2 EXAMINING THE DETERMINANTS OF LOCATION ATTRIBUTES AND THEIR EFFECT ON HOTEL PRICING IN THE PERIOD OF THE COVID-19 PANDEMIC IN AN EMERGING MARKET

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Abstract

The emergence of COVID-19 and the consequent travel restrictions have led to a decrease in the patronage of hotel services in nearly all economies in the world. In this circumstance, location attributes have become even more important in hotel pricing and investment decision-making. It is even more interesting to see how this plays out in emerging economies such as Ghana. The study assesses the effect of location attributes on hotel pricing during the COVID-19 pandemic period in Tamale. A sequential mixed research design including Mixed Spatial Hedonic Price Approach, Exploratory Factor Analysis and key informant interviews was employed. A sample of 815 tourists and 163 hotels was used. Hotel class, road accessibility, age of building, and hotel rate are the key determinants of hotel pricing. Among these, the hotel class showed more significance in influencing pricing decisions in the COVID-19 period. The models show that the hotel class with positive coefficients are located outside the city centre of Tamale. This has resulted in increased Yield To Maturity because the hotels located outside the city centre received more clients, with grade one hotels showing a huge net income and good post-COVID-19 investment drive. The results show that potential hotel investors should consider hotel class as a major entry decision factor during and after periods of the pandemic.

Keywords: geographic weighted regression, hotel investment, hotel pricing, location, Ordinary Least Square

INTRODUCTION

The impact of the COVID-19 pandemic on the global economy has been wide, extensive and far-reaching. In particular, the hotel industry is one sector that has been hard hit by the pandemic. Studies have reported the impact of COVID-19 on hotels to include a significant reduction in patronage and the consequent impact on incomes, employment, reduction in prices, and decline in investment (Nikolić & Mitrović, 2021; Wu et al., 2020). The impact of COVID-19 has been worsened by restrictions to movement imposed by many governments. Like countries such as China, America, England, Italy, India, and Brazil, Ghana had to lock-down parts of the country for several weeks. In addition, Ghana had to tighten its land borders to control entry and the spread of the disease (Agyeman & Ofori, 2020). All these restrictions have had an immense effect on the patronage of hotels, their competitiveness and, therefore, their pricing. Therefore, the decision to invest in the hotel industry requires a thorough analysis of financial requirements, location attributes, franchising options, market size, environmental scanning and local economic conditions (Adam & Amuquandoh, 2013; Mensah et al., 2014; Sami & Mohamed, 2014). Studies by Mihir et al. (2021), Rogerson and Rogerson (2020), and Salem et al. (2021) confirm that the location of hotels has impacted their operations in the COVID-19 era. Location attributes have been classified as the major determinants of pricing and investment in hotels (Aboelmaged, 2018; Cró & Martins, 2017; Lado-

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sestayo et al., 2018; Tavitiyaman et al., 2017). Location attributes affect guests' satisfaction (Yang et al., 2018), taxes and recruitment of workers (Rasciute & Downward, 2017), pricing and demand (Conroy & Gibson, 2019), as well as value creation (Peiró-signes et al., 2012). Even though these studies focused on the effects of location attributes on hotel pricing, these attributes did not take into account the effect of the COVID -19 pandemic on the economies of the study areas. It is anticipated that the pandemic will negatively impact investment returns in the hotel industry.

As a result, the focus of hotel pricing and investment research should incorporate the effects of location attributes during the COVID-19 period. However, the knowledge of the impact of a pandemic on location attributes in hotel pricing is scanty. According to Merchant (2015) and Li and Du (2018), providing investors with knowledge of the effects of location attributes on pricing during a pandemic contributes significantly to growth in client demand and accessibility. In addition, it will fill the knowledge gap in this area. While location attributes such as hotel accessibility, structural age, hotel rating, and availability of building services impact pricing (Hung et al., 2010), the occurrence of the COVID-19 pandemic might intensify their effects. Therefore, this study seeks to examine the determinants of location attributes and their effect on hotel pricing in the period of COVID-19.

Methodologically, the geographically weighted regression model and the spatial autocorrelation model have been used to assess the impact of location on hotel room prices in developed countries (Cró & Martins, 2017; Fang et al., 2019; Lee & Jang, 2012). The study is situated in the city of Tamale, the capital of the Northern Region of Ghana. Tamale is one of the fastest-growing cities in West Africa. The annual increase in urban growth is about 2.9% (Fuseini et al., 2017). This urban growth generates problems associated with urbanisation such as overcrowding, human traffic, poor sanitation, and high crime wave but it also presents an opportunity for the growth and development of the hotel industry because of the increased demand. This study examines the effects of location attributes on hotel pricing in the period of COVID-19 in Tamale.

The study provides a theoretical contribution in two major ways. First, methodologically, the integration of the Geographic Weighted Regression Model, Ordinary Least Square, Exploratory Factor Analysis and Yield To Maturity contributes to knowledge in heuristics aimed at guiding hotel pricing and investment decisions during periods of a pandemic. Secondly, this study contributes to the literature from the perspective of an emerging economy context, given that most of the studies on the effects of location attributes on hotel pricing have been from the developed city context. The paper is divided into five sections. The next section reviews the literature on Spatial Hedonic Models and location attributes studies. The third section presents the study methodology. Section Four presents and discusses the results, while Section Five presents the conclusions and recommendations

LITERATURE REVIEW

Spatial Hedonic Pricing Models

Hedonic price models (HPM) are based on the assumption of Gorman (1980) or Lancaster (1966, 1979) that products are appreciated for the utility impact of their attributes, which became a focal economic analytical tool by Rosen (1974). The Hedonic pricing theory posits that customers have inherent satisfaction from each element that has a more desirable price. Spatial Hedonic Pricing Model (SHPM), a type of spatial data integrated HPM, has been applied in the hospitality industry in two ways. First, the spatial attributes influence the estimation of

the value of real estate (Kaur & Arora, 2020; Lee & Jang, 2012; Mccord et al., 2012). Thus, SHPM assumes impartiality when predicting property values based on occupancy, location, and spatial amenities linked to the hotels. The second one is the assumption that suitable consumers' offer price for a hotel room is based on a bundle of attributes such as type of accommodation, hotel ratings and location (Gavilan et al., 2018; Mohaidin et al., 2017). Studies have used Geographic econometric models such as Geographic Weighted Regression models, Spatial Autocorrelation, and Spatial Ordinary Least Square Regression models to estimate the effects of location impacts on hotel pricing and sales. Xu et al. (2019), using Ordinary Least Square (OLS) and Geographic Weighted Regression (GWR) analysis, found that hotels in London were spatially non-stationary and associated with higher transportation accessibility. Soler and Gemar (2019), using GWR to study 57 hotels using room rate, location and hotel size as assessment variables, found that using GWR alone to estimate the model coefficient was misleading. They further used the OLS to improve the model and found that spatial correlation generates different patterns of room rate which affect location decisions. Again, Latinopoulos (2018) used the Geographic Weighted Regression model to assess the local effects and spatial variability of locations such as room rate and sea view. Their analysis found a significant spatial variability regarding the impact of sea view on room rates. This implies that the use of few locational variables makes the GWR significant and shows spatial variations across the study locations. Olfert (2014) supports the earlier claim but found significant spatial heterogeneity in the regression coefficients when estimating hotel location variables in some U.S metropolitan cities. Jin et al. (2019) in a study on the spatiotemporal connection of location variables in some regional tourism economies in China found that GWR was superior when analysing the spatiotemporal relationship at the global and local levels. The nature of development and investment locations in African countries makes it difficult to quantify spatial variations in pricing decisions. Therefore, GWR and OLS were adopted in this study.

Location Attributes

The location of a hotel gives it a competitive advantage over others in the industry and an inherent driver of investors' choice to invest (Hilmi & Hadi, 2016; Oliveira et al., 2013; Yang et al, 2018; Yang et al., 2016). The location of a hotel is very significant because it encompasses the neighbourhood of the investment, the distance to the central business district (CBD), recreation centres, education, transportation and health facilities (Qi et al., 2017). Other studies have also revealed that potential locations serve as the buying power of demand point by clients, Euclidean distance between investment facility, and potential location of the investment (Neves et al., 2014; Xie et al., 2018). The distance affects entry into the investment market of hotels because it augments transport costs (Santos et al., 2016). For instance, Cró and Martins' (2018) study on hotel location strategy revealed that accessibility to transport services was more crucial than cultural attractions. The study further found that high-class hotels were located in newly rehabilitated city areas classified as safe and far away from commercial areas (Cró & Martins, 2018). Their study further found that low-class hotels do not have any significant difference in pattern, hence benefit less from agglomeration effects. Egan and Nield's (2000) study on the spatial distribution of hotels using concentric circles found that high-quality hotels are located in the city centre. However, their study failed to determine accessibility based on hotel quality. Shoval (2006) argues that proximity to the centre is associated with a hotel's location and the kind of clients targeted (Ashworth & Tunbridge, 1990; Lee & Jang, 2007). In support, Lado-sestayo and

Fernández-castro (2019) and Shoval (2006) assessed the performance of hotels by analysing the impact of location and accessibility of transport services using geographic models. Their study (Lado-sestayo & Fernández-castro, 2019; Shoval, 2006) found that relying on the centrality of the hotel does not provide a good model fit, but accessibility to transport routes ensures easy access to hotels. Additionally, McCann and Folta's (2009) study confirmed that tourists living in the city centre feel safer and more secure. Hotels clustered in the city centre mean an increase in occupancy rates and returns.

Location of hotels closer to each other also ensured spill-overs aimed at improving performance (Rodríguez-Victoria et al., 2017). The age of hotel building affects the pricing of hotels because of the high maintenance and remedial costs involved such as plumbing and drainage systems (Ali et al., 2010). However, Huang et al. (2010) argue that building age affects customers' willingness to book a hotel and influences its ratings. Other location attributes including sea view, the proximity to an airport, beach and natural protected zone and the distances among similar hotels affect their prices. A study by Alegre et al. (2013) that examined the effects of location attributes on hotel price packages identified an increase in prices for rooms with sea view, and an increase in price with proximity to airport and beach. Furthermore, the extent of attraction and the types of commercial land-use close to hotels correlate with the spatial distribution of upper-grade hotels and inform their prices (Li et al., 2015). Also, Mandic and Petric's (2021) study revealed that protected natural zone location and its attributes had positive links with hotel prices. The neighbourhood characteristics of hotels such as the availability of swimming pools or sports facilities have different influences on their prices (Salo et al., 2014). Distance constitutes a major location attribute of hotels (Alegre et al., 2013) and distance affects price competition among hotels where competition increases with distances among comparable hotels (Lee, 2015).

COVID-19 Related Research on Hotel Pricing

Recent studies point to contradictory results on the effects of COVID-19 on hotel pricing (Denizci Guillet & Chu, 2021; Lai & Wong, 2020; Nikolić & Mitrović, 2021). The importance of hotel pricing strategies has gained prominence in the period of COVID-19 (Denizci & Chu, 2021; Spanaki et al., 2021). However, the crisis management practices in the hotel industry have downplayed the significance of COVID-19 on hotel pricing (Lai & Wong, 2020). In another study, personalization strategies also served as drivers of hotel pricing and had more potent effects on hotel pricing (Nikolić & Mitrović 2021). COVID-19 also has effects on hotel pricing through price-dropping (Majumdar, 2021), which is differentiated by hotel rating (Wu et al., 2020).

METHODOLOGY

The study used a sequential mixed methods design to collect and analyse data. This includes quantitative and qualitative data acquisition approaches. The study used quantitative approaches, in particular, spatial hedonic regression models including Ordinarily Least Square (OLS) and Geographic Weighted Regression (GWR) model, Exploratory Factor Analysis (EFA) and Yield to Maturity (YTM) to determine location drivers and their effect on hotel room price in the COVID-19 period in Tamale. The qualitative aspect involved the use of interviews to collect qualitative data to confirm quantitative results.

Study Location

Tamale is the capital of the Northern Region of Ghana (see Figure 1). It lies between the longitude of 00˚51'12'W and latitude 09˚24'7N. It is the third city with the highest population growth rate (2.9% per annum) in Ghana. About 36.5% of the population of the Northern Region resides in Tamale. Tamale is also described as the fastest growing city in Ghana (Fuseini et al., 2017). The city serves as one of the busiest regional capitals in terms of education, business, sports, and agriculture. Also, the Tamale Teaching Hospital serves as the only tertiary health facility for the Northern sector of the country. It also served as the only testing and referral centre for COVID-19 during the first wave of the disease. The city has about 163 registered and unregistered hotels (Ghana Tourism Authority, 2019). These features make Tamale a suitable area for a study related to hotel pricing in the period of the COVID-19 pandemic.

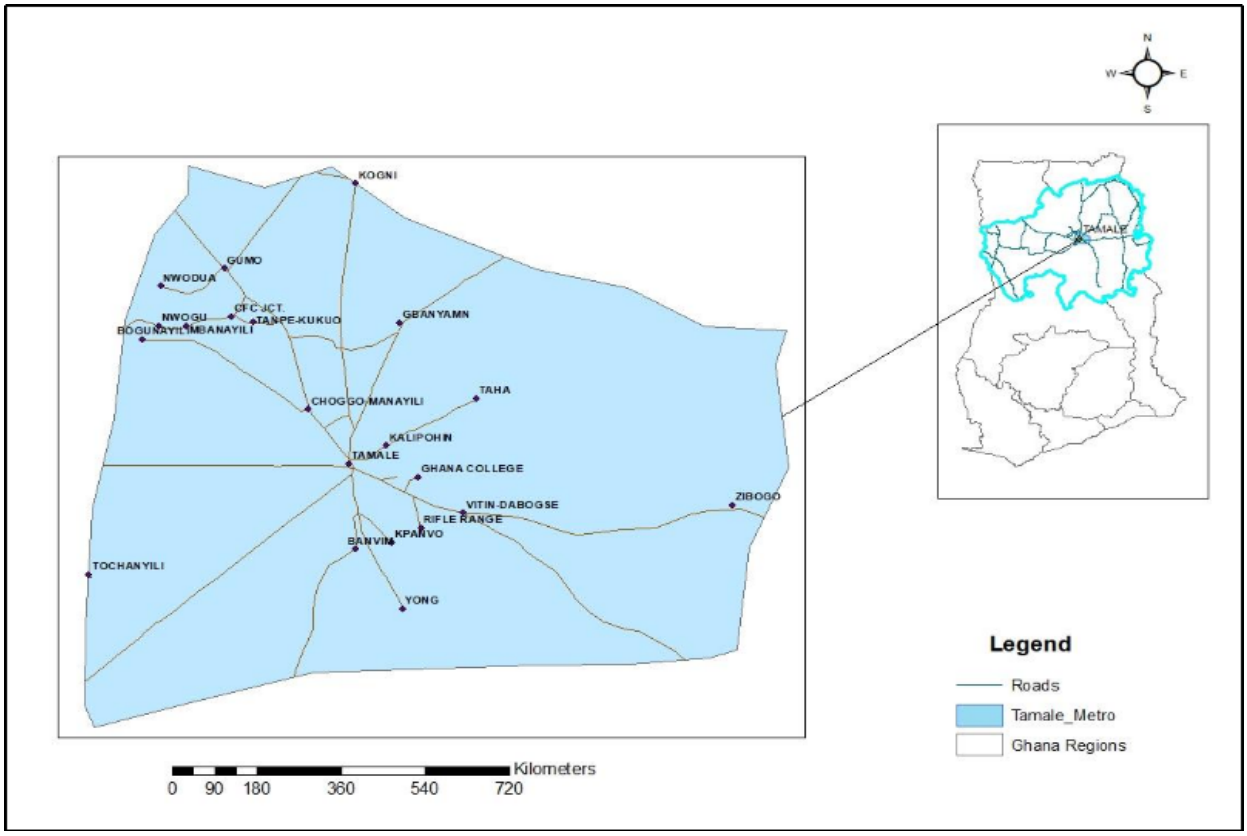

Figure 1: Map Showing the Study Area

Research Design

The study used the sequential mixed methods research design with four phases of data collection and analysis. During the first stage, geographic ground control points of all hotels in Tamale were collected. Considering the geographic variations, the study assessed hotels in the city centre and the periphery. The second phase involved the collection of hotel room rates of all contacted hotels from each location and assessing the accessibility of the hotels by considering the distance to a major road network and transport services. The third phase involved a survey of tourists on the location variables to confirm the spatial effects of location on hotel pricing in Tamale using Exploratory Factor Analysis. The last stage involved key informant interviews of hotel investors

in Tamale to confirm the results of Yield to Maturity (YTM).

Sampling and Instruments

The study adopted both convenience and purposive sampling methods. Data were collected from all the 163 hotels in the city. Using convenience sampling, questionnaires were administered to 815 visitors who were willing to participate in the study. The kobo collect application was used to collect data, using the questionnaire. The questionnaire sought information on location variables including road accessibility, transport services and so on. The responses to the questions across the hotel categories are presented in Table 1. The results helped to confirm the spatial effects of location on hotel pricing in Tamale using Exploratory Factor Analysis (see Table 6). The purposive sampling approach involved conducting semi-structured interviews with hotel investors to confirm the results of the Yield to Maturity (YTM). Consequently, five key informant telephone interviews were conducted among the leadership of the hotel association.

Table 1: Age and Gender of Respondents

	Age and Gender								
Class of Hotel	20-30	30-40	40-50	50-60	60-70	70+	Total	Male	Female
Class 1	21	95	91	48	9	5	269	173	96
Class 2	45	60	52	74	24	17	272	152	120
Class 3	37	109	29	38	28	33	274	204	70
Total	103	266	172	160	61	55	815	529	286

Measurement of Variables

The study adopted the classification of hotels by the Ghana Tourism Authority (GTA). GTA classifies hotels into Class 1, Class 2, and Class 3. In using the Geographic Weighted Regression Model and Ordinary Least Squares, the selected dependent variable was the hotel room price, with road accessibility, building age, and hotel class as independent variables (see Conroy & Gibson, 2019; Kim et al., 2018; Li & Du, 2018; Yang et al., 2018). Considering the EFA, the variables were measured using a four-point scale ranging from strongly disagree to strongly agree.

Model Definition and Analysis

The study defined the GWR and OLS model by assuming that the relationship between defined variables of location and pricing affects investment returns. The OLS-GWR models can be defined as:

$$HP_i = \beta_0 + \sum_{l=1}^{c} \beta_l M_L + n_i$$

where HP_1 represents the hotel room rate or price at the ith location, i is the number of hotels, l indicates the number of location points (l=1,2,3…..,c), M_l is the location variable that truly explains the hotel room prices, n_i denotes the random error term of hotel price, and β_l is the associate parameter explaining the hotel room prices. The data analysis involved three phases.

Using the ArcGIS software version 10.8, the study conducted three analyses during the first phase. The first analysis was to find basic descriptive statistics including mean, minimum value, maximum

value, and standard deviation among hotel location variables. In the second analysis, the study used spatial autocorrelation to estimate the distance (p-value and z-score) effect on hotel location as a measure of spatial dependency and reliability (see Table 2). The third analysis involved an estimation of the relationship between hotel room prices and the location variables using the OLS regression model. Using the same dependent variable, GWR was used to identify variations in the relationship between hotel price and its location variables. The R-square, Adjusted R-square, and local coefficient were analysed and compared with the GWR and OLS as a measure of location effect on hotel pricing.

In the second phase of the analysis, the study used the EFA to determine the differential significance among the location variables. The EFA is normally used at the early stage of research to confirm specific theories as a basis for providing sound conclusions and also to examine the inter-relationships among variables (Child, 2006). The study first conducted data suitability tests to avoid multicollinearity and to ensure acceptable internal reliability of constructs using Cronbach's Alpha (Momen et al., 2020). The study used the Varimax approach, Bartlett's test of sphericity and Kaiser Normalisation of values to extract the correlation matrix and the ratio of correlation among variables.

In the third and final phase of the analysis, the study estimated the Yield to Maturity of the hotels considering the location effects of city centre proximity to hotels. Here, we analysed the average room rate, fixed cost, variable cost, average number of rooms per hotel class, number of rooms occupied per annum, total revenue, and net income. This model was used to estimate the effects of location on hotel yield in the city of Tamale.

RESULTS AND DISCUSSIONS

Tables 2, 3, and 4 present descriptive statistics, EFA, GWR, and Global Moran's data reliability test results for hotel locations in Tamale. Table 2 shows that the average room rate was GH₵172.5 and a range of GH₵50 to GH₵350. In terms of location attributes, the average distance to the city centre is 2.3km, with a maximum distance of 5.2km and a minimum of 1km away from the hotels. The average age of a hotel building in Tamale was 6.9 years. The range is 17 years for the oldest and one year for the newest. The average class of the hotels was 2nd class, with 3rd class being the highest and class 1 the lowest. The test for spatial collinearity shows that there is not much difference between the local R square and the adjusted R square (see Table 4). This implies that there is collinearity and spatial variation among the independent variables of location in Table 2. These results show that the explanatory variable of the model was not stationary across the study area, hence affecting pricing decisions. The global Moran's test produced a z score of 1.79, showing a confidence level of 95% and a p-value of 0.734. The random spatial variations among the hotel locations are presented in Figures 2, 3, 4, 5 which give the visual display of the spatial pattern of the variables from the GWR test. Again, the Exploratory Factor Analysis data suitability test results (Table 3) showed Bartlett's Sphericity Test of 1979.9 at a significance level of 0.00. The Cronbach's Alpha and model determinants showed a score of 0.714 and 0.548, indicating good reliability and absence of data multicollinearity among the location attributes (see Table 3).

Table 2: Descriptive Statistics of Location Variables

Variable	Mean	SD	Max	Min
Hotel_Rate	172.5	64.546967	350	50
Trans_Access	2.329878	0.944185	5.2	1
Building_Age	6.932927	2.763285	17	1
Hotel_Class	2.16	0.81	3	1

Table 3: Data Suitability Test Results of Location Attributes

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.761
Bartlett's Test of Sphericity	Approx. Chi-Square	1979.9
	df	21
	Sig.	.000
Cronbach's Alpha		.714
Determinant		0.0000548

Table 4: Data Reliability Test for Hotel Location in Tamale

	GWR	Global Moran' Summary
AIC	1752.8578	
R^2	0.42168	
R^2 Adjusted	0.40123	
Residual Squares	395057.38	
Sigma	49.691	
Moran's Index		0.088651
Expected Index		-0.00614
Variance		0.00280

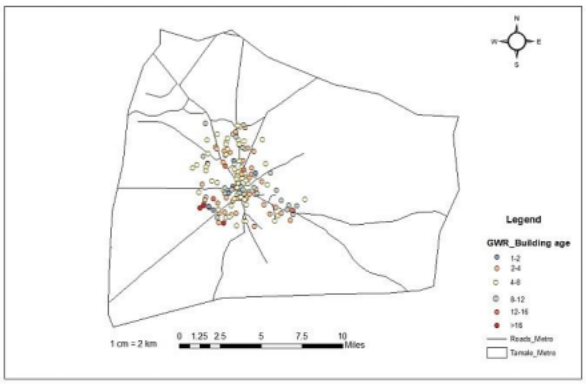

Figure 2: GWR Results of Age of Hotel Building

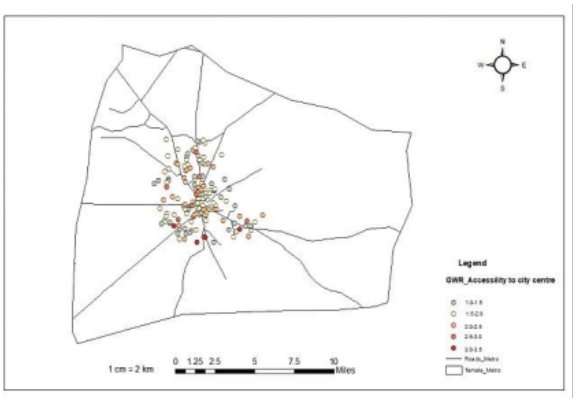

Figure 3: GWR Results of Hotel Accessibility (Km)

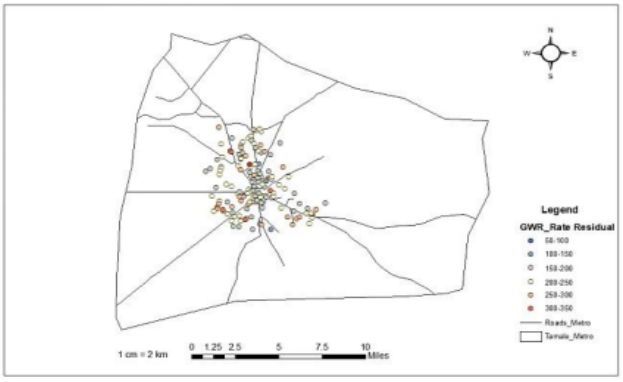

Figure 4: GWR Results of Hotel Rate

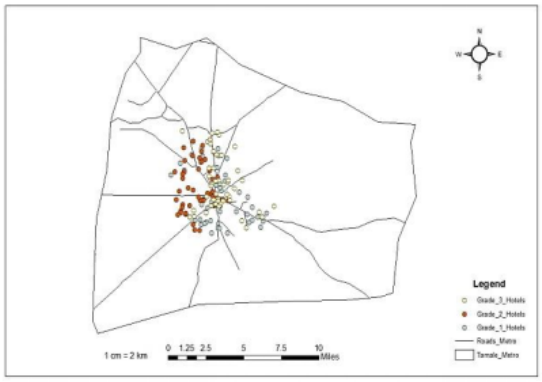

Figure 5: GWR Results of Hotel Class

What Location Attributes Influence Hotel Pricing?

Using the OLS model results, Table 5 shows spatial variations of hotels and their location variables. Considering that location influences the purchasing power of clients, Euclidean distance between investment facility, and potential location of the investment (Neves et al., 2014; Xie et al., 2018), the current results show that all independent variables are significant in determining hotel prices, except the age of hotel building and road accessibility. Road access contributed -2.99 to the variance while hotel class contributed 49.144, and age of hotel building -2.3. This implies that hotel class is positively associated with room price, compared to the other variables, which confirms the results of Wu et al. (2020) where hotel rating was determined by room pricing. The results of the survey conducted on tourists confirmed that the perception of hotel class as a significant determinant of price reflects the capabilities of adhering to COVID-19 protocols. This is because the bundle of services is commensurate with the class of the hotels. Aside, the bundle of services varies with the class in terms of facilities and amenities across the study location. Geographically, maps showing the spatial distribution of the coefficients in the OLS tables (Figures 6, 7, 8) confirm that hotels with positive coefficients are located outside the city centre. Hotels showing negative coefficients were located in the city centre. It may be assumed that visitors perceived the city centre to be congested and crowded, therefore, not allowing for the effective observance of the COVID-19 protocols. Comparing the GWR and OLS models, the results show little variations in Adjusted R square (ranging 0.50123 – 0.51096). This differs from the results of previous studies by Latinopoulos (2018) and Xu et al. (2019) in developed countries where there was a vast variation in adjusted R when assessing the spatio-temporal regional development of hotels.

COVID-19 Determinants Effect on Hotel Pricing Decision

Among the attributes, hotel class and road accessibility mostly explained the spatial impacts of location on hotel pricing (see Table 6). Concerning the hotel class, visitors based their decisions on hotels with a sanitised environment to avoid easy spread, good mechanisms for distributing food and other services, innovative means for management-client communication (for example, contactless checkout), and willingness to address a health concern. All these contribute to the variance explained for the hotel class. On the aspect of accessibility to a road, 17.029% contributed to the total variance explained.

Table 5: OLS Model Showing the Impact of Location Attributes, on Hotel Pricing in Tamale

Summary of OLS results								
Variable	Coefficient(A)	Std._Error	T-Stats	Probability(B)	Robust_Se	Robust_T	Robust_Pr(B)	Vif©
								……
Intercept	269.888	18.13086	14.8856	0.0000*	17.31309	15.5887	0.0000*	….
Road_Access	-2.997072	4.134801	-0.72481	0.4696	4.121489	-0.72718	0.4681	1.012313
Hotel Class	49.14451	4.865086	10.1015	0.0000*	4.649339	10.5702	0.0000*	1.040586
Age_Building	-2.304075	1.423948	-1.61809	0.1076	1.464289	-1.573511	0.1175	1.028324
Model Diagnosis								
Multiple R^2	0.521802							
Adjusted R^2	0.51096							
Joint F-stats	0.0000*							

* indicates statistically significant p-value (p<0.01)

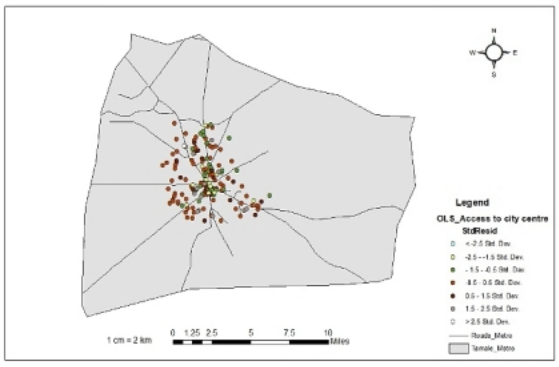

Figure 6: OLS Results of Hotel Accessibility to City Centre

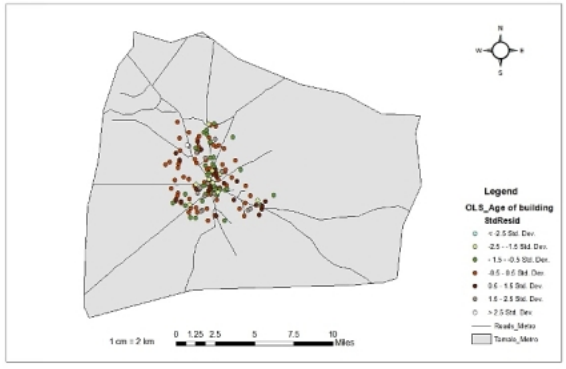

Figure 7: OLS Results of Age of Hotel Building

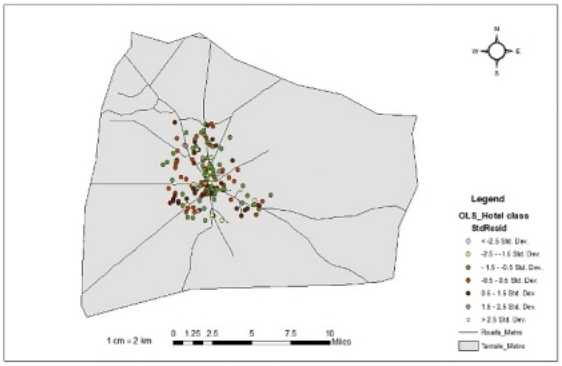

Figure 8: OLS Results of Hotel Class

The convenience of transport services was the highest variance that explained road accessibility. The ability to reach the hotel on time and easy access to the city centre contributed less to the total variance explained by road accessibility. These are intervening factors that influence the determination of hotel room price and deviate from the results of a study by Spanaki et al. (2021) who found that aggressive pricing strategies were determined by management and not clients.

Effect of Location on Hotel Investment for Post-COVID-19 Recovery Using YTM Approach

The locations of hotels have largely affected investment in Tamale in the COVID-19 period. Table 9 shows five possible cases of hotels in the city centre that recorded different YTM levels of 45%, 59% and 54% (Table 9) and 67.30%, 47.70 and 14.90 (Table 10) respectively. The results in Table 10 indicate that Class 1 hotels are making a good investment impact in YTM compared to those in the Class 2 category.

Table 6: Major Locational Attributes Influencing Pricing

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.937	41.962	41.962	2.937	41.962	41.962	2.865	40.933	40.933
2	1.120	15.999	57.962	1.120	15.999	57.962	1.192	17.029	57.962
3	.933	13.329	71.291						
4	.694	9.919	81.210						
5	.557	7.950	89.160						
6	.518	7.403	96.563						
7	.241	3.437	100.000						

Extraction Method: Principal Component Analysis.

Table 7: Factors Attribute Loading Results of Location Drivers among Hotels in Tamale

Factors influencing pricing	Attributes loadings	Variance explained
Factor 1: Hotel class		40.933%
Hotels that observe the COVID-19 protocols	0.980	
Hotel with a sanitized environment to avoid easy spread of the virus	0.563	
Hotel prioritizes food and other services distribution mechanisms to tourists	0.911	
Innovations employed in management-tourist communication such as contactless checkout	0.990	
Willingness to address health concern	0.880	
Factor 2: Road accessibility		
The ability to use a convenient transport system	0.626	17.029%
Easy access to hotel to avoid COVID exposure	0.698	
The ability to access the city centre is a concern	0.547	

There is, however, a reduction in YTM in both models. This is reflected in the net income between Class 1 and 2 hotels in terms of location. The average room rate in Tables 9 and 10 show that hotel room rates for Class 1 hotels do not change compared to Class 2 and 3 as compared to other studies where COVID-19 has affected prices and incomes of hotels through price-dropping (Majumdar, 2021). Additionally, it can be observed that Class 1 hotels make a significant contribution in the number of rooms patronised and net income when located outside the city centre. An investor added a contribution to this by stating that:

> …I see the city centre as the easy place for my clients to get a car to any village around us and other parts of the country, but the patronage has reduced because of the COVID-19 as such it affected our ability to pay workers and to cover our operational cost (Hotel investor, 2020).

This result contradicts the findings of Susana et al. (2018) in which transport accessibility was crucial in determining hotel pricing and investment. Similarly, class two hotels located outside the city centre have high prices, which are about GH₵20 higher than those in the inner city. This result parallels that of McCann and Folta (2009) who found that tourists living in the city centre feel safer and more secure. However, there is not much change in net incomes. The responses of some investors seem to corroborate this assertion:

> …..For us [hotel investors], we are ok because some tourists who usually book rooms outside the city centre now love to live in class two hotels away from the city centre. After all, outside the city centre, you can use other alternative transport to the city centre at ease and safely (Hotel investor, 2020).
>
> ….I think that living in hotels outside the city centre reduces the risk of contracting the COVID-19 disease. So, I think that is why a lot of the people turn to patronise our services more these days than before. You know, we have also put measures in place to ensure the safety of our visitors (Hotel investor, 2020).

The results further show that Class 3 hotels are making positive returns compared to Classes 1 and 2 in Tables 9 and 10. In Table 10, Class 3 hotels are making losses that impact the average number of rooms recorded in a year. The results confirm the claim by Lado-sestayo and Fernández-Castro (2019) who found that the centrality of a hotel does not provide a good model fit, but accessibility to transport routes ensures easy access to hotels. The models show that cumulatively, Class 2 hotels are making higher investment returns compared to Classes 1 and 3 hotels.

CONCLUSION AND RECOMMENDATION

The location of hotels has always been an important factor in hotel investment decision-making, but it has become more imperative in this period of COVID-19. This study examined the location attributes that influence hotel pricing and investment in the period of COVID-19 in the context of a city in an emerging market, Tamale. Using the GWR and OLS, the study established that accessibility, age of building, hotel room price, and hotel class are important local factors that affect hotel pricing.

According to Spatial Hedonic Price Model, combining OLS and GWR enables the determination of the local effect and variations in location attributes that influence hotel pricing and investment decisions. The two models have shown in this study that during the period of COVID-19, hotel location has little effect on average room price. The study concludes that factors other than location explain the patronage of hotels.

Table 9: Modelling Pricing and Investment Decision in the City Centre (Model A)

Hotel Class	Average room rate (GH₵)	Number of rooms sold	Total revenue (GH₵)	YTM	Variable cost (GH₵)	Fixed cost (GH₵)	Net Income (GH₵)
Class One	300	1,712	37,356	45%	14,380	20,000	2,976
Class Two	180	2,357	63,141	59%	28,565	20,000	14,576
Class Three	100	5,378	74,856	54%	35,117	20,000	19,739

Table 10: Modelling Pricing and Investment Decision Away From The City Centre (Model B)

Hotel Class	Average room rate (GH₵)	Number of rooms sold	Total revenue (GH₵)	YTM	Variable cost (GH₵)	Fixed cost (GH₵)	Net Income (GH₵)
Class One	300	3,428	59, 523	67.30%	17,885	12,000	29,638
Class Two	200	1,101	38,727	43.70%	12,647	12,000	14,080
Class Three	100	912	12,111	14.90%	9,313	12,000	-9,202

The study found that Class 1 hotels located away from the city centre observed increased patronage and consequently an increase in net income. That explains the reason why the OLS model showed a reduction effect on hotel pricing. However, the model did not show much change in pricing even though COVID-19 had affected patronage. This study also found that hotels located in the city centre experienced increases in returns but a reduction in patronage within the COVID-19 period. This confirms that OLS is a good measure, to quantify the spatial variation and its drivers on hotel pricing. However, combining OLS and YTM models provides practical and theoretical knowledge into heuristics aimed at guiding hotel pricing decisions in other emerging markets.

The paper recommends that future studies consider non-location attributes in applying these methods to a problem situation during the COVID-19 period. Furthermore, it recommends that investors focus on investing in Classes 1 and 2 hotels on the fringes of the city since that appears to yield better returns on investment even in a problem situation such as a pandemic. Given that road accessibility influences hotel prices, it is also recommended that city authorities improve road access to hotels to promote local competitiveness.

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