect contributes to the changes in the pattern of land use. The creation of the peri-urban zones is as a result of the cities (urban areas) widening the scope of their activities into rural areas and defraying the extensive pressures on its physical development and rapid changing land use (Owusu, 2008).

Loughran and Schultz (2005) asserted that, rapid urbanization is associated with increase in commercial activities especially in the developing countries. Many people, especially the youth, move from the rural areas to the urban centres to find jobs. Many a time, these jobs are very difficult to come by in cities of developing countries (Brückner, 2012) and among the easiest self-employed or self-created jobs is commercialization: here, the act of buying and selling of goods (Acheampong and Anokye, 2013). Thus, the increase in population in the urban areas brings with it both the skilled and unskilled people who engage in varying commercial activities in order to ensure their survival. Most of these commercial activities are concentrated at where customers are mostly found including open market places, shopping mall areas and especially at major traffic intersections or corridors where movement of vehicles are slow such as at traffic lights, roundabouts and transportation terminals. The major roads within these urban centres become the call points and interaction areas where both the for-

mal and informal commercial activities are engaged in (Brückner, 2012; Bacolod *et. al*, 2010). This road corridor commercialization in Ghana has become an issue of major concern for many Metropolitan, Municipal and District Assemblies due to the challenges it poses. It has made major route corridors places of congestion, intense trader-pedestrian conflicts on walkways and vehicular-pedestrian conflicts due to the ever-increasing number of commercial activities present. Buildings along these corridors, with regard to their form and spatial usage, have also been impacted by these commercial activities (Yankson, 2007; Bndungu, 2013).

This study therefore investigated the factors responsible for the presence of these commercial activities (informal and formal) along the road corridors in Ghana, using the Ejisu portion of the N6 highway as the case. It also investigated their impacts on the buildings fronting the corridor with regard to their form and uses.

THEORETICAL CONSIDERATIONS
This section contains detailed literature to provide the theoretical basis for the study. The literature reviewed includes road classification in Ghana, the factors that contribute to road corridor commercialization and the influence of commercial activities on building development. Literature on Ejisu, the urban settlement selected as a case for the study, was also reviewed.

Road classification in Ghana
A road corridor is defined as the long stretch of passageway for motors (vehicular pathway) linking one place of specific importance to the other (Lukaski and Chylinski, 2016). According to Chaudhuri (2013), areas within major road corridors serve as the call points of urban centres, hence, must be appropriately managed to avoid the creation of chaotic environment. Classifications of roads are done on the basis of several variables such as spacing between lanes, speed, densities and saturation flow rate or the level of interruption of traffic flow (interrupted or uninterrupted routes) (Ghana Highway Authority, 2014). Roads are classified (as shown in Table 1) into several categories, including national routes or highways, inter-regional routes and regional routes which are a

mix of primary (major regional) routes and secondary (minor regional) routes (Wikipedia, 2017). Thus, the area of study, Ejisu's portion of the N6 highway is considered as part of a national route.

The rapid growth of urban areas and the transitioning of peri-urban and rural areas into urban areas coupled with the need to exchange goods (agricultural products) and services (commence and other specialized activities) have made road connectivity of various areas inevitable. However, road corridors in developing countries have an added phenomenon of attracting many commercial activities, especially the interrupted national and inter-regional routes that pass through urban areas. These interrupted routes create already available customers in the corridors for traders. The rate at which roads attract commercial activities is astronomical, hence the need for the requisite attention for its impacts including congestion, conflicts and physical development (mainly building development) along national and inter-regional routes' corridors (Little 1999).

According to Ghana Highway Authority (2014) most of the highways (national routes) that pass through urban areas in Ghana were originally streets in towns that have been expanded with additional lanes to help control the increasing vehicular traffic volumes. These road corridors are flanged by different building types and other structures just as their pre-existing streets were. Thus, many of the current national and inter-regional routes corridors continue to exhibit this unique characteristic of their pre-existing streets. The corridors of the national route (N6 Highway) passing through Ejisu and other urban areas in Ghana have been encroached upon by commercial activities and buildings. These activities have made these corridors a place of high competition for revenue optimization through petty trading or informal commercial activities (Brown, 2006) which also results in high land values.

Factors contributing to the rise of commercial activities along road corridors

Commercial activities in Ghana are categorized into two types: informal and formal commercial activities (Solomon-Ayeh *et. al.*, 2010). According to Kessides (2006), informal commercial activities refer to commercial activities which are mainly or partially outside the jurisdiction of any governing body's observation, taxation and regulation. These commercial activities mostly take place in simple structures

Table 1: Classification of road networks in Ghana

Class of Road	Definition
National Routes (Highways, Motorways or international roads).	These are roads which are intended only for motor vehicles. They are integral part of road connectivity with neighboring countries and are established through regional plans. They form trunk routes between major urban centers and are also the backbone of the country's road system.
Inter-regional Routes	These are roads that connect major settlements and regional capitals or areas with high commercial concentration of the nation.
Regional Routes	These are a mix of primary (major) and secondary (minor) routes that connect important centers and other public transport routes. Major regional roads serve as feeder roads to the national and inter-regional routes whereas minor regional routes serve as feeder roads connecting smaller towns to the national and major regional route network. Both include streets, dirt roads, small roads and multi-lane paved highways.

(Source: Adapted from Wikipedia, 2017)

(kiosks and on table tops), displayed in basins on the heads of traders and on the bare floor, along major road corridors (Yankson 2007), and on islands of roads and the pedestrian walkways (Oyinloye and Kufoniyi, 2013). The influx of informal commercial activities in urban centres is influenced by some key factors including attraction to customers, availability of access road, lack of suitable alternative, proximity to seller's home, cost effectiveness and limited spaces in existing markets. According to Yankson (2000) and Solomon-Ayeh *et al.*, (2011), the informal commercial activities thrive on the availability of customers and so the sellers always return to populated spaces even after being evicted. Since most informal sellers cannot secure stalls or have the financial means to do so, and with the lack of any suitable alternative space to settle and sell, they turn to access any road corridor where customers are gathered to trade (Yankson, 2000). Solomon-Ayeh *et. al.* (2011) also included proximity to the seller's home and cost effectiveness to their discussion. Since not all the sellers had sufficient funding to rent accommodation in the city centre where customers are found, the possibility of selling close to their homes and the cost effectiveness of renting in the city centre were also given some considerations.

Formal commercial activities, on the other hand, refer to commercial activities which operate under the regulation of a governing body and are tax compliant. These activities are mostly engaged under organized structures, within constructed commercial or mixed-use buildings and with the appropriate registration (Shankar and Vidhya, 2013; Yankson, 2007; Kessides, 2006). The factors that contribute to the flourishing of formal commercial activities in these corridors include the very influx of informal commercial activities, availability of facilities such as parking spaces, rentable spaces and utilities in commercial buildings and the public demand for their goods and services. The influence of the informal commercial activities is felt in all city centres in Ghana (Bndungu, 2013), accounting for 96 per cent of all commercial activities in the country (African Powers of Retailing, 2015) and serving as the backbone of the country's formal commercial activities. The availability of

facilities at city centres, especially at commercial areas, was also affirmed by Jekanowski and Binkley (2001) to be an important factor responsible for the rise of formal commercial activities. Such facilities include parking spaces for service vehicles and customers, retable spaces and utilities such as energy and water. Public demand for the goods and services is another crucial factor that substantially influence the rise of formal commercial activities.

The influence of commercial activities on building development
The influx of commercial activities in urban centers greatly contributes to the changing dynamics of physical development. It influences the changing of streetscapes and skylines of urban areas (Eludoyin *et al.*, 2011). Changes in Building Uses and Transformations (BUT) is inevitable, though it is not instantaneous but usually takes place over a period of time. The drivers of change in building uses can broadly be categorized into planning regulations, natural occurrences/force majeure, tenants'/customers' requirements, building owners' preferences, the buildings' character and location and the prevailing economic activities (Oyinloye and Kufoniyi, 2013; Shankar and Vidhya, 2013; Kironde 1994; Eludoyin *et al.*, 2011; Lupala 1996; Lupala, 2002).

Ejisu: The study area
Ejisu, the administrative center of the Ejisu-Juaben Municipality in the Ashanti Region of Ghana, is located 16.3km to the east of Kumasi, the capital of the Ashanti Region. It is 236.2km from Accra, the capital of Ghana. Fig. 1 shows the maps of Ghana and the Ashanti region with the National route named N6 Highway inserted. Ejisu is found at the geographical coordinates of 6°43′ 0″ N and 1°28′ 0″ W. It accommodates 3.42km portion of the N6 highway (as shown in Fig. 2) that links Accra and Kumasi (Google Map, 2018).

The Ejisu-Juaben Municipality has a population of 143,762; males account for 66,648 (47.8 per cent) and females, 75,114 (52.2 per cent) (Ghana Statistical Service, 2012). It attained an urban status in 2009, though portions of its locality still exhibit traits of peri-urban area and therefore still perceived as such. The popu-
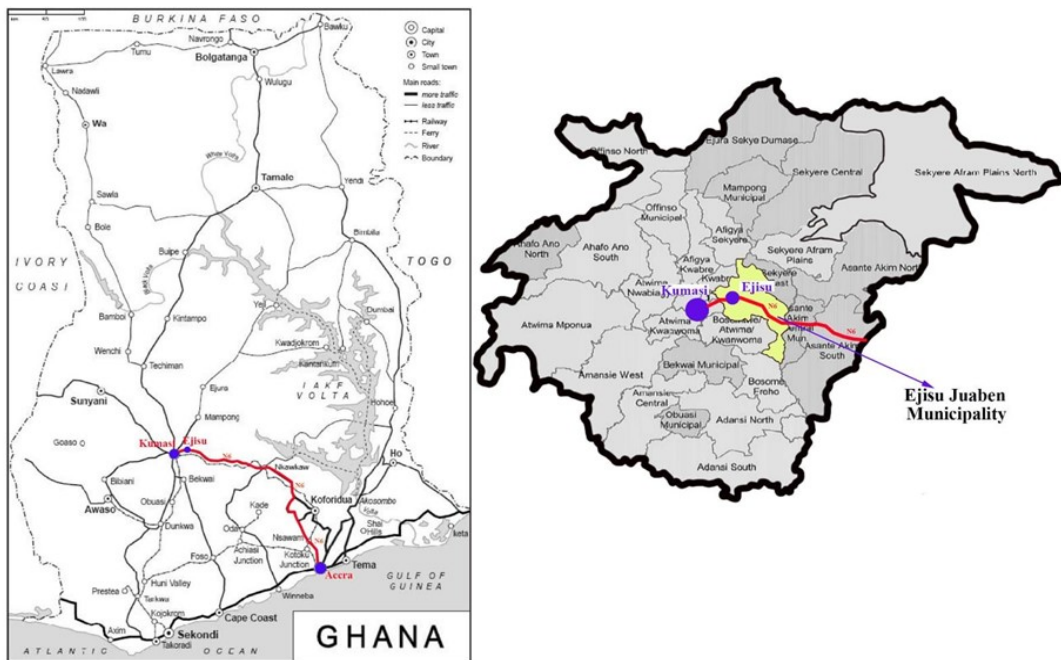
Fig. 1: Maps of Ghana and Ashanti Region

(Source: Burchardt, 2014; Ghana Statistical Service, 2015)

Fig. 2: Map of Ejisu with N6 Highway and surrounding buildings

(Source: Adapted from Google Map, 2018)

lation growth rate of Ejisu is 2.7 per cent. Ejisu's proximity to Kumasi (16.3km) and its history attract not only infrastructure, but most importantly people from different ethnic backgrounds. Ejisu is described as the cultural hub of the Ashanti Region with its great history relating to the contribution of its legendary queen mother, Yaa Asantewaa, the great Ashanti woman who led the Ashantis to the war of the Golden Stool against the British in 1900 (Prempeh *et al.,* 2003). Ejisu is rapidly growing in physical development accompanied by the booming commercial activities (both formal and informal activities) mostly located along its road corridors (Ghana Statistical Service, 2012). This booming commercial activity is highly influenced by increase in population due to the migration of people from both rural and peri-urban areas in search of employment (Acheampong and Anokye, 2013).

METHODS
Research design
The mixed method approach was adopted since it supports a more holistic, in-depth, comprehensive and unified use of collected data than is achieved when using either qualitative or quantitative research approach (Creswell and Clark, 2011). After literature was reviewed, a preliminary field survey consisting of personal observation and administration of an open-ended questionnaire to twenty (20) potential respondents followed. This was to help obtain firsthand information, especially relating to the factors influencing commercial activities and change of building use and form along the corridor. The results of the preliminary field survey necessitated the addition of certain unique locational factors to those adopted from literature (Yankson, 2000; Solomon-Ayeh *et. al.*, 2011) in the design of the respective closed-ended questionnaires. Thus, to the factors that influence the growth of informal commercial activities were added 'Limited space in the existing market'; 'Consistency to tradition'; 'Absence of space for bulk breaking'; 'Proximity to banks' and 'Presence of security'. To the factors that attract formal commercial activities to road corridors (Bndungu, 2013; African Powers of Retailing, 2015; Jekanowski and Binkley, 2001) were also added 'Favorable location of building'; 'Growing population of Ejisu'; 'Low

cost tenancy of shops' and 'Company directives'. Lupala's (2002) twenty (20) comprehensive factors that influence changes in building uses and forms and which are grouped into six (6) major categories and used to solicit opinions were totally adopted in the questionnaire design. They are Planning regulations; Natural occurrences/force majeure; Building owners' preferences and practices; Tenants'/customers' requirements; and Building character and location.

Data collection and analysis
The study utilized stratified sampling, which according to Murphy (2018), gives a better representation of the population, especially when they are of different backgrounds. The respondents for the study were the Chief of the Ejisu-Juaben Traditional Area (Municipality), the Urban Planner of the Ejisu-Juaben Municipality, traders of informal commercial activities, operators of formal commercial activities and owners of buildings fronting the corridor.

Both the Chief and the Urban Planner were interviewed; the Chief to ascertain the history behind commercial activities along the corridor and the Urban Planner, the opinion of the municipality of the situation of the commercial activities in the corridor. A structured closed-ended questionnaire was randomly administered to two hundred (200) traders of informal commercial activities to solicit their opinions about the factors influencing their trade and the kinds of products they traded in, among others. Out of these, one hundred and eighty (180) responded, giving a response rate of ninety (90) per cent. A response rate of 90 per cent is enough to draw credible conclusions (Saunders *et al*., 2009). One hundred (100) buildings were selected by purposive sampling (50 buildings each, from both sides of the corridor) and subjected to critical observation and count to determine the type of their uses and the number of formal commercial activities traders operating from them respectively. 48 per cent of the 100 buildings was used solely for Commercial activities, 20 per cent for Mixed use (commercial and residential), 16 per cent for Civic and Culture and another 16 per cent for Residential. From the Solely Commercial (48 per cent) and the Mixed use (20 per cent) buildings, 384 operators of formal commercial activities were

countered. The owners (or representatives) of the 100 buildings were administered with a closed-ended questionnaire to solicit from them the type of changes they have effected in their buildings. The 384 formal commercial activity operators were also administered with a closed-ended questionnaire to find out the types of formal commercial activities they were engaged in, and solicited their opinions on the factors influencing the presence of formal commercial activities and the changes in the buildings' form and uses. Both questionnaires administered to the owners and operators of formal commercial activities yielded 100 per cent return.

The qualitative data (interviews) were analyzed and presented descriptively. The quantitative data gathered from the 180 traders of informal commercial activities were examined critically using Relative Importance Index (RII) to determine the degree of importance (Adnan *et al.*, 2007) traders attached to the influencing factors of the informal commercial activities. It also helped in their ranking. The RII was calculated as follows:

RII = ΣW / (A*N)

Where, **W** is the weighting given to each factor by the respondents (here ranging from 1 to 5), **A** is the highest weight (i.e. 5 in this case), and **N** is the total number of respondents. Enshassi *et al.* (2007) stated that, in the application of RII to indicate the weighting and ranking of any subject matter, a factor is deemed less significant or not important when the RII is below the average (0.5) or is zero (0) respectively. Mean score was used to analyze the quantitative data gathered from the 384 operators of the formal commercial activities. Mean score firstly, incorporates the score from every subject and secondly, has proven to be an effective tool when comparing different sets of data. The Standard deviation tool was used to indicate the dispersion of data from the mean score (Saunders *et al., 2009*).

RESULTS AND DISCUSSION
Interview with the chief and urban planner of Ejisu Municipality
The interview of the chief revealed that the

Ejisu's road corridor commercialization predates Ghana's independence. The current N6 Highway was formally an ordinary street (single carriage road) which was flanged by most of the socio-economic activities of Ejisu. Until Ejisu's main street was upgraded into a national route (N6) in 2004, the commercial activities that went on along the street corridor was limited to foodstuffs and these were even displayed on the ground to attract customers. Even though Ejisu was noted for its cultural flamboyance and rich history owing to the contribution of Yaa Asantewaa (1840-1921) (Prempeh *et al.*, 2003), it was mainly known for being the foodstuff hub for the Ashantis, especially the residents of Kumasi. During those times, it was the traditional leaders (Chiefs of Ejisu) who determined the days of trading and the kind of foodstuffs that could be traded until it attained its Peri-Urban status in 2005. Thus, the presence of commercial activities along the road corridor in Ejisu have been in existence over a long period of time, though currently, its scale is far larger. The spectrum of items traded in has also become wider, accommodating both the formal and informal activities.

The interview with the urban planner also revealed that the Town and Country Planning unit of the Municipality has already conducted its own study about the growth of informal commercial activities in the corridor. Based on their study, the Town and Country Planning unit has adopted thorough revenue collection as an optimal control mechanism to reduce the amorphous growth of the informal activities. Though this mechanism seemed initially challenging, the urban planner affirmed that it has contributed in curtailing the chaotic spread since many of the traders could not pay the tax, (confirming Solomon-Ayeh *et al.*, 2011) and therefore were driven away from the corridor. The urban planner also asserted that changes in buildings' use and form are taking place due to the commercialization in the Ejisu highway corridor, to the tune of about six (6) changes from residential to mixed use buildings per year and thus confirms Lupala (1996). Due to the shortage of market space (Yankson 2000), the Municipality is considering making provisions for more at different locations in

Ejisu town. Due to high demand for shops and store spaces, the planner revealed that many building owners were applying mostly for partial complete building permits to enable them rent the spaces out quickly.

Informal commercial activities
The demographics of respondents
From the demographic results, 79.4% and 20.6% of the respondents were females and males respectively. Female domination is very characteristic of informal commercial activities along road corridors in Africa as noted in Yankson (2007). The youth, from 18 to 45 years constituted as much as 89.4 per cent of the respondents, a situation that not only confirms Solomon-Ayeh *et al.*, (2011) but also reflects the high youth (formal) unemployment rate of 4.9 per cent in the country (Baah-Boateng, 2018). Age group '26-30', '36-40' and '18-25' years constituted 22.8, 19.3 and 15.6 per cent respectively. The age groups with the lowest respondents were '51 and above' and 'Under 18' representing 1.7 percent and 5.6 per cent respectively.

With regard to the educational background, as shown in Table 2, the majority (40.9 per cent) of the respondents were Senior High School (SHS) graduates. However, the Secondary/ Senior High School component of Solomon-Ayeh *et al.*, (2011) was only 23.2 per cent. The increase identified in this study may suggest that more secondary/senior high school graduates are joining the informal commercial activities along road corridors in Ghana probably due to the increasing rate of unemployment in the

country. The respondents of 'No formal education', 'Basic education' (Primary and Junior High School) and 'Technical/Vocational' constituted 10.6, 34.1 and 11.4 per cent respectively, whereas in Solomon-Ayeh *et al.,* (2011), they constituted 20.7, 53 and 2.7 per cent respectively. What used to be mostly populated by Basic education graduates is now being populated with Secondary/Senior High School graduates.

Most of the respondents (57.9 per cent) involved in the informal commercial activities were residents of Ejisu whereas 42.1 per cent were residing in various neighbouring towns and villages such as Konongo, Boankra, Nkawkaw, Kwamo, Juaben, Ayigya, Fumesua and Asotwe. The results from the study confirm the assertion that majority of a population engaged in commercial activities in any given urban area resides closer to the said area (Bacolod *et. al,* 2010).

Some features of the informal commercial activities
Table 3 indicates that a greater percentage (37.6 per cent) of respondents have been trading along the road corridor for 6-10 years. This was followed by the 1-5 and 16-20 years at 27.1 per cent and 15.9 per cent respectively. Even though very few (3 per cent) have been trading there for up to 30 years, it was confirmed by the chief that road commercialization in Ejisu has been in existence long ago; before independence of the country and the reconstruction of the street into the highway (Ghana Highway Authority, 2014).

Table 2: Educational background of respondents

EDUCATIONAL LEVEL	FREQUENCY	PERCENTAGE (%)
No formal education	19	10.6
Primary	23	13.6
J. H. S	37	20.5
S. H. S	74	40.9
Technical/ Vocational	21	11.4
Polytechnic	3	5
University	0	0
TOTAL	**180**	**100**

Table 3: Number of years respondents have traded along the corridor

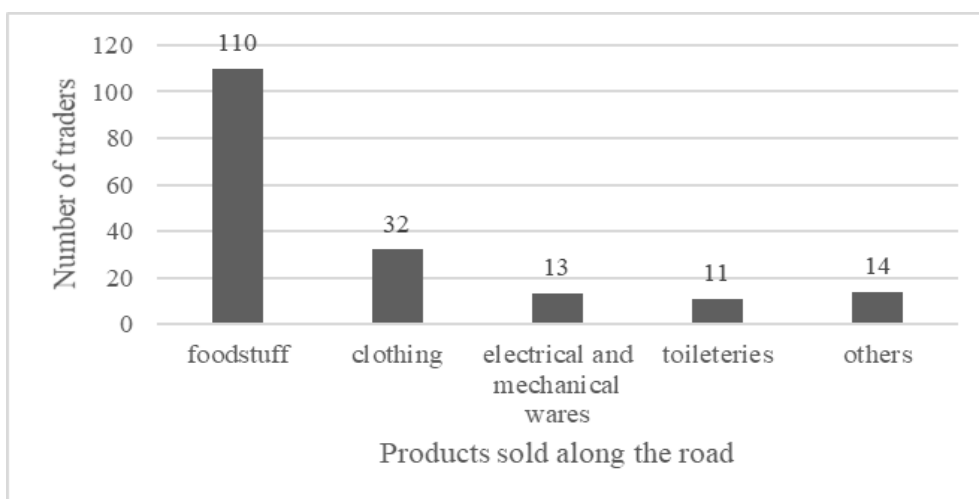| Years	Frequency	Percentage (%)
1 - 5	49	27.1
6 - 10	68	37.6
11 - 15	12	6.8
16 - 20	29	15.9
21 - 25	17	9.6
26 - 30	5	3.0

Fig. 3: Products traded in along the road corridor at Ejisu

Fig. 3 shows the various products that are sold along the corridor: 61.1 per cent (110) traded in foodstuffs (like cassava, yam, plantain, coco-yam and varieties of vegetables and fruits) and 17.8 per cent (32) traded in clothing. 7.2 per cent (13), 6.1per cent (11) and 7.8 per cent (14) traded in 'electrical and mechanical wares', 'toiletries' and other market products respectively. The foodstuff share of the products was the highest as learnt from the traditional chief.

Sundays and Thursdays were the traditionally established market days in Ejisu, hence the large number of traders recorded on these days.

The results, as shown in Fig. 4, illustrate that all the respondents, trade on both Thursdays and Sundays. 103 traders (57.2%) and 98 traders (54.4%) also stated they traded on Wednesday and Friday respectively. Saturday recorded the least (21.1%).

Factors that contribute to informal commercialization along the corridor
It was found, as shown in Table 4, that all the listed factors significantly affected respondents' decision to trade along the corridor since they were all rated above the average of 0.500. The factor *'Attraction of potential Buyers'* was the
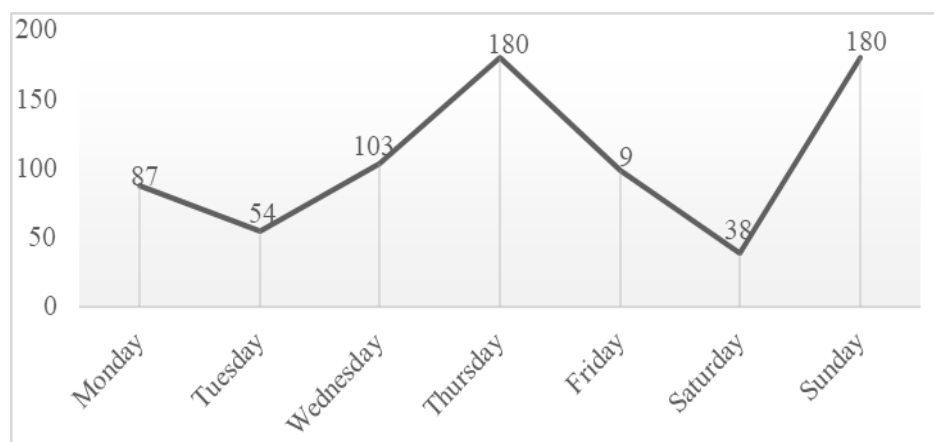
Fig. 4: Trading days in Ejisu by respondents

Table 4: Factors promoting informal commercialization along the corridor

No	Factors	RII	Ranking
1	Attraction of potential buyers along the corridor	*0.893*	*1st*
2	Availability of access road (Portion of corridor zoned) for commercial activities	*0.567*	*6th*
3	Lack of suitable alternative (Absence of constructed market place)	0.530	*10th*
4	Proximity to seller's home (Existing market located far from the core of the city)	*0.552*	*9th*
5	Cost effectiveness	0.614	*4th*
6	Limited space in the existing market	*0.756*	*3rd*
7	Consistency in tradition (selling along the road corridor is ancient)	*0.873*	*2nd*
8	Absence of space for bulk breaking	0.560	*7th*
9	Proximity to banks.	0.593	*5th*
10	Presence of security (presence of the police station) along the corridor.	0.560	*7th*

most important (RII=0.893), ranking first (1st) among all factors, confirming the studies of Yankson (2000), Yankson (2007) and Solomon-Ayeh *et al.*, (2011) where it also ranked the highest.

The respondents ranked '*Consistency in tradition (selling along the road corridor is ancient)*' second (2nd) (RII=0.873), even though it is not usually used as a factor to solicit opinions

in this regard. It was added here due to the peculiar historical character of Ejisu, as confirmed by the chief's interview. This result also buttresses the role and importance of history in urban planning and development (Akyeampong and Anokye's, 2013). The factor '*Limited space within the existing market*' ranked third (3rd), and therefore not only in agreement of importance of what is termed as "Limited Options" in Solomon-Ayeh *et al.* (2011), but also

supports the Ejisu-Juaben Municipality's decision to provide more market spaces for traders. It implies that the increase in the population of Ejisu, and consequently the increasing size of the unemployed (Ghana Statistical Service, 2012) has pushed the youth into the informal commercial activities. This has brought the existing market to its full capacity hence some traders find the road corridor also conducive for their activities. *'Cost effectiveness'* ranked 4th, though in Solomon-Ayeh *et al.,* (2011), it was ranked 2nd after *'Attraction of potential buyers along the corridor'* (or availability of customers). The rest of the factors were rated as significant since they are economic related (Ojikpong *et al.,* 2016).

Formal commercial activities in buildings along the corridor

The personal field observation of the hundred (100) buildings uncovered the composition of the various building uses: 'Commercial' use, 'Mixed Use', 'Residential' use and 'Civic and Cultural' use were 48, 20, 16 and 16 per cent respectively. There were neither industrial nor educational buildings along the corridor. In a similar study by Ogungbemi (2012), buildings used for 'Commercial', 'Mixed Use' and 'Residential' activities constituted 45.6, 19.8 and 25.3 per cent respectively. It is only the residential use that differs substantially: whereas Ogungbemi (2012) had 25.3 per cent, this study had 16 per cent.

The responses from the 384 formal commercial operators with regard to their activities, as illustrated in Table 5, shows that the majority (31.5 per cent) traded in 'Groceries' which confirms African Powers of Retailing (2015) that foodstuff forms major part of commercialization in Ghana. This is followed by 'Toiletries' (15.1 per cent), 'Clothing' (11.2 per cent), 'Cosmetics' (8.3 per cent) and 'Electrical and Electronics' (8.1 per cent). Only one 'Fuel Station' was found at the study area.

With regard to the factors that attract formal commercial activities to the corridor, as illustrated in Table 6, all the identified factors except two, the *'Available utilities in the commercial building'* and the *'Company's directives'* (which had means below 2.5) scored more than the average mean of 2.5. The *' influx of informal commercial activities'* ranked first

Table 5: Types of formal commercial activities found

Types of formal commercial activities	Number of commercial activities	Percentage of commercial activities (%)
Groceries	121	31.5
Banking	8	2.1
Building materials	24	6.3
Pharmaceuticals	6	1.6
Clothing	43	11.2
Electrical and Electronics	31	8.1
Stationery	9	2.3
Jewelry	4	1.0
Furniture	7	1.8
Toiletries	58	15.1
Communication Centre	4	1.0
Cosmetics	32	8.3
Sportswear	8	2.1
Utensils (kitchenware)	28	7.3
Fuel station	1	0.3
Total	**384**	**100.0**

(1st) with mean score of 4.867. This result supports the outcome of study conducted by Solomon-Ayeh *et al.* (2010), African Powers of Retailing (2015) and Jekanowski and Binkley (2001) that a major driving force responsible for the proliferation of formal commercial activities in Ghana is the rapidly increasing informal commercial activities. The *'Growing population of Ejisu'* factor was also ranked 2nd, as it provides the needed customer base. The *'Availability of rentable space in commercial and mixed-use buildings'* factor ranked 3rd, followed by the *'Location of building to attract customers'* (4th) and the *'Low cost tenancy of shops'* (5th). The influence of these factors cannot be underestimated in urban planning, especially with regard to road corridor commercialization (Oyinloye and Kufoniyi, 2013; Shankar and Vidhya, 2013; Jekanowski and Binkley, 2001).

Factors influencing changes in building uses and transformation (BUT).
As shown in Table 7, all the major factors were recorded as significant except *'Natural occurrences/force majeure'* which recorded a mean score of 2.084 below the average mean score of 2.5. Respondents also agreed that *'Prevailing economic activities'* factor is the primary factor that influenced BUT in Ejisu: it ranked first (1st) with a mean score of 4.000. This result confirms Kironde (1994) assertion that the building modification in urban areas is

influenced by the predominant economic activity in the said area. In the case of Ejisu, along its portion of the N6 Highway corridor, the influx of both formal and informal commercial activities (Eludoyin *et al.*, 2011) has been the backbone of the changes in buildings' forms and uses. The importance of *Tenants'/Customers' requirements* (2nd) and *Building owners' preferences and practices* (3rd) in influencing change in BUT has also been well discussed in Ojikpong *et al.*, (2016), with the main reason of boosting their household incomes. *'Building character and location'* and *'Planning regulations'* factors were ranked 4th and 5th respectively. It is not surprising that *'Planning regulations'* did not appear all that important to respondents since according to Ojikpong *et al.*, (2016) most conversions were done without permits and also for the Ejisu Urban Planner, mostly partial completion permits were acquired. Ejisu does not experience natural disasters so the respondents rated *'Natural occurrences/force majeure'* as an insignificant factor.

Fifty-nine (59) per cent of the owners or their representatives of the selected hundred (100) buildings stated that they have effected some changes in their building's uses and form: 51 per cent of the changes were from solely Residential building use to solely Commercial building use and 40.7 per cent was from solely Residential building use to Mixed-use build-

Table 6: Factors that attract the formal commercial activities in the corridor

	Factors	Mean Score	Standard Deviation	Ranking
1	Influx of informal commercial activities	4.867	0.629	1st
2	Availability of parking space in front of shops	2.567	1.165	7th
3	Availability of rentable space in commercial and mixed-use buildings	4.133	0.629	3rd
4	Available utilities in the commercial building	2.230	1.165	8th
5	Public demand of specific goods and services	3.612	1.135	6th
6	Favorable location of building	3.901	0.925	4th
7	Growing population of Ejisu	4.767	1.040	2nd
8	Low cost tenancy of shops	3.767	0.925	5th
9	Company directives (expansion of business)	2.100	0.885	9th

Table 7: Factors influencing changes in building uses and transformation

No	FACTORS	Mean Score	Standard Deviation	Ranking	Main Factors mean Score	Main Factors Ranking
1	*Major Factor 1: Planning regulations*				2.667	5th
	Municipal/ district Planning regulations	2.500	1.225	17th		
	Change in National planning policies	2.567	1.165	15th		
	Population size	2.933	1.388	14th		
2	*Major Factor 2: Natural occurrences/ force majeure*				2.084	6th
	Fire disaster leading to building breakdown	2.067	0.740	20th		
	Premature collapse resulting from natural occurrences	2.100	0.885	19th		
3	*Major Factor 3: Building owners' preferences and practices*				3.517	3rd
	Good building maintenance habits	3.267	0.828	13th		
	Change in building owners' social status	3.500	0.974	12th		
	Change of building ownerships	3.733	1.285	8th		
	Type of building ownership (individual/corporate ownership)	3.567	1.135	11th		
4	*Major Factor 4: Tenants'/customers' requirements*				3.842	2nd
	Tenants/ occupants request for change to facilitate their expanded activities	3.633	1.033	10th		
	Long tenancy period	4.133	0.629	2nd		
	Type of tenants	3.700	0.877	9th		
	Activities of tenants	3.900	1.062	4th		
5	*Major Factor 5: Building character and location*				3.260	4th
	Accessibility	3.767	1.431	7th		
	Age of the building	3.800	0.925	5th		
	Location of the building	4.033	0.928	3rd		
	Lack of sanitary facilities	2.133	1.167	18th		
	Security	2.567	1.278	16th		
6	*Major Factor 6: Prevailing economic activities*				4.00	1st
	Investment potential (demand)	3.767	1.040	6th		
	Influx of different commercial activities	4.233	0.817	1st		

ings. The least transformation (8.3 per cent) was from solely Residential use to Civic and Cultural use. This result confirms the studies of both Lupala (2002) and Shankar and Vidhya (2013) where conversion from 'Residential into Commercial' use was also first, followed by 'Residential to Mixed-use'.

CONCLUSIONS AND RECOMMENDATIONS

Informal commercial activities have become a formidable force in urban road corridors of developing countries, including Ghana, regardless of the challenges they pose. They, in recent times, have gained much popularity, offering informal jobs to the rapidly increasing unemployed youths in the country. They also form the backbone of the thriving formal commercial activities in Ghana (as shown in the case of Ejisu), which in turn influence the transformation of abutting buildings in the corridors. The study revealed that most of the building transformations were oriented towards the creation of more spaces to accommodate commercial activities to the detriment of residential spaces in a country that is struggling with housing deficit.

The planning along urban road corridors should take into consideration not only the physical road development, but also the commercial activities that automatically spring up in the corridors in a way that will benefit the socio-economic development of the country, rather than to its detriment. To ensure appropriate, healthy and economic viable road corridors in Ghana, urban planning must be flexible to accommodate future commercialization (both formal and informal) along these corridors to reduce the conversion of residential buildings into other uses. This will go a long way to reduce the housing deficit already being experienced in the country.

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