

Economic Impacts of Solid Waste Pollution on Real Estate Values ¹

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Abstract

Purpose – The study was carried out to determine the effects of refuse dumps on the rental values of residential and commercial properties in Aba.

Design/Methodology/Approach - Data were obtained from a combination of observations, interviews and discussions with 100 respondents drawn from households along Ngwa road and Port Harcourt road where solid waste collection/assemblage centres were turned to open refuse dumps. The data collected were analysed to obtain the mean annual rental values of the buildings within specified distances from the refuse dumps in the study area.

Findings – the study reveals that there were differential rent charges of similar properties along Ngwa road and Port Harcourt road selected for the study. Rents of accommodation within 150metres from the refuse dumps dropped by 25% - 30% compared to similar accommodations located at a distance beyond 150metres from the refuse dumps.

Practical implications – There was increased rate of vacant occupation on properties adjacent to the refuse dump. Many tenants in the affected premises indicated their willingness to relocate due to the refuse dumps and the properties suffered much setback on upward rental reviews as demands for accommodation in the affected areas declined; thereby attracting lower rents compared to similar properties within the neighbourhood.

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Originality/value – This paper gives insight to the impacts of solid waste dump on property values, which by implication approximately accounted for 25% - 30% differential rental values for commercial and residential properties compared with similar properties in the same neighbourhood.

Keywords: solid waste, refuse dumps, residential and commercial properties, rental values.

Introduction

Property values are functions of many factors both intrinsic and extrinsic. The extrinsic factors comprise essentially the locational factors where the immediate and external environment play vital roles. This implies that what happen around the property surroundings contribute in building the ultimate value that a property can attract in real estate market.

Urbanization is a common global phenomenon which arises as a result of population explosion. This virtually comes with multiple challenges/responsibilities required to maintain a functional urban centre among which is waste management. The complexity of urban activities ranging from industrial, commercial to domestic activities constitute major sources of waste generation (which are broadly classified into liquid, solid and gaseous). Porteous (1998), clarified solid waste to include “any refuse, certain sludge and other discarded materials, including solid and semi-solid materials resulting from industrial, commercial, mining, agricultural operations and domestic activities for which there is no economic demand and which must be disposed of.

Waste constitute pollution when they are not properly disposed and managed. This is most prominent where the appropriate authority lacks the capacity and the will to undertake the required steps towards efficient waste management. The presence of solid waste in most cities in Nigeria has continued to pose serious challenge to the sanitary conditions of our urban environment. This challenge is most noticeable in cities with congested population and extensive industrial and commercial activities e.g. Lagos, Port Harcourt, Onitsha, and Aba to mention but a few. This is corroborated by the study carried out by Ibiyemi (2008), which shows that, solid waste production has grown beyond 16 million tonnes per annum in Lagos State and it emanates from a direct response to rising consumerism, technology, and population growth.

Observations over the years, have shown that the municipal authorities in Aba - comprising Aba North, Aba South, Obingwa and Osisioma – that are charged with the responsibility of managing waste disposal activities have been grappling with the issues without success; the escalation of the challenge later drew the attention of the national government which subsequently led to the state government intervention under the auspices of Abia State Environmental Protection Agency

(ASEPA). Despite the state intervention on the waste management in Aba, solid waste pollution in Aba environs has remained unabated. Poor road conditions/network, inadequate waste management facilities, poor funding, inefficient waste collection/disposal system and lack of political will by the successive governments to confront headlong the problems of solid waste management have contributed to compounding solid waste management in Aba.

Findings have been made from different studies that proximity of refuse dumpsites to residential neighbourhoods affects the adjoining property values (Ogedengbe et al. 2006, Thayer *et al.* 1992, Smolen *et al.* 1992, Adewusi and Onifade 2006). The studies found that rents paid on properties adjoining waste dumpsites were lower compared to similar properties further away and also, property transaction rates were very slow and unattractive as one approaches a dumpsite. As intriguing as the above findings could be, this study was carried out to examine the effects of refuse dumps on property rents in Aba.

Problem statement and justification

Urbanization results into concentration of diverse human activities in an area. This creates room for waste generation. Waste, when properly managed and disposed would not generate pollution effects on the environment. However, continuous urban population explosion and inefficient waste management system have resulted to indiscriminate dumping of solid waste in many major cities in Nigeria. The persistent ineptitude of the waste management agency in Aba has led to creation of multiple open refuse dumpsites at different neighbourhoods – by turning places designated for refuse assemblage/collection sites to apparent open dumpsites.

Though the issue of the presence of multiple and unofficial refuse dumpsites in our major cities is not peculiar to Aba, but the situation in Aba has become worrisome and is presumed to have enormous socio-economic impacts on property market. The study is carried out to examine the impacts of solid waste dumpsites on property rental values in Aba. The understanding of the impacts would help investors to be more informed in their site selection for real estate investment and would as well strengthen the need for greater capacity development towards effective urban waste management by the government and her respective agencies.

Specific Objective

The objective of the study is to determine the impacts of solid waste pollution on real estate rental values in Aba.

Literature Review

Literatures on related studies are reviewed in this section to demonstrate what have been done by some other researchers. Isirimah (2002) referred to waste as any solid or semi-solid materials which have been discarded by its primary owner or original user, and may or may not be found useful by any other person but constitute nuisance to people's health and the environment when left untreated. Wokekoro and Uruesheyi (2014) established that one of the main problems in most cities in Nigeria which has become an intractable nuisance is the open and indiscriminate dumping of solid waste which leaves our streets with piles of decaying garbage.

Location plays an integral part in influencing the price or rent of a property, (Harvey, 1993; Wilhelmsson, 2000). Harvey opined that competition for locations with good sanitary condition and urban infrastructures, usually results to an increase in land and housing values. Wilhelmsson further identified four main factors that affect demand for properties and their price; these include: the property's structural attributes, its location, neighbourhood amenities and its environmental attributes. From a theoretical construct, Mundy (1995) posited that a clean (uncontaminated) property has a value equal to full market value and a dirty (contaminated) property which poses health or financial risk (either real or perceived) will affect value significantly in several ways. Thus, when a property loses its marketability, it also loses its value. These are inadvertently applicable to real estate locations that are prone to solid waste dumpsites (SWD).

Adeniran *et al.*, (2018) observed that the effectiveness and efficiency of solid waste management rests on the participation of both the government and the citizens. The authors further proposed an improved waste collection system, provision of properly designed waste disposal points to enhance separation and recycling, refining waste levying system, adequate funding for waste disposal, review and enforcement of environmental and health laws. Ogunrinola and Adepegba (2012) noted that this can be achieved through aggressive community education of consumers and producers on waste reduction methods, while institutions and businesses that could buy up discarded materials are facilitated to enhance recycling and reuse.

Thayer *et al.* (1992) in their study, employed hedonic pricing model to find out that properties located closer to waste disposal sites (WDS) have lower values, while Smolen *et al.*, (1992) used hedonic model in analysing a residential sales data which indicate a strong negative effect of proximity to the WDS, for properties within approximately 6 miles of the site. Ogedengbe and Oyedele (2006), found a relationship between the proximity of dump sites and the value of rental properties in Ibadan. The study established that the rental values placed on properties in close proximity to dump sites were low, compared to those in areas away from refuse dumpsites.

Adewusi and Onifade (2006) studied the effect of urban solid waste on physical environment and property transactions in Surulere, Lagos. Their study found that rents paid on properties adjoining waste dumpsites were lower compared to similar properties further away and also, property transaction rates were very slow and unattractive as one approaches a dumpsite.

The work of Mmom and Mbee (2013) examined the impact of landfill on real estate values in Port Harcourt metropolis. In their study, 2000 real estate within 500 metres radius from landfill sites were identified and about 600 property owners/agents representing 30% of the entire real estate owners were sampled for study. The study reveals low pricing of property contiguous to landfill, and in most cases, people are less willing to live or acquire properties near landfill locations.

Research Methodology

To achieve the aim of the study, a survey research design was adopted for the study. A total of 80 buildings located on the two sides of the road, stretching up to 300metres from each of the dumpsites were used for the study. The instruments for data collection were interview schedule and personal observations. All the residents were granted opportunity for the interview, but only 100 respondents were willing to participate by giving useful information for the study. Data collected were analysed by estimating the mean annual values of the respective locations and were presented on a table.

The Study Area

Aba is a major commercial city in Southeast, Nigeria. It lies at the intersection of roads leading to Port Harcourt, Owerri, Umuahia, Ikot Ekpene, and Ikot-Abasi (Hoiberg, 2010). Aba is a densely populated and has an estimated population of 1,230,000 (<http://www.citypopulation.de/php/nigeria-admin.php?adminid=NGA001>).

The city is notable of its trading activities with multiple small scale industries that supply commodities of trade to the numerous markets in the city. The presence of numerous markets in the city, the booming small-scale industries and the high population density are remarkably major contributors of solid waste generation in the city. Lack of efficient waste management strategy by the successive government of the state, has significantly contributed to the presence of multiple open waste dumps in and around the city which has increasingly become a great menace to the city and the dwellers (see figure 1 and 2).



Figure 1: Asa Road Junction by Cemetery Market Dumpsite, Eziukwu Aba
Source: Authors' field work, 2023



Figure 2: Port Harcourt Road by Holy Wood Dumpsite
Source: Authors' field work

Findings

Table 1 shows the mean annual rental values of residential and commercial properties situated close to the refuse dumps up to 300metres away. 3bedroom Residential flats in Ngwa road by Ahia Ohuru axis situating adjacent to the refuse dump, up to a distance of 150 meters, commanded a mean annual rental values of ₦120,000.00, while similar accommodations located within 150metres - 300metres away from the refuse dump attracted mean annul rent of ₦150,000.00 which marked 25% annual rent difference. Commercial buildings (shops) situated close the refuse dump up to a distance of 100m commanded average annual rents of ₦120,000.00 per annum, while similar shops laying beyond the distance of 100metres attracted mean rental value of ₦144,000.00 per annum.

Along Port Harcourt road, residential block of 3bedroom flats situated adjacent to the refuse dump, up to a distance of 150metres away, attracted mean rental value of ₦220,000.00 per annum. Similar accommodations situated along the same road, but within 150m - 300m distance from the refuse dump commanded annual mean rental value of ₦280,000.00. Shops situated close to the refuse dump, up to a distance of 100m from the refuse dump attracted annual mean rent of ₦72,000.00, while similar Shops on the same road but about 100metres – 300metres away from the refuse dump were charged at an average of ₦96,000.00 per annum. The analysis of the rental data indicates an average annual rental difference of 20 - 25% for the different classes of properties under review within the designated locations from the refuse dumps.

Table 1: Annual cost per distance of the real estate located near the SWD

Type of real estate	0.00m-150m	150m -300m	300m & above
Residential Accommodation (within the refuse dumpsite):			
3 bedroom residential flat in Ngwa road by Aba New Market	₦120,000.00	₦150,000.00	₦150,000.00
3 bedroom residential flat along Port Harcourt road.	₦220,000.00	₦280,000.00	₦280,000.00
Single room Commercial accommodation along Ngwa road by Aba New Market	₦120,000.00	₦144,000.00	₦144,000.00
Single room Commercial accommodation along Port Harcourt road	₦84,000.00	₦108,000.00	₦96,000.00

Source: Authors’ field survey 2023.

Despite the lower rental values commanded by the properties within the immediate environment of the dump sites, findings from the study also show that the vacancy rate of the accommodations in the buildings increased significantly from the usual 0 – 5% to approximately 30%. The increase in vacancy rate of the accommodations and the decrease in rent by properties situated within 0 – 150m distance from the dumpsites was observed to be as a result of the effects of the environmental pollution caused by the refuse dumps. This according to the respondents led to the relocation/vacation of tenants from the worst affected premises. Many tenants/respondents within the affected premises also expressed their willingness to relocate to a more decent environments if given the opportunity, to evade possible disease outbreak from the refuse dumps.

On the frequency of rent review, residential tenants closer to the dumpsites indicated that their rents have remained the same for over 5years contrary to the usual periodic rent reviews that come at least once at an interval of 3 – 4years. This was deducted to be a strategy adopted by the landlords to encourage their tenants to remain in occupation. Contrary to the above, it was observed that rents of the adjoining properties located at upwards of 150metres from the refuse dumps were regularly reviewed, at least once in every four years. The differential rent review periods for the properties based on their proximity to the dumpsites was observed to have accounted for the disparity on rents of similar properties located on the same stretch of road to the tune of 20 - 30% for residential block of flats and commercial shops.

The trend of the impacts of the refuse dump was significantly different with commercial properties (shops), as only a slight rent difference was observed between accommodations located within 100metres from the dump site and those located beyond 100metres stretch from the refuse dumps. Vacancy rate was minimal, approximately 10% and the rents were reviewed as at when due, though they were relatively lower for similar properties in closer proximity to the refuse dumps than those farther from the dumpsites.

Conclusion

Refuse generation and management constitute major challenges in most urban centres in developing countries of the world. This is most prevalent in densely populated commercial cities. Aba situation became worrisome due to the negligence and lack of willpower by the then government and her agencies to effectively manage the waste generated. The poor waste management condition in Aba led to the turning of most waste collection centre to dumpsites. This resulted to total degradation of the environmental quality of the areas, which particularly affected the air quality and aesthetics of the surroundings and obstruction of movements along the affected axis of the roads.

Consequently, business activities around the area waned, and there was also sudden decline of demand for residential/commercial accommodations around the vicinity of the dumpsites spanning up to a distance of 100 – 150metres. These culminated to sharp drop/disparity in rents up to the tune of 25 - 30% between accommodations within the refuse dump area and those located 150metres away that previously attracted barely the same rents.

Though it is the responsibility of the local government to take care of urban waste management, synergy between the State and local governments is necessary to achieve expected result. To effectively curtail the menace of solid waste disposal, public-private initiatives should be sought for to help develop an all-inclusive urban solid waste management policy. Government at all levels should be more proactive by voting more budgetary allocation to the sanitation authority, to employ the required manpower and equipment. Understanding of the psyche of the urban dwellers and the predominant occupation/activities of the urban residents is pivotal towards effective planning of waste management scheme; therefore, to achieve the desired outcome, the waste management policy strategy should incorporate rules on waste assemblage and disposal processes - which shall include the assemblage and disposal timing (5pm to 6am daily), waste characterization and designation of disposal centres for different waste type (outlining design and locational specifications), penalties for defaulters and engagement of waste disposal law enforcement agents to man various assemblage/deposit centres to ensure absolute compliance.

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