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SPATIAL ACCESSIBILITY TO URBAN INFRASTRUCTURE SERVICES AMONG HOTELS IN THE SMALL CITY OF WA, GHANA

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Though access to urban infrastructure services is a critical factor that facilitates hotel investment, studies have failed to substantiate the accessibility of urban infrastructure services on hotel, most especially in smaller cities. Using the location-based accessibility measure, the study assesses the spatial impact of bus stops, hospital, banks, and shops on hotel accessibility and demand in Wa Municipality. Samples of 33 registered hotels were selected based on their geo-location and variations. The study used the buffer geo-processing model and proximity test to estimate the spatial effect of urban infrastructure services on hotel accessibility and demand. The findings revealed that, there is a weak correlation of urban infrastructure services on hotel investment which triggers low clients turn-out in Wa Municipality. This study contributes to a better understanding of the impact of spatial correlations on hotel investment. However, development planners need to adopt development-based infrastructure provision strategy that captures the impact of UIFs on hotel investment.

Keywords: commercial real estate, hotel investment, infrastructure services, small city, spatial accessibility

INTRODUCTION

Among the commercial real estate sector, hotel investments have similarly contributed immensely to economic development through domestic employment and revenue generation (Chatzimichael & Liasidou, 2019). Hotel investments are extremely exclusive assets which are typically seen as long-term investments; because of its life span and immovability. Location strategy can have a high negative effect on its investment returns (Dai, Xu, Pratt, & Dai, 2017). In line with these characteristics, hotel investment has since became the focus of geography research in the late 1980s because of its spatial features (Budović, Ratkaj, & Antić, 2018). Many studies have associated accessibility as a conduit to effective location

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strategy (Godinho, Phillips, & Moutinho, 2018; Lado-sestayo & Fernández-castro, 2019, Graf, 2011; Radojevic, Stanisic, Stanic, & Davidson, 2018). Accessibility, plays tremendous role to determine tourist decision, and is one of the most important elements that contributes to hotel performance (Panno, 2019; Li & Du, 2018). Accessibility to hotels breeds higher room demand (Rogerson, 2014), customer preference (Kattara & El-Said, 2013), and huge employment avenue (Bohdanowicz-Godfrey, Zientara, & Bąk, 2019).

Accessibility to urban infrastructure services includes roads, bus stops, shops, hospitals, and banks. Accessibility to these services provide valuable comfort for potential clients (Budović et al., 2018). Theory on hotel accessibility has highlighted that the impact of urban infrastructure services on hotels demand plays critical urban dimensions that needs further studies (Jiang, Gao, Jiang, & Gao, 2019; Lado-sestayo, Vivel-búa, & Otero-gonzález, 2018; Adam, 2013). While studies have tested services such as shops, schools, and train stations in the developed cities especially where hotel investments are high (Budović et al., 2018; Panno, 2019), small cites are underexplored area that requires further studies. Again, most empirical studies used the traveling and walking distance from train station and shops to hotels based on network analysis (Mingzhao Li, Bao, Sellis, Yan, and Zhang, 2018; Kim, Jang, Kang, and James, 2018; and Hilmi and Hadi, 2016). However, the impact of these services on client demand has received little attention in the global south.

The uniqueness of this study is hinged on its choice of study area in many ways. The Municipality is a typical fast-growing one from Sub-Saharan Africa with an emerging and medium-sized city, Wa as its capital (Armed et al., 2020; Dapilah et al., 2019). In a small city like Wa, land use has changed by 34% between the period 1986 and 2018 with changes in urban infrastructure (Armed et al., 2020, Yachori, 2017). Besides, UN-Habitat III empowered such small cities (including Wa) to lead the Sustainable Development Goal trajectories and achievement by 2030 (UN-Habitat, 2016). Again, Wa Municipality as one of the typical West African urban centres, is characterized by the syndrome of development before planning where the locations of urban infrastructure services are not well planned and insufficient (Omar et al, 2020). These dynamics have necessitated for the examination of the effect of urban infrastructure on hotel investment since similar studies are limited in the Global south including Ghana. Following this gap, much interest has motivated current studies in assessing the effects of urban infrastructure services on hotels accessibility even in developed cities (Latinopoulos, 2020). To fill the research gap using a dataset of registered hotels, bus stops, shops, hospitals, and banks, buffer geo-processing model and proximity test of bus stops, shops, banks, hospitals are utilized to determine the traveling time and its effect on hotel demand in the Wa Municipality Ghana. We contribute to literature debate on hotel accessibility analysis in different theoretical and practical ways. First, unlike studies that used walking distances and travelling cost from hotels to shop, this study examined the traveling distance in terms of time and its effects on hotel demand. Secondly, we investigated the effects of distances on hotel demand from the Central Business District to the hotels. The paper is organized into five sections. Section 2 presents a theoretical review of spatial proximity of urban infrastructure service on commercial real estate. Section 3 focuses on the research methodology. Section 4 presented and discussed the results from the buffer-geo processing

model and proximity test analysis. Finally, we concluded the study and discussed some theoretical and practical implications of the study in section 5.

LITERATURE REVIEW

Theoretical scope of accessibility

The concept of accessibility refers to ability to reach or obtain the services and site of a facility at ease which measures the absolute prospect for interaction with a given phenomenon (Lyu, Bertolini, & Pfeffer, 2019). Traditionally, accessibility is embedded in location theory that targets the best use of the productive supply networks at the minimized cost (Nicholls & Nicholls, 2010). Other studies suggest three accessibility measures. These include; infrastructure-based measure which suggests services related to a transport infrastructure that relies on overcrowding stages and average travel speeds using road network (Bohdanowicz-Godfrey et al., 2019; Lado-sestayo et al., 2018; Y. Li & Du, 2018; Yang, Mao, & Tang, 2018). The location-based measures describe the stages of accessibility to spatially distributed urban infrastructure activities (Nicholls & Nicholls, 2010). With this measure, the distance to the facility and its indicators are considered. Lastly, the person-based measures define accessibility at the individual level. Following these approaches, Lyu et al. (2019) contributes to the debate that accessibility is determined considering the availability of easy travelling route, travelling cost and monetary constraints, individual physical conditions, the quality of spatial distribution of urban infrastructure and activities, as well as individual needs. These services have both positive and negative impact on the investor, tourist, and the economy as a whole. According to Lewinson and Esnard (2016), spatial distribution and accessibility of infrastructure services have impact on people especially older adult tourist, given that they are likely to spend majority of their tour at the hotel. Lewinson and Esnard (2016) further indicated that characteristics of the location must facilitate and enhance walkability of pedestrian shopping, street connectivity, public ease of transportation, bus stops and, urban designs. Accessibility studies provide useful suggestion to urban planners for hotel investment (Brans, Engelen, & Hubert, 1981; Cró & Martins, 2017; Taylor & Islam, 2010)

Spatial attributes of hotel proximity

The performance of commercial real estate investments are connected to the spatial attributes of the investments (Korea, Noor, Asmawi, & Abdullah, 2015;Gargallo, Miguel, & Salvador, 2017. Spatial attributes are linked to geographic location, that is longitude and latitude as well multiple quality attributes such as price and rent of the property. Studies have shown that spatial extent of a hotel is retrieved by spatial queries that select hotels based on the location and its relevant distance (Priya & Kalpana, 2018 ; Lu, Lung, & Xie, 2018). Aside that, recent studies have proven that spatial attributes influence market search and how investments differ from different locations (Kolpan & Warren, 2017 ; Zhen, Du, Cao, & Mokhtarian, 2018). Neighbourhood attributes may include the availability of schools, population density, income levels, location, and nearness to central business districts Studies (eg: Gargallo et al., 2017; Huang, 2018) confirm that prices of hotels tend to be similar because they share common local physical physiognomies such as building size, age, and quality, access to social amenities, employment and shopping centres, which influence investors decision. Similar studies showed that environmental quality, characteristics of the transportation

network and good site for spatial safety influences proximity (Chiarazzo, Coppola, Dell, Ibeas, & Ottomanelli, 2014; Kumar & Bansal, 2016). However, spatial correlation of commercial real estate investments has more complex estimations as demonstrated by Zhang, Du, Geng, Liu, and Huang (2015). Drawing insight from hotel investment for example, the walking distance to a resort centre, site free from flooding, suitable site for on-site wastewater disposal, suitable building sites, access to roads, access to site for deliveries, employees, and guests area determine the spatial extent of the investment (Joeyev, Degloria, Noden, & Locke, 1999; Bovkir & Aydinoglu, 2018). Newell et al. (2006) predict the consequences as high economic burden on the investor as it increases the investors cost and burdened on the client. Meanwhile, these studies have neglected the need to assess the accessibility to shops, hospitals, and banks when defining hotel spatial accessibility.

Models of assessing the spatial extent of commercial real estate investments

Spatial extent of the hotel investment influences investment returns. Mingzhao Li, Bao, Sellis, Yan, and Zhang (2018) determined the spatial extent of a hotel investment by examining the transportation profile of the location of the investments through the nearest geo-locations of the investments with other facilities such as supermarkets and recreational centres using network analysis. They revealed that presence of the facility has two investment imapcts. First, client demand increases as the distance from the train stations to the hotel reduces. Second, the presence of the investment influenced shopping activities and the income of the nearest facilities positively. Kim, Jang, Kang, and James (2018) conducted a similar study using autoregressive-first order spatial model including autoregressive errors. Their study found a positive correlation between investments 'location and urban support systems (Kim et al, 2018; Hilmi & Hadi, 2016). Also, Mundell, Taff, Kilgore, and Snyder (2010) used the spatial econometric models to determine the easy accessibility to a hotel. The model used variables such as land use categories in the neighbourhood, time and distance attributes to calculate the relationship between hotel locations and other locational variables. Their model found a strong relationship among them but failed to substantuate on the distance factor (Mundell et al, 2010). Suárez-vega, Santos-peñate, Dorta-gonzález, and Rodríguez-díaz (2011) argues that the use of network analysis as a measure of distance models the problem of resolution, since the minimum cost path sandwiched between every pair of network point is not in a straight line which is usually solved by the ArcGis tools. Also, Multiple regression used by Chiarazzo, Ibeas, and Ottomanelli (2014) shows that there is positive gains when the investment is located within 500 meters buffer from a bus stop and train station. Shen (2005) argues that the mean distance seems to be a more useful measure of the spatial extent of commercial real estate investment since it characterises the aggregated proximity of the investment type to a facility type. His analysis involved the collection of reports of all the mean distances from the investment to the facilities such as schools and hospitals. From their analysis, it was observed that there are lower mean values for accessibility to schools. Chiarazzo et al. (2014) are of the view that though measuring the distance to the facility is important, it necessary to determine the active accessible time such as the travel cost and the shortest time in minutes to the facility. Their results showed that the transport conditions indicated positive signs if the facility were located within 500 meters range from a bus stop and train station, which yielded a higher real return

(Chiarazzo et al., 2014). This finding looks consistent with the findings of North and Miller (2017) where they found that configured coverage maximum travel time and number of facilities closer to the hotel should not be more than 1hr. However, the above finding contradicts with Mimi et al. (2015) idea of distance. According to them determining the distance to commercial facilities does not only ensure significant investment performance but the relationship between land use mixes around the investment. They however, used the sensitivity linear regression model to evaluate number of land use mix within the investment neighbourhood. Their categories include; cultural attractions, number of natural attractions, traffic land area, number of bust stops and number of man-made attractions. Their sensitivity analysis revealed that a buffer of 1000, 2000 and 5000m radii gives a negative relationship of investments such as hotels closer to attractions. However, interestingly, this is contrary to the finding of Ahmad, Elsamen, & Ibrahim (2017). They analysed their data using a circular buffer in the catchment area based on distance to the facility into uniform concentric circles and concluded that the short Euclidian distance to the city and the accessibility of shopping centres suggest a good relation (Ahmad et al., 2017). Surplusingly, our litereature review indicates that. the previous studies have negeleted the use of hospitals, bus stops, banks, and shops to assess hotel accessibility, which are somehow common UIFs in the emerging cities from the SSA.

METHODOLOGY

The study is mixed research based on spatial, statistical, and qualitative data collection and analysis of hotel and its distances to urban infrastructure services. The study adopted the location-based accessibility measure approach. According to Nicholls and Nicholls (2010), location-based measures describe the stages of accessibility to spatially distributed urban infrastructure. We used this approach because it allows city planners to track accessible urban infrastructure and pursue needed future urban associated platform (Gonzalez-feliu & Grau, 2014). Participant observation was incorporated in the study to identify the effects of externalities such as nature of road network, hotel environment, and service provisions that affect accessibility as suggested by Kim, Jang, Kang, and James (2018) and Hilmi and Hadi (2016).

Data sets

Data for this study involved three sources. The first source involved a registered hotel and their traveling time from Wa CBD data collected from Ghana Tourist Authority, Wa. This data was 33 registered hotels grouped into first grade, second grade, and third grade (budget) categories. The second source involved a collection of ground control points (geo-locations) of each hotel in the Municipality. The final data source was a dataset of registered shops, bus stops, hospitals, and banks, from the Wa Municipal Assembly. The study also sampled 1064 tourists across the hotel grades to determine the impact of traveling time on hotel accessibility (see table 1). We randomly interviewed 20 out of the 33 investors on their perception of hotel investment in the Municipal. Ground control points of Urban Infrastructure Services (UIFS) were collected to ascertain the distance effects on hotels. We used a goggle earth image as a reference point to identify the location of the hotels and a shapefile from the Land Use and Spatial Planning Authority, Wa to support the analysis of the geographic data set.

Table 1 respondents age and gender

	Age and Gender of Tourist								
	20-30	30-40	40-50	50-60	60-70	70+	Total	Male	Female
Grade 1	15	27	34	77	33	6	192	112	80
Grade 2	53	66	95	88	12	23	337	197	140
Grade 3	127	109	204	38	28	33	539	405	134
TOTAL	195	468	303	363	73	62	1068	714	354

Data analysis

The first analytical approach involved processing of geographic coordinates of the shops, bus stops, hospitals, and banks. Using a map shapefile of Wa Municipality, the coordinates were imported in an ArcView GIS application software and estimated a buffer of 500, 1000, and 1500 meters of hospitals, bus stops, shops and banks to hotels. As a measure of effects, the second step established the relationship in distance between the spatial attributes to the hotels. This was estimated using the proximity test analysis. Empirically, the test has shown a good measure of effects on proximity (Hendrik, Jeuring, & Haartsen, 2016; Jeuring & Diaz-soria, 2017; Yuan et al., 2018). The purpose of this test was to assess hotel accessibility to UIFS. The dependent variables for the test included; Grade 1, Grade 2 and Grade 3 hotels demand. While the independent variables included; the distances from bus stops, banks, shops and hospitals. The analysis used a confidence level of 95%. This enabled to determine the effects between vectors of values among the dependent and independent variables.

Finally, we estimated the traveling distance in terms of time (minutes) to the hotels using Triclycle, which is locally called "Camboo" in the Municipality and it is the commonest transport service operated by indivduals with different quoted fares. For hotels within the CBD, we estimated traveling time of 1-5 minnutes. We finally estimated a traveling distance of 4-10 minutes for hotels found at the periphery of Wa. In order to avoid bias in travelling time, we took into accounts the potential CBD congestion in definining the accessibility to hotels in the Manicipality. Figure 1 presents the analytical approach of the study.

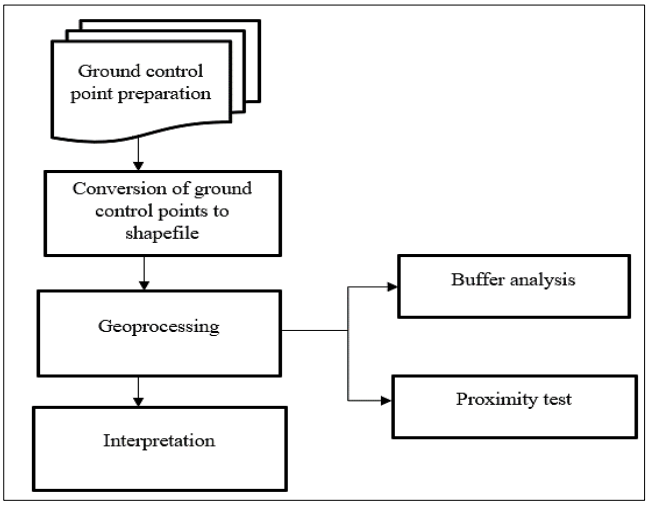


Fig. 1 Analytical procedure of data

RESULTS AND DISCUSSIONS

Nature of hotel investments in Wa Municipality

Data gathered from Ghana Tourist Authority showed that hotel investments in Wa have all the three Grades, including the Grade one, two and Grade 3 (Budget) hotels. Statistics from the Authority indicated that, there are 4 Grade one hotels, 7 Grade two hotels, and 22 Budget hotels. This demonstrated that Budget hotels constituted the most dominant hotel investment type in the study area (See table 2). This was supported by assertion by a manager from the Ghana Tourist Authority that:

[...] Even though the city keeps growing, most of the hotel investors still keeps investing in budget hotels, because, the taste of many clients for budget hotels haven't changed" (Management Interview 1, 2020).

Earlier findings showed that when cities grow economic events create competitive advantages for investors, and consumers through economies of scale in commercialization, and infrastructure development (Mimi et al., 2015). Looking at the pace of growth of Wa, hotel clients are not taking advantage of the development to change their taste for other hotel categories. The top management further indicted that;

[...] Over the past 20 years, the cultural, economic and social condition of the Municipality do not encourage hotel investment, because, the municipality is less developed and surrounded by deprived agricultural communities" (Management Interview 4, 2020)

The study revealed that the idea behind the growth was understood to have been the establishment of University for Development Studies, Wa campus (now SDD-UBIDS), the improvement in sports, and businesses. The study further uncovered that even though the urban growth has resulted in investment in other hotel grades, the local people still prefer budget hotels as earlier indicated. This development has given advantage to the development of Grade 1 and 2 hotels to target tourist, businessmen, politicians, NGO's, and researchers. The general impact of the direction of budget hotel business development against the other hotel grades can serve as a good impetus to reform the budget hotel market.

Table 2 Records of hotel category in Wa Municipality

Hotel Category	Total Number	Percentage (%)
Grade 1	4	12
Grade 2	7	21
Budget	22	67
TOTAL	33	100

Spatial extent and its relationship on hotel investments

This section presents the spatial extent and the relationship among hotel investment in Wa. The overlay of ground control points of hotel locations gave the results shown in figure 2. Figure 2 depicts that most budget hotels are spread mostly around the inner city of the Municipality in the neighborhoods of Dobile, Market area, Wapaani, Jengbeyiri, Tindamba and Zongo. The budget hotels dominate over other hotel Grades. Thus, 9 budget hotels out of 22 are in the inner

city of the Municipality. This result further revealed that, these neighborhoods are accessible in terms of distance to hospital, shopping centres, entertainment centres, transport and other inner-city urban services.

Again, it can be observed that budget hotels keep spreading around the outer zones of the Municipality. That is why it is possible to see budget hotels even at the outskirt of the shapefile. Also, most hotels of Grade one and two categories are located in the outskirts of Napagbakoli, Chorkor, Mangu and Konta, Danko Extention, and Sombo. This implies that, as the city grows, hotels with high standards emerged in these new locations outside the city centre. The results also revealed that, 2 hotels out of 5 budget hotels are located outside the captured neighbourhood of the Municipality. Field observation confirmed that, these hotels are located along the high-way of the Wa-Kumasi Road. However, it is knowing to find budget hotels clustering around Grade one and two in the outer zone of the shapefile. This is in line with Mboup and Oyelaran-oyeyinka's (2019) idea that at the municipal level, the emergence of a city is based on the fact that the middle of the city is not recognised as the only centre that grows itself, but, many more several sub-centres collectively develop a networked urban system, with sub-centres performing different functions. However, the pattern of spread of investment products cannot be determined. For example, the locations of budget hotels in figure 2 do not follow any pattern unlike Grade one and two hotels that are mostly located outside the inner-city of the Municipality.

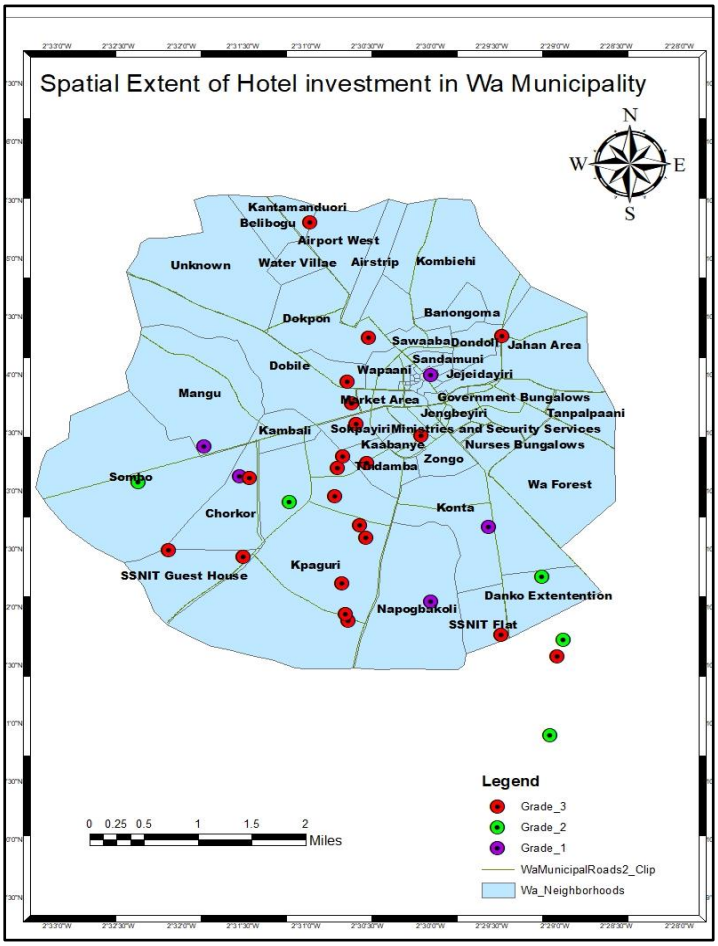


Figure 2 Spatial extent of hotel investment in Wa Municipality

Interview from the office of GTA indicated that:

[...] Even though these budget hotels are the oldest hotels in the neighbourhood, yet, have not undergone massive improvements which commands for high Grade hotels" (Management Interview 7, 2020).

Based on this response the study can infer that; hotel owners do not take advantage of the location of the inner city to improve their hotel Grade. The ripple effect could be that these 'obsolete hotels 'would fadeout from the local market and face diversification problems as well. The possible diversification benefit is limited to only residential use, because of their nature and design.

Spatial extent of urban infrastructure services and hotel investment

The urban infrastructure services of this study included hospital, bus stops, shopping centers, banks and roads. The choice of these services was basically their availability. The result of the ground control points of these services are overlaid on the neighborhood map of Wa Municipality is presented by figure 3. This approach supports Zhen, Du, Cao, and Mokhtarian's (2018) idea that the performance of hotel investment is dependent on linkages of urban infrastructure services to the hotel. Figure 3 showed that there are 33 shops, 8 bus stops, 7 financial institutions, and 5 hospitals located around the neighborhoods of hotels. Out of 33 shops, 24 are located around the neighborhoods of budget hotels, 5 around Grade one hotel and 4 at the neighborhood of Grade two hotels respectively. This implies that shop investors target hotel locations that have the highest local demand. However, field observation showed that these shops were not well-structured, yet, attracts the local demand of these hotels. The consequence of these results is argued by Gozgor and Kablamaci (2015) that rates in these hotels in unsuitable location will attract low rate and high vacancy. This literature supports an interview recorded from one investor that:

[...] Here in Wa, the big shops are concentrated in the city centre where clients can buy valuables. The shops around our hotels are run by petty traders and because the neighbourhoods where the hotels are situated are normally outside the city and are not busy, and they don't sell most goods [sic] (Investor 4, 2020).

On the contrary, most hotels around Dobile are obsolete, field observation shown that rates are high with low demand. These results give clear characteristics of an emerging hotel market. The impact factor expressed by investor 8 indicated that:

[...] Providing shops in our hotels offer additional operation and investment cost to us, so we usually prefer client buying from outside shops, ... though this increases the burdening of our clients" [sic] (Investor 8, 2020).

The above is supported by another investor who expressed that:

[...] few hotels that have shops in-built complain of delays in buying products since client turn out are usually low. Because of this client will have to travel to the city centre to buy stuffs" (Investor 12, 2020).

With respect to bus stops, it is evident in figure 3 that 8 bus stops are in the neighbourhoods of these hotels. This finding corresponds to those of Joeyev et al (2018) and Bovkir and Aydinoglu (2018) who found that walking distance to a resort

centre, access to roads, and shopping mall determines UIFs 'spatial correlation with client demand. However, their study did not define what constitute accessibility. For this study, we identified that not all roads are linked to these hotels and as such do not provide extensive benefits of bus stops and shops (see figure 3). This implies that the provision of these services will bring economic burden to the investors which can indirectly be shifted to clients when investors wish to improve on their hotel facility. In this sphere another investor lamented that:

[...] In Wa, most hotels are located around a major road. But access roads linking to Grade 1 and 2 hotels are feeder and deplorable. This affects accessibility of our hostels badly" [sic] (Investor-13, 2020).

The results depict that budget hotel investors are strategic. Thus, they locate their hotels closer to major road network (see figure 3). This result implies that the estimation of accessibility requires a critical understanding of the nature of roads.

Banks on the other hand showed that almost all the financial institutions are located in the inner city of the Municipality, where most budget hotels are located, followed by Grade 1 hotels. Field observation showed that these financial institutions have limited withdrawal stands located in the inner city. The ripple effect could be that clients who want longer stay may demand for hotels in these locations as indicated by Joeyev et al (2018).

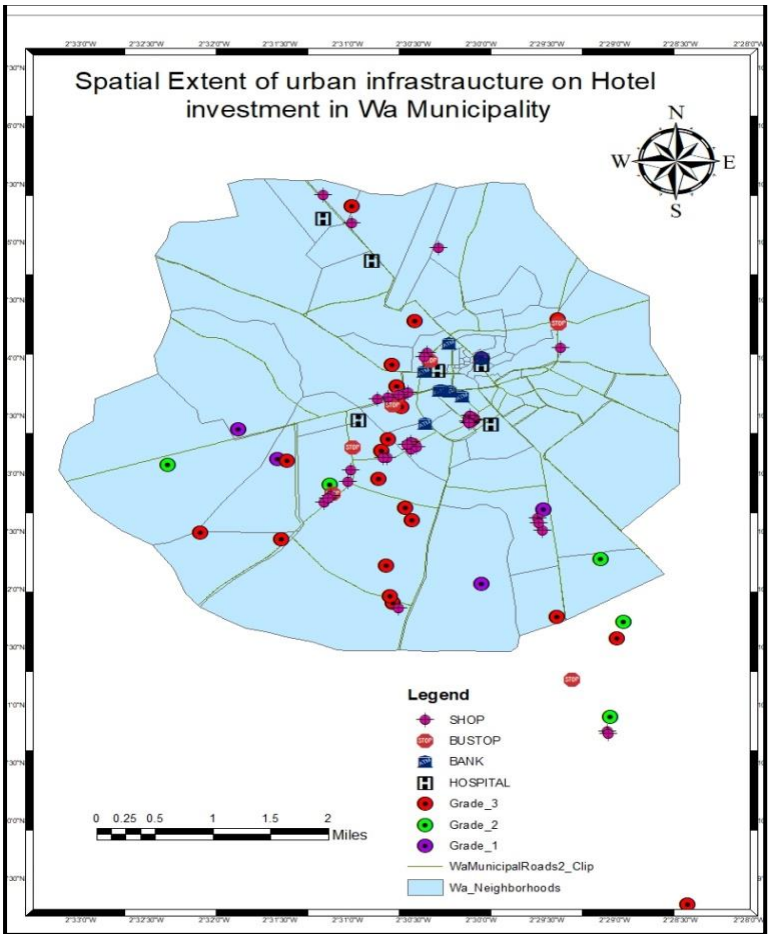


Figure 3 Spatial extent of urban infrastructure services and hotels

Urban infrastructure services and hotel accessibility

Urban infrastructure services have an inherent effect on the functioning of hotel investment. According to Pardo-garcía and Mérida-rodríguez (2018), the residents from speriphery of a growing city often struggle moving to central locations closer to the busy areas of the city despite the core opportunity cost of commuting long distance. This seems somehow bias, because, it is not only necessary to determine how accessible these urban infrastructures are to city centre but to hotels. This implies that investments 'accessibility is equally important as social mobility in ensuring urban development. Figure 4 shows the effect of accessibility of bus stops, shops, hospitals, and financial institutions to the hotels.

Figure 4 shows accessibility of hotels to urban infrastructure services in the Wa Municipality. The results showed a buffer of 500, 1000, 1500 meters distance to these services. The results showed that most of the hotels in the Municipality have few shops around them. From figure 4, at a distance of 500 meters, only 14 hotels have easy access to hotels located within the CBD. That is why it is not startling to locate more than one shop around a hotel. This gives an indication that clients of hotels outside the 500 meters accessibility buffer must walk a long distance to access basic services. Again, clients who have no basic information about the neighbourhood (Napagbakoli, chorkor, Mangu and Konta, Danko Extention, and Sombo) may face challenges accessing shops for their stay. Locals who have basic information about neighbourhoods may demand such hotels at a low pace as indicated and supported by investor respondents. With respect to bus stops, a study by Chiarazzo, Ibeas, and Ottomanelli (2014) showed that there is positive gains when hotels located within a 500 meter range from a bus stop and train station. The results from Wa showed that there are few bus stops in Wa Municipality. Only 8 bus stops were uncovered during field visit. 7 of these bus stops can be accessed within 500 meters and 1 within 1000 metres buffer (see figure 4). This implies that clients would have to walk a long distance to access public transport. Even though some of the bus stops that fall within 500 metres of the hotels have good road network, sometimes these bus stops are located in the opposite direction of the road. Meaning, clients must cross to the opposite direction to access an on-coming vehicle. The positive effect would be easy access to transport but can lead to accident. This can easily be seen in neighbourhood such as Waapane, Kaabanye, Sopkayiri. Based on this we can infer that bus stops can influence positive gains to hotels when their geo-locations are directed towards the hotel. The other aspects can be improved by effective road network to reduce walking distance and time. Results from accessibility to banks showed that most of the hotels are located far beyond the 1500 metre buffer. Only 6 hotels are located around the CBD which have access within 500 metres buffer. The study uncovered that aside the bank, mobile money transfer points are located in some busy neighbourhoods where clients can access. But the distance to these mobile money stands was not determined. Giving these indications, it can be inferred that clients who wish to access hotels must have enough money on them. Because ATM machines are far away from town, not functioning, and queued when functioning.

Figure 4 depicts 5 health facilities in the Municipal. Within a buffer of 500 and 1000 metres most hotels can easily access them. Hotels located in Napagbakoli, Chorkor, Mangu and Konta, Danko Extention, and Sombo must travel about 5 minutes to access these facilities. Field observation indicated that most of these hotels have

no linking road to the high way where clients can access public transport easily in an event to accessing medical care. Following the above, Shen (2005) observed that there are lower mean values for accessibility to hospitals and schools from hotels and it is a true reflection of hotels in the study area. A new development in this hotel market is that accessibility to financial institutions and bus stops is of concern to both investors and clients, because only few hotels have shops. Following the above results, we finally tested the spatial correlation of these services with hotels. Using the hotel grades as dependent variables and distance to shops, banks, hospitals, and bus stops as independent variables, and table 3 depicts the linear sensitivity test results.

Zhou and Clapp (2015) in their estimation used the conditional logit model to examine facility locations, and selections near limited-access highways to determine omitted variables. It was observed that there is high accessibility to the facility if it has a good high way access to the hotel. Their model seems weak because they failed to examine the sensitive of services such as bus stops, banks, hospitals, and shops on hotels. This study further goes beyond to determine the proximity of urban infrastructure services to hotels. From table 3, the analysis showed that Grade one hotels have weak correlation with bus stops and banks accessibilty. Budget hotels have weak correlation with banks only, whilst Grade two hotels have weak correlation with hospitals and shopping centres. Generally, all the UIFS have weak correlation in terms of accessibilty with the hotels. Therefore, this somehow diffuses literature in the developed cities that the spatial correlation of urban infrastructure in emerging cities had positive impact on hotel accessibility. This cauciously implies that when UIFs are not improved it would affect performance in the long run badly in our case.

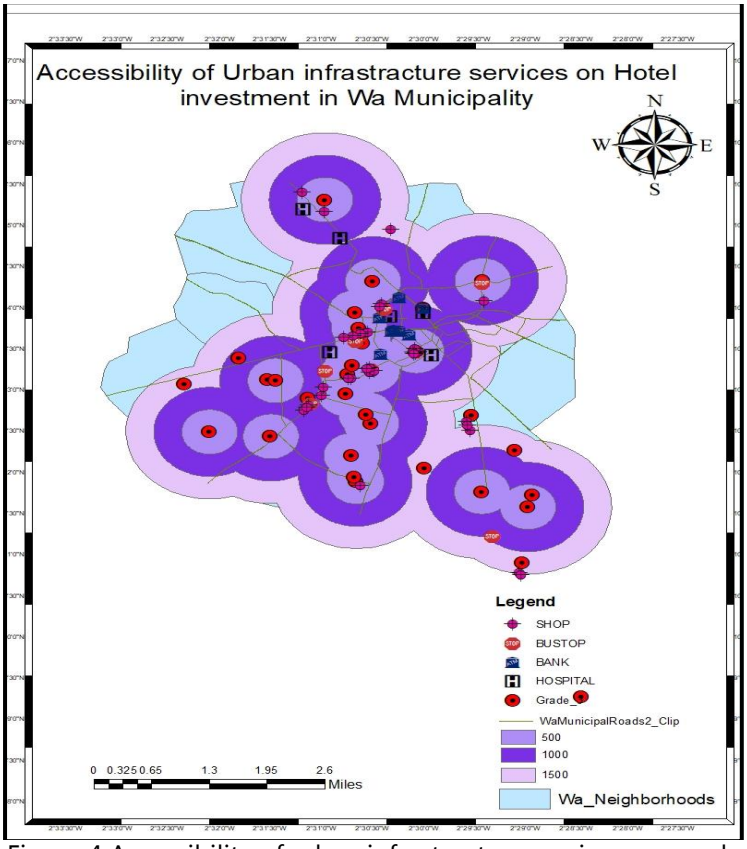


Figure 4 Accessibility of urban infrastructure services among hotel investment in the city of Wa

Traveling time and its effects on client's demand

The travelling time was estimated using the travelling time of a client using a "Camboo" from the central business district to hotels within the inner city and the peripherals. We estimated the records of hotel demand considering the distance. Figure 5, 6, and 7 give the results of traveling time and its effect on hotel demand.

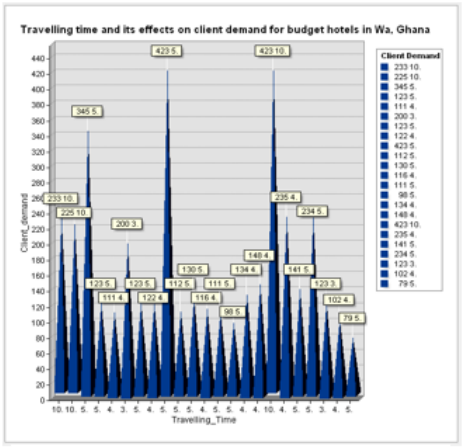


Fig. 5

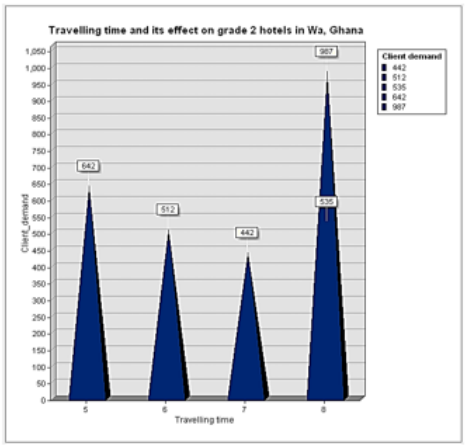


Fig. 6

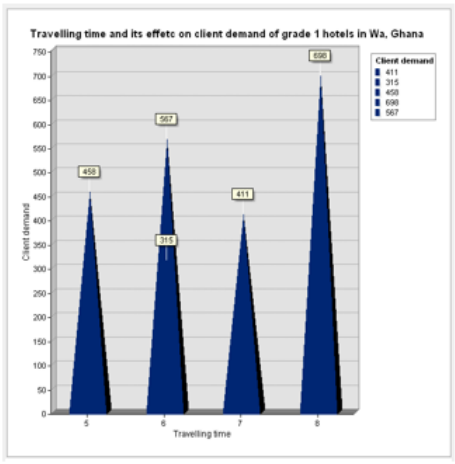


Fig. 7

CONCLUSIONS AND RECOMMENDATIONS

The study presented the spatial accessibility of hotels to UIFS. The study combined the buffer geo-processing model with Proximity test to measure the distance of shops, bus stops, banks, and hospitals to hotels. This combination provides an additional originality to bear to this study. The findings revealed that hotels have low accessibility to UIFS in the Wa Municiplaity. Among the hotel category, budget hotels dominate in the Municipality and hospitals, shopping centres, banks, and bus stops are easily accessibly in terms of distance in the inner city. The development of the Municipality has also seen a spread in budget hotels in the outer zones of the Municipality and this hotel type followed no pattern, unlike Grade 1 and 2 hotels that are mostly located outside the inner-city of the Municipality. The results further showed that most hotels do not provide basic shopping services especially among the budget hotels. Based on the distance,

clients walk a long way to access shops. Also, hotels located far from the road side normally have no shops around. This implies that shop investors target hotel locations that have the highest local demand. Even though these shops are not well-structured, yet, attract the local demand of hotels. With respect to bus stops, most bus stops that fall within 500 metres of hotels have good road network, and sometimes bus stops are located in the opposite direction of the road. Accessibilty to banks showed that most of the hotels are located far beyond the 1500 metre buffer. Only 6 hotels located around the CBD have easy access to banks within 500 metres buffer. It is further realised that aside the banks, mobile money transfer stands are located in some busy neighbourhood where clients can access. The future of hotel investment in Wa Municipality requires that development planners adopt development-based infrastructure provision strategy that captures the impact of UIFs on hotel investment. Thus, urban planners in smaller cities require considering hotel facilities when planning new neighbourhoods for road construction and its ancillary services. All-inclusive collaboration between hotel developers and development planners can provide these services together, especially hotels developing in the peripheries. This will improve hotel accessibility. The Ghana Tourist Authority needs to collaborate with the Land Use and Spatial Planning Authority, Development Planning and the Municipal Assembly to develop an entry guideline for the hotel market. Finally, development planners must educate investors in the need to require planning permission before development.

Theoretical and practical implications

Few geo-information studies on commercial real estate have focused mostly on the impact of UIFS such as bus stops, schools, and land use mix on housing. They focused on accessibility of urban infrastructure to hotels using traveling cost. This study has made a contribution to geo-information studies using other urban infrastructure services such as bus stops, shopping centres, banks, and hospitals in estimating accessibility in small city like Wa. The application of the buffer geo-processing model and proximity test gave a sense of clarity and confidence in estimating the spatial effects of urban infrastructure services on hotels in terms of distance. The study's usage of average traveling time instead of travelling cost was due to lack of data on transport cost. Meaning, the method provides a new approach to examine the effects of urban infrastructure services on hotel accessibility in a smaller city. Further application of interviews and participant observation provided a better understanding of accessibility to hotels. This missing approach in literature added that most bus stops that fall within 500 metres away from the highway have bad road network. However, these bus stops are located in the opposite direction of the road. For this reason, clents must cross to the opposite direction to access an on-coming vehicle. Following this, using travelling cost in estimating easy accessibility to hotels has some flaws in literature.

The study also has some practical implications. The study showed that presence of budget hotels keep spreading around the outer circle of the Municipality, but, poor maintenance culture is common among budget hotels located in the inner-city. This implies that, investors require regular maintainance of hotels if they want to compete effectively in the hotel market. However, the reverse could foresee a future decline in budget hotels which could have diversification disadvantages due to poor maintanance practice. Furthermore, the results showed that most hotels do not provide basic shopping services especially among the budget hotels. Based

on distance, clients walk a long way to access shops. This demonstrates that the establishment of shops in hotels or within a distance less than 100m to hotels will enhance hotel accessibility. Results from accessibility to banks showed that most of the hotels are located far beyond the 1500 metre buffer. This results looked weak as the surounding land use within 500 and 1000 meters are not purposely for banking services. However, the practical implication that can suffice this is that investors who provide hotel services within 1500 meters are likley to enjoy financial service at ease.

Limitations of the Study

Finally, two limtations were realised from the study. Practically, although the study was able to determine the effects of urban infrstructure services on hotels, the study did not further quantify the effects of these services on hotel performance, considering income and hotel price. Based on that further future study is necessary to quantify the monetary effects of accessibility of urban infrastracture on hotels investments. Also, the use of one medium-sized city study can be a major limitation to this study, however, further studies are higly recommended to include other medium-sized cities to validate the findings of this study.

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