

Determinants of urban Land Price in Freetown, Sierra Leone

Victor Tamba Simbay KABBA^{1,2} and Jiangfeng Li³

¹Department of Land Resources Management, Faculty of Economy and Management, China University of Geosciences, Wuhan, Hubei Province 430074, China

Victor_kabba@yahoo.co.uk; 0086-15827480592

²Institute of Geography and Development Studies, School of Environmental Sciences Njala University, Republic of Sierra Leone

³Department of Land Resources Management, Faculty of Earth Resources, China University of Geosciences, Wuhan, Hubei 430074, China

Abstract: Internal migration has over the last two decades increased demand for residential land in Freetown. Unfortunately, access to land via the government functionary has not kept pace with demands. The majority of the population therefore depends on the unofficial land market. This study addressed two objectives. The first attempted to identify the most important variables that determine urban land price. The second compared the east, and west sections of the city, in terms of which factors are significant in determining land price in each area. Taking eight settlements, four on either side of the city centre, 160 residents were interviewed for objective one. A model was developed using 10 variables, and a regression equation, based on land maximization theory was ran. The obtained parameters- $r^2=0.81$, $P=0.000$, $t=0.05$, indicated a strong overall positive correlation between the dependent and explanatory variables, and the regression model highly significant. Positive correlation coefficients were shown by income, population, infrastructure, social status, environmental concerns and neighbourhood. These indeed explained the factors that influenced residential land use in Freetown, especially in the western half of the city. For objective 2, a total of 40 land traders and 40 land buyers were interviewed, and the results presented in percentages. These showed that the two sides agreed only on income, and population as significant in determining land price. We concluded that this had to do with class division, as the west houses the three arms of government, diplomats, and wealthy, as against the middle and low class in the east.

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1. Introduction

Developing countries in the last three decades have recorded enormous transformations in their social, economic and demographic status. Increase in population, and urbanization have particularly been singled out. The attraction by the cities of the population places sustained pressure on urban services and facilities such as hospitals, educational institutions, housing, transport, telecommunication systems and energy supply (Sivam, 2002). This is because the growth of the urban population out paces services provided, thus creating a wide margin between demand and supply of urban infrastructural facilities and services (Olayiwola et al, 2005).

The demand for land has particularly been of an increase in cities all over the world, as world population swells. With this, has been singled out the demand for residential land use. Residential use is the largest consumer of land in urban areas. All things being equal, population increase goes with a

proportionate increase in demand for urban land for residential purposes. Access to residential land has been the concern of researchers, in terms of the socioeconomic and environmental implications.

In urban areas, access to land is through the land market. A land market is defined as, "a framework through which seekers of land for various uses can acquire it for its development into the required uses" (Dowall, 1991; cited in Owei, 2007). Like most economic transactions, economic forces of demand and supply are expected to determine price of urban land. In general, the relative scarcity of land allocated to different land uses influence the price greatly. If urban land supply is very responsive to demand, land prices will tend to reflect the productive value of land. On the other hand, if urban land markets are constrained and cannot effectively respond to demand pressure, land prices will tend to be much higher, exceeding their productive value.

However, Bryant (1972) has shown that the laws of supply and demand are not adequately observed in

land markets. There are a number of reasons for this. In the first place there is an inherent monopoly in terms of supply. What this means is that land is different from goods, services and other commodities because its supply is relatively fixed. In addition, the heterogeneity of land plots in terms of location and quality makes the urban land market imperfect in nature (Zhu, 2002). Land price is generally non-stationary when its temporal dimension is considered (Hannonen, 2008).

David Ricardo and Johann Heinrich von Thunen's 19th century literatures provided the first, though opposing theories on land use and land valuation, and on which the present-day theories of land use and land value are based. Whilst Ricardo's economic theory was based on relative productivity of agricultural land, von Thunen's geographical theory considered the locational attributes of land in terms of its values and use.

Using soil fertility as a dependent variable, Ricardo pointed out that the most fertile lands on an agricultural landscape are the first to use during cultivation, followed by the less favored land, which is put to use only when the demand for agricultural products increases. The rent on the most productive land is a function of its advantage over the least productive, with competing farmers insuring that the full advantage goes to the landlords in the form of rent (Alonso, 1964). To Ricardo, land value depends on absolute and relative productivity of land. A notable shortcoming of Ricardian land rent theory is that it does not account for location. This was addressed by von Thunen, who focused on absolute and relative spatial locations of human activities on a landscape. To him, the economic forces of demand and supply determine the value of land. That is, the decision on establishing a given value (price) for land is made when land owners and buyers interact. The goal of the landowner is to maximize returns, whilst the buyer pays the price that could give good returns on the land. Land users bid against one another for the right to use land. His market model for land value is mathematically expressed as:-

$$\text{Land rent} = (\text{total revenue}) - (\text{total cost}) - (\text{total transportation cost}) \quad (1)$$

where, total revenue is money received by the land user from the sale of product at the central market; total cost is all agricultural inputs as well as *opportunity cost* of the land user; and transportation cost is total expenditure of getting goods to market.

Following Ricardo and von Thunen, Weber (1909) analyzed the distribution of Industrial

locations around a central city, taking into consideration the volume of materials to be shipped, the distance that the goods had to be shipped, and the unit distance cost of shipping; consequently. In essence, industries become located in particular concentric zones around a central city. Burgess (1925) did a similar model by analyzing the distribution of urban land uses in Chicago using a concentric zone model of both industrial and residential uses around a city centre. This was followed by Christaller's (1933) Central Place Theory on a Germany city. His theory focused on the number, size and location of human settlements in an urban system. To Christaller, each settlement functions as a central place that provides services to neighbouring areas.

Thence, several scholars (Muth, 1969; Alonso, 1964; Barlowe, 1978; Mills, 1981; Baross and Linden, 1990) determined the optimal pattern of land prices in zones, located at different distances from the center of a city. They proposed distance decay models for assessing the impact of distance on the land values. They have argued that under efficient market conditions, land values tend to go down slowly but systematically with increase in distance from city core [otherwise known as the Central Business District (CBD)] and suburbs centre. Hurd (1903) had earlier built upon Ricardo's idea to present the case of a city or urban land. His theory is summarized as:-

"Since value depends on economic rent, and rent on location, and location on convenience, and convenience on nearness, we may eliminate the intermediate steps and say that value depends on nearness".

Such nearness could be nearness to city center, social amenities, market areas, sea port or other such factors that buyers and sellers consider important in influencing land prices on the urban land market. It should be hastened to say here that the theories and models described above are more applicable in the industrial north, and not necessarily to developing countries in determining the value of land situated at varying distances around the city.

Urban land markets play a critical role in shaping urban development outcomes. They determine the location, density, form and price of residential, commercial and industrial development (Serra et al 2004). In general, the demand for urban land is influenced significantly, but not limited to population growth, income, and level of economic activity. The supply on the other hand is determined by location-specific characteristics of the land itself, such as topography and physical conditions; amenities such

as availability of infrastructure: roads, water, electricity; patterns of land ownership and government policy.

In Sierra Leone, like, most African countries, the concept of land markets has not received sufficient attention in the analysis of processes of access to land. Whilst there is no denial that it does exist, it operates outside the realm of official cycles. Access to land is either through the official government channel, or the unofficial land market. In the official government scheme, land is leased to individuals (upon application), or granted, but not sold. Owners of such lands are not permitted to trade or exchange it in cash or kind. In the unofficial system, access to land is by way of a number of channels including purchase (Kironde, 2000). Baross and Van der Linden (1990) (cited in Sivam, 2002) observed that the informal market is growing and becoming more diverse and increasingly commercialized in Africa countries, This is because the official means of access to land has not been able to adequately address the demands for land. What's more, it has also been proved to be corrupt and bureaucratic.

The dramatic increase in population during and after the war has exacerbated the scarcity of land further. And expectantly, this has raised the price of land in the city. In addition, there is now marked difference in land price between the two halves of the city divide. Land price/value is higher in the west of the city than in the east for the same parcel size. As mentioned earlier, the land market in Sierra Leone is unofficial and this may have led to the shortage of literature on its study. This paper is therefore a ground breaking study. It addresses two main objectives i) to analyze the factors that determine land price in Freetown ; and ii) to analyze the factors which buyers consider important in paying for land in the east and/or the west of Freetown. The results would provide information to town planners, social service providers, and other policy makers in identifying areas attracted to different category of people in the city. It would help city planners identify trends in urban land use across the city, and make valuable adjustment to existing town planning maps such as housing structures, and access roads. It would also help in the location and distribution of social services and facilities, commercial and business houses across the city. Areas prone to environmental disasters could be identified. And finally, it would also serve as reference for further research.

Modeling urban land

In addition to the models mentioned above, several empirical and theoretical models (example,

see, Briassoulis, ;Lambin and Geist, 2006; Koomen et al, 2007) have been produced on urban and rural lands, and their uses. In urban studies however, Alonso's (1964) urban land market theory (borrowing from von Thunen's analysis) and model is regarded as providing the platform on which a series of urban econometric models have developed to explain various land study issues. These models carry common characteristics: the description and explanation of urban spatial structures based on land rent and transportation costs, and the assumption of utility maximizing individuals.

Land rent maximization is a theoretical basis of econometric models in land use studies (Barlowe, 1978; Alig et al, 2004). In Barlowe's (1978) view, land rent is total revenue or residential economic surplus realized on land, less the total cost. From the perspectives of Ricardo and von Thunen, the competing uses to which land is put is determined by the value or rent of that land. This theoretical approach forms the thrust of this paper.

In recent times, hedonic methods and models are among several popular econometric approaches in land studies. Examples include the Lancasterian analysis (Lancaster, 1991); multidimensional scaling (Cooper, 1983); and random utility models. Marko (2008) for example compared four different hedonic approaches (ordinary least squares estimation, robust MM-estimation, structural time series estimation and robust local regression) in a model to predict urban land prices in a local market of Espoo, Finland. He found out that four independent variables: permitted building volume, house price index, northing and easting had more influence on land price in the study area, than parcel size variable and different indicator variables, which had weaker influence.

Earlier, Shimizu and Nishimura (2007) estimated commercial and residential land prices in Tokyo for a 25-year period (from 1975 to 1999), and investigated possible structural changes in the price equations, using ordinary least squares hedonic price equations,. Their result showed significant differences in price in different locations, which was owed to supplier pricing and end-user preferences. In addition, they identified significant structural changes in the underlying price structure, identifying pre-bubble, bubble and post-bubble periods.

Another approach by Colwell and Munneke (2003) used piecewise parabolic regression to examine urban land prices within a nonparametric framework, with specific interest in the land price gradient with respect to distance from the inner city.

The concluded that the approach can indeed be used to examine very complex land value evaluations.

Clapp et al. (2001) using the ordinary least squares method estimated a hedonic price index equation to determine the value of residential structures in Fairfax county, Virginia, yearly from 1975 to 1992. Three simultaneous equations were used to explain changes in population density and percentage of workers at home. One of their findings was that land value changed dramatically over time.

The principle behind the Hedonic method considers a variable as a bundle of characteristics. Shown mathematically, the hedonic function describes the relationship between price of a product (P) and its attribute vector (x):

$$P = f(x) \quad (1)$$

These implicit characteristic prices can be seen as parameters that relate the dependent variable (P) and the independent variables of the hedonic model (x). This approach is used in this study. This research used the price of urban land as dependent variable, and locational attributes of land, such as amenities, and socio-economic characteristics of respondents as independent variables. This dependent variable-land price is ran against independent variables in regression analysis based on land rent maximization theory to obtain results for objective1. Regression analysis derives a statistical equation for making quantitative predictions of one variable from the values of other variables. For Objective 2, descriptive statistics (in the form of percentages) was used to compare the most important factors residents in the west and the east consider important in buying land for residential purpose.

2. Materials and methods

2.1 Study area

Freetown is the capital city of the West African state of Sierra Leone. It is part of the western area of the country (Figure 1). Sandwiched between the Atlantic Ocean on the North West, west and south west and the Freetown peninsula mountains on the north, east, and south east, this city was founded by the British for freed slaves in the 18th century. The land referred to as "crown land", was bought from local chiefs and made available to freed slaves from Nova Scotia and the Americas. The whole of the western area, including Freetown was subjected to Acts directly, based on the principle of "eminent domain" through ordinances of Crown Lands, Public lands and Unoccupied Lands (National Lands Policy, 2005). Access to land by the public is made possible as a result of several ordinances: Ordinance 1 of 1872;

Ordinance cap 117 of 1906; Ordinance 8 of 1912; No.19 ordinance of 1960 among others. For a thorough explanation of these ordinances, the reader is referred to Turay, 2006; Unruh and Turay, 2004; and Asiama, 2003. But it is important to note that freehold tenure is allowed under these ordinances. Transferability of land is allowed, either through purchase (private land) or lease, with the possibility of becoming permanent (from government).

As a result of migration from the rest of the country, Freetown has grown into the most populated city in the country. During and after the civil war (1991-2001), its population swelled to between eight to nine times its original size of two hundred and fifty thousand (SSL, 2004). Pressure on the land has been mounting as urbanization takes its toll. Access to land through official means has unfortunately not alleviated the land problem in the city. The price of land along the urban-rural gradient has not only deluded the conventional models of urban land use, but is non-linear. A number of factors have been identified to be responsible. This is the main thrust of this paper. It is therefore a good laboratory to study urban land market scenarios.

2.2 Method

2.2.1 Data source

Data collected were both primary and secondary. Primary data collected were through questionnaires administered to landlords/house owners, and land dealers. Eight zones (referred to here as settlements) situated at varying distances from the reference point were identified in the city as the study population (Fig.1). Four of these (Kissy, Calaba Town, Hastings and Grafton) are found on the east of Paterson Zochonis (PZ), the point considered as the city centre or Central Business District, and the other four (Hill Station, Regent, Wilberforce and Goderich) run westwards. The selection of four settlements on both sides of the city centre is borne out of the fact that social services and/or infrastructure development vary and unevenly distributed on either side, and we believe these differences could affect urban land prices greatly.

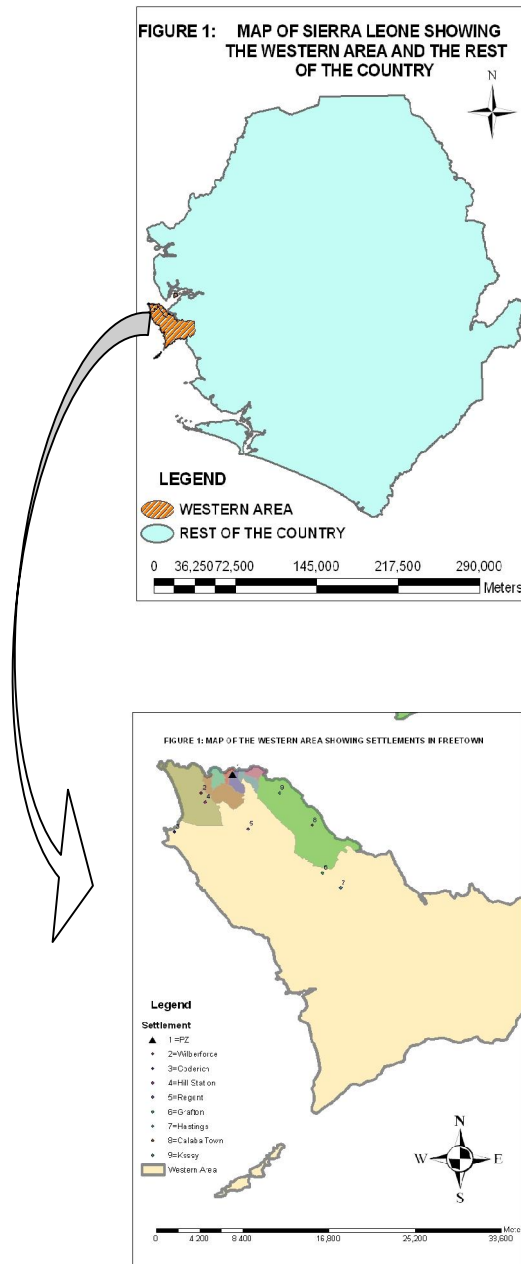
For each settlement, a random selection of 20 households was made, giving a total of 160 respondents. Random selection was the chosen statistical option because the unplanned nature of some of these settlements makes it difficult to use any other sampling method. The 160 respondents formed the study population for objective one.

To obtain the study population for the second objective, the snowball sampling technique was used to select a total of 20 land sellers (on each side of the city centre) involved in land sale, and 20 land buyers

who were in the process of building residential structures. This method was used because it was difficult to identify land traders. Once one was identified, we were led to another land trader, until the total of 40 respondents (20 land traders, and 20

land buyers) was obtained in the east and also in the west. The questionnaire prepared sought information from respondents on the most significant factors they believe determine land price in Freetown.

Fig.1: Map of Sierra Leone showing the Western area and study Area



2.2.2 The model

This model was developed for the first objective. Like other land use models cited earlier in this work, we made a number of assumptions in this study. These include:

1. the city is monocentric;
2. land market operates as a free market;
3. all residents purchase land (away from the city centre) for residential use only;
4. all residents have work places in the city centre;
5. income is not the same for all residents;
6. residential lands are of the same size per lot;
7. agricultural lands at the urban fringe could be converted to residential use.

Given these assumptions, and following a preliminary testing of the questionnaire, we were able to develop a general model/equation (for the total sampling population); factoring those variables which we believe explain the land price in the study area. A total of 18 variables were tested, but 10 proved to be most important and best for the model. Race n ethnicity for example affect land value but it is not included in the model because land areas are not demarcated by government but private land owners sell their land to those that pay the asking price. Bank loan as variable is also not included because the link between loan and purchase of land in Sierra Leone has not come onto the forefront of existing literature. As a matter of fact, such loans exist where real estates are developed, a situation that has just been introduced in Sierra Leone. Transportation is not included but is subsumed in distance because it is often connotated in Sierra Leone in not only physical and monetary terms but convenience. People tend to consider the difficulty involved in getting away from their localities (as determined by distance) to other parts of the city than the means involved. Also, such a situation is applicable only to those without personal vehicles; in which case distance is more applicable because it affects all. In fact multicollinearity exists between these two The influence of stock market on land price, as observed in industrial countries is not included in this model because the stock market is yet in its rudimentary state in Sierra Leone.

The regression equation of the model is:-

$$\begin{aligned} \text{Urban land price (ULP) (in Leone) =} & \\ & +_0 +_1 \text{ (social status)} \\ & +_2 \text{ (infrastructures)} \\ & +_3 \text{ (environmental concerns)} \\ & +_4 \text{ (topography)} \\ & +_5 \text{ (expectations)} \\ & +_6 \text{ (seasons)} \end{aligned}$$

$$\begin{aligned} & +_7 \text{ (population)} \\ & +_8 \text{ (distance)} \\ & +_9 \text{ (neighborhood)} \\ & +_{10} \text{ (income)} \end{aligned} \quad (2)$$

where ULP is dependent variable; $_0$ an intercept term; and $_1$ through $_{10}$ are independent variables.

Though it is simplistic in nature, this methodology captures the main variables that play in the hands of buyers and sellers of land outside of governmental cycles. This model has policy as well as environmental considerations. The dependent variable is price of urban land in Leone (\$1=3800Le as at 29th.March, 2010), the official currency of Sierra Leone. The model seeks to identify the factors that determine the land price per "town lot" (16.40 metres by 24.60 metres) across the city: from the east, across the city, passing through the centre, to the west.

The inclusion of social status as an independent variable owes to the fact that people are often conscious of their social status during economic transactions. They pay amounts for parcels of land as long as the location befit their social standings. For infrastructure, literature has it that people cloud around areas that have good infrastructural development, viz a viz, good houses in the neighborhood, and the presence of amenities. Roback (1982) analyzed the effects of amenities on land rent and showed it to be significant. On environmental concerns, areas with poor drainage network, foul smell, noise and prone to environmental disaster are expected to attract a small number of people. For topography, hilly areas attract less residential areas than flat areas, and hence could be sold at reduced price. But is this the case in the west, where vacant lands are mainly on hilly slopes? Perception is one of the variables that has been identified as tool used by land owners to postpone sale of land. The sale of land is mostly done amidst expectations that, conditions (demand and supply) could change at any time. Season is included in the model because it was discovered that the price of land in the study areas varies with the two main seasons in the country: the dry and the wet seasons. Population density and population growth are represented by population. Population density is perceived in this study as number of people per family. It is assumed here that households consider their number when undertaking economic activities. Maisel (1964) and Witte (1975)^a analyzed population density and population growth in their empirical work on interurban land price variation. As a result of the 11-year civil war, the population of Freetown swelled to more than six

times its original size. This scenario has been discovered to push the demands for residential land. The inclusion of population as a variable in the model is therefore understandable. Income is in the model because it is a very significant variable in economic transactions, not least the purchase of land in a specific location (Witte, 1975)^b. Households with similar incomes tend to agglomerate, and in this case, and this model would establish whether income does indeed play a significant role in land value determination. Distance is included because all the settlements in the study area are situated at varying distances from the city centre, and if land prices are to vary, it is important to know how significant it is in the equation. The influence of neighborhood also plays a role in attracting residents to a point. We want to know whether land buyers consider persons with the same or similar status in their purchase of residential land in certain places. How significant it is in our model, is the reason for its inclusion. For seasons, Sierra Leone has two distinct seasons: wet and dry seasons. It is generally believed that land owners become desperate to sell land during the rainy season when many people need money to run their homes. At the same time, land buyers become reluctant to buy land because there are no immediate plans to start housing construction. The inclusion of this variable would therefore explain an interesting situation for the land market.

For Objective 2, responses from respondents (in the east and west of the city) were computer using percentages. The rationale is to see how geographical location on both sides of the city affect urban land price. These are presented in Tables 2.

3.0 Results

3.1 Regression analysis based on land rent maximization theory

Results of the regression models are presented in Eq. 3.

$$\begin{aligned}
 \text{Urban land price} &= 4367.32 \\
 &+ 21.274(\text{social status}) \\
 &+ 16.665(\text{infrastructure}) \\
 &+ 2.387(\text{environmental concerns}) \\
 &- 11.765(\text{topography}) \\
 &- 25.176(\text{expectations}) \\
 &- 4.398(\text{seasons}) \\
 &+ 18.246(\text{population}) \\
 &- 4.197(\text{distance}) \\
 &+ 27.529(\text{neighborhood}) \\
 &+ 32.156(\text{income}) \quad (3)
 \end{aligned}$$

As expected, nearly all of the explanatory variables are positively correlated with urban land

price. The obtained parameters- $r^2=0.81$, $P=0.000$, $=0.05$, indicated a strong overall positive correlation between the dependent and explanatory variables, and the regression model highly significant. The positive coefficient shown by income, suggests that income plays a significant role in determining the price of urban land. The positive show of neighborhood confirms the assertion that neighbor effect has a determining factor on the residential location of individuals in specific places. The positive coefficient returned for population also confirms that population increase, which most times means increased demands pushes buyers and sellers to enter into economic transactions. Infrastructure, environmental concerns, and social status, as expected, all showed strong positively correlation with the price of urban land because they all carry strong locational attributes that influence the decision of buyers and sellers of residential land. Unfortunately, distance, and topography were expected to return positive correlations. However, together with seasons and expectations, they all showed negative correlations.

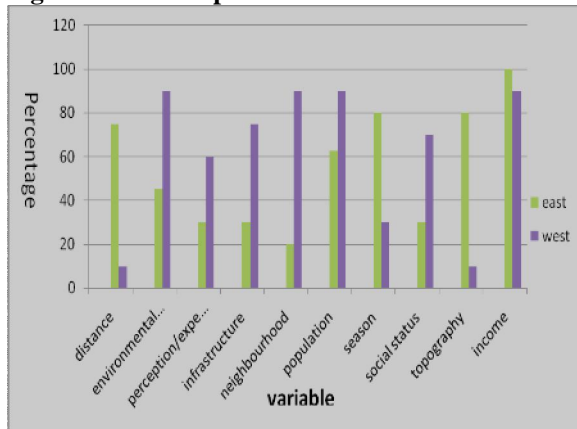
3.2 Differences in response to land price from residents in east and west of Freetown

Table 2 presents result of responds from those interviewed in the east and west of Freetown on the factors they consider important in determining the price of land in Freetown. These are also represented by histogram (Fig. 2).

Table 2: Percentage response of East End and West End to the determinants of urban land price

Variable	% East	% West
Distance	75	10
Environmental Concerns	45	90
Perception/Expectation	30	60
Infrastructures	30	75
Neighborhood	20	90
Population	62.5	90
Season	80	30
Social Status	30	70
Topography	80	10
Income	100	90

Source: Author, 2010

Fig.2. Percent Response- east and west

Although results showed that more than half of respondents on either side of the city identify income and population as important determinants of land price in Freetown, there was significant disparity however in the remaining eight variables. For example, whilst topography of the land was important for people in the east, it was not the case for those in the west. This could be attributed to the fact that people in the east are considered to be generally not as rich as those in the west. Because of this, lands in the east that are steep are sold for quite reduced prices compared with similar land in the west. In addition, the west of the city is generally a hilly area, unlike in the east where the topography is a bit gentle.

4.0 Discussion

4.1 The model equation

The positive correlation coefficients shown for population, infrastructure, neighborhood, income, environmental concerns, and social status do not only agree with much of existing literature, but present the status quo in the study area. Population growth in recent years increased the demand for land for residential use in Freetown. The aftermath of the civil war saw a surge in population in the capital as due to internal migration. With infrastructure and/or services in most parts of the country destroyed or absent, many citizens made their stay permanent in the capital city. Unfortunately, land allocated by the central government for residential use has not met demands. This increase in demand for residential land, pushed prices (of parcels of land) up. Buyers are sellers of land enter into frequent land transactions as a result of population factor. As observed by Kironde (2000); and Sivam (2002), in their studies in Tanzania and India respectively, the people turn to either the unofficial land market for purchase, or in the case of the poor, construct illegal

and indiscriminate structures on sometimes “badly-shaped” lands and hills slopes. A good number of residential areas on hill slopes and valleys in the east end of the city belong to the low-class populace. These unplanned settlements are constructed outside the legal cycles, such as construction work without permit, and not taking into consideration any environmental effects. In fact some of these lands are government owned and have not been leased to citizens. In recent years demolition exercises have been on-going. That has however not stopped “land grabbing” in the city.

The positive coefficient showed by income agrees with earlier works (Cruz, 2001; Olayiwola et al; 2005; Owei, 2007) that the value of land increases with individual income. With increase in an individual’s earning, the need to have a decent housing arises. In Freetown, much of residential development has taken place mostly in the west end of the city. As cited above, the “high class” populace is found in that part of the city. The cost of a “town lot” in the west goes for two to three times the cost in the east. High quality houses are therefore seen in these neighbourhoods, as against those in the east, where, the built-up area is characterized by dilapidated structures, congestion, environmental related problems and poor urban image, shortage of and low quality infrastructure, basic services and inefficiencies in land utilization

Social status and neighborhood also showed positive correlation coefficients in the model. The political elite, diplomats, foreign nationals, the wealthy and/or educate are mostly found in the west of the city. They consider their social status, in addition to security, amenities, environmental concerns, and neighborhood in locating their residents. This is in agreement with Haurin et al, (2003 in Grimes and Liang,2007), who indicated that neighborhood effect allow people to bid more highly for land located near wealthier and/or higher status individuals, than go for cheaper ones amongst the poor. In the west of Freetown are found the official residents of the Executive, Legislative and Judiciary Arms of Government, including those of The President and Ministers; top civil servants, law enforcement personnel and judges, lawyers; bank governors, chancellors of the universities, members of the diplomatic and Consular corps and their Missions; the British International Military Training unit; two military barracks of The Arm Forces Of Sierra Leone; private hospitals; top educational institutions; Five Star Hotels and the beautiful beaches in their vicinity, and quiet neighborhoods. Thus in addition to income, social status, neighborhood effects and infrastructure have been

contributed significantly to the model in determining the price of land in Freetown. Such a point was also made by Sazak (2004) on the role of land owners in the transformation of land affected by the metropolitan city. Among other things, he stated that rather than singling out one variable such as distance in determining the value of land in a location, other site characteristics should also be considered.

The negative correlations shown by topography, and distance in the model, point to the fact that vacant lands are now available only outside of the city, on sometimes relatively high grounds. This means buyers make do with what is available, instead of going without. Similarly, seasons and expectations/perceptions are not important because people need land throughout the year, and also do not consider future price rises or demands probably because of the absence of real estate markets in the country.

4.2 Comparing east and west

In Freetown, distance has not played a major role in residential location of respondents in the west (10 percent) of the city, but other social factors (Table 2) are much more important to them. This though contradicts the classical models of land rent discussed earlier. Residents in the west are ready to pay "high rent" for parcels of land away from the city centre, irrespective of the distance. This happens because the actors (respondents) consider a multiple of factors other than distance. For example, Regent in the west end of the city is outside the Freetown municipality, but as a result of its proximity to The British International Military Training Team (IMATT), The American Embassy, a military barracks, dignitaries, including Presidents, past and present, this rural area, far from the city centre is attracting more residents than such areas as Calaba Town and Kissy in the east end that are within the municipality. Again distance is not seen to be of significance. Goderich in the west also benefits from its strategic location. Both Goderich and Regent offer good examples of the extent to which the city is sprawling. Many residents now prefer to move away from the city centre into low-density development suburban areas and urban fringes. The Tiebout-based "flight from blight" hypothesis argues that perceived urban ills (e.g., higher crime rates and lower school quality) push households to live in lower density, suburban communities that offer a preferred bundle of public goods and services. The evidence of high crime rate and other social ills are greater in the east end than in the west. It also reveals that, while commercial and industrial developments have become more clustered over time, the pattern of

residential development has become increasingly fragmented and dispersed. This urban spillover is feasibly seen in areas such as Hill Station, Goderich, Grafton and Hastings.

Although topography of the land shows an overall positive relationship with the dependent variable, it is not significant in the west (10 percent) as in the east (80 percent). The explanation for this could be that because the west end is perceived by many as the "best" place to live, many wouldn't mind building on hill slopes. But in the east, land prices inevitably fall with gradient.

Environmental concerns also showed a high percentage in the west (90 percent). The east end of the city is plagued with environmental problems. This is attributed to poverty, overcrowding, poor drainage, illiteracy, poor sanitation and infrastructure, lack of good roads and poor planning, and generally poor quality of life. The west on the other hand has good road network, tap borne water, drainage, and sanitation. Security against criminals and arm robbers is also better in the west than in the east. And as Sivam (2002) noted, adequate housing means privacy, useful per capita space, physical accessibility, physical security, structural stability and durability, and adequate basic physical and social infrastructure and transportation within healthy local and citywide environments. Unlike the east end of the city, the west end carries most of these features. Noise and other forms of pollution are very evident in the east of the city.

6. Conclusion

The price of land in Freetown is not determined by the Laws approved in parliaments, but by a number of factors. These range from the perception of the populace, to population size, income, infrastructure and service, neighborhood, social status, environmental considerations and a host of others that could be site specific. And as seen in this work, the distance decay models of earlier scholars have not provided strong evidence that distance determines the price of land in Freetown. In addition, this work has also added to existing body of knowledge that there is a difference in land price between the west and east ends of the city. This has got a lot to do with class division. Most of the residents in the west belong to the elite and decision making class, although some in the east also belong to this influential and high class group.

It could be concluded that residents in the west of Freetown consider many social factors (infrastructure, security, neighborhood, income) in locating residential areas than those in the east. Telling by their social status, the "elite" or "high

class” people have a number of considerations in locating their residents than “low class”.

Corresponding Author:

Victor Tamba Simbay KABBA
International Education College,
China University of Geosciences (Wuhan)
East campus
Hong Shan District
388 Lumo Lu
WUHAN, 430074
Hubei Province
Peoples Republic of China
Victor_kabba@yahoo.co.uk
0086-158-274-8059

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