Climate Induced Flooding and Its Implications on Property Values in Ibadan, Nigeria

[1,]Adenike Taiwo ADEOJE & [2]Igho FAYOMI
[1,2]Lead City University, Ibadan, Nigeria
fayomi.igho@lcu.edu.ng

Abstract
This study examines climate change and its implications on property values in Ibadan, Nigeria, drawing insights from estate surveying and valuation firms. Using the 2024 Nigerian Institution of Estate Surveyors and Valuers (NIESV) directory, 55 firms were purposively sampled, with 38 valid responses retrieved, representing a 69.1% response rate. The majority of firms were small to medium sized, with limited staff capacity, yet over 80% managed property portfolios, underscoring their central role in Ibadan's real estate sector. Findings reveal that structural damage (Mean = 4.1, SD = ±0.59), increased management costs (Mean = 4.0, SD = ±1.03), and increased maintenance costs (Mean = 4.0, SD = ±0.72) are the most critical impacts of climate change on property. Other notable effects include changes in land use (Mean = 3.8), shifts in market demand (Mean = 3.6), decreased property value (Mean = 3.4), and resident displacement (Mean = 3.4). A ten year trend (2014–2023) shows that while property incomes have risen; residential income from □20.9 million to □25.3 million, commercial income from □121.7 million to □446.6 million, and industrial income from □4.5 million to □559.8 million, capital values have remained stagnant or declined, reflecting suppressed asset appreciation in climate vulnerable areas. The study concludes that climate change is exerting profound and uneven pressures on Ibadan's property market, with rising operational burdens and reduced long term investment potential. It recommends that estate surveyors integrate climate risk into valuation models, property managers adopt adaptive maintenance practices, and planning authorities enforce development controls while investing in resilient infrastructure. Strengthening climate informed governance and professional practice is vital to sustaining property values in Ibadan amid escalating environmental risks.
Keywords: Climate Change, Property Values, Ibadan, Implication, Nigeria

1. Introduction

Climate induced flooding has emerged as one of the most critical environmental challenges affecting urban centres and real estate markets globally, with profound implications for property values and investment decisions. The Intergovernmental Panel on Climate Change (IPCC, 2023) reports with high confidence that global warming of about 1.1 °C above pre-industrial levels has intensified heavy precipitation events, thereby increasing the frequency and severity of urban flooding and associated asset losses. These risks are projected to worsen in the absence of accelerated adaptation and mitigation, particularly in low and middle income countries where exposure, sensitivity, and adaptive capacity constraints are most pronounced.

In Nigeria, rapid and largely unplanned urban growth has intensified flood risks through inadequate drainage infrastructure, encroachment on natural waterways, and extensive development within floodplains. Ibadan, an inland metropolis and the capital of Oyo State, has a long history of flood disasters, with the August 2011 flood standing out as one of the most

devastating, resulting in widespread loss of life and extensive property damage. Adelekan et al. (2012) attribute the severity of flooding in Ibadan not only to extreme rainfall but also to human induced factors such as blocked drainage systems, settlement in flood prone areas, and weak stormwater management practices. These recurring flood events have heightened the city's vulnerability and raised concerns about the sustainability of its built environment.

The economic implications of climate induced flooding in Ibadan are substantial. The World Bank (2014a; 2023), through its support for the Ibadan Urban Flood Management Project (IUFMP), has highlighted the city's recurrent exposure to flood risk and the need for structural and institutional responses. Estimates suggest that average annual flood losses in Ibadan amount to about US$105.3 million (PreventionWeb, 2021), underscoring the significant fiscal, social, and economic costs of flooding. Beyond immediate physical damage to buildings and infrastructure, flooding generates indirect impacts such as business disruption, health risks, displacement of residents, and declining investor confidence. These effects can translate into the property market through reduced rental and capital values, higher maintenance and insurance costs, and increased risk premiums demanded by investors.

At the global level, there is growing evidence that property markets are beginning to internalize climate related flood risks. Hino and Burke (2021) demonstrate that when flood risk information becomes salient to buyers in the United States, property prices adjust downward. Similarly, Bernstein et al. (2019) find that properties exposed to sea level rise are discounted by an average of seven percent relative to comparable unexposed assets, with stronger price effects among more informed market participants. These findings illustrate how flood risk influences capitalization rates, expected cash flows, and asset liquidity in real estate markets.

Emerging Nigerian studies suggest comparable dynamics. Adebayo et al. (2020) report that flood exposure significantly reduces both rental and capital values in Isheri North, Lagos State, while evidence from the University of Lagos Centre for Real Estate Research (2025) indicates that repeated flooding has depressed property values in Victoria Island and Lekki Phase 1. In Ibadan, Adegoke et al. (2018) identify high levels of settlement vulnerability arising from exposure, susceptibility, and limited adaptive capacity, conditions that inevitably affect property values through declining demand, escalating repair and maintenance costs, and heightened perceptions of investment risk.

Despite these contributions, notable gaps persist in the literature. Research on climate induced flooding and property values in Nigeria has largely concentrated on coastal cities, particularly Lagos, leaving inland cities such as Ibadan relatively underexamined. Moreover, while flood vulnerability mapping is well documented, fewer studies explicitly connect flood risk to market indicators such as rents, yields, and capital values across different property types. The perspectives of professional estate surveyors and valuers, who play a central role in interpreting market signals and incorporating risk into valuation practice, also remain insufficiently explored. Addressing these gaps is essential for improving valuation accuracy, managing real estate investment risk, and informing urban and climate policy.

Against this backdrop, this study examines climate induced flooding and its implications for property values in Ibadan, Nigeria, using evidence from a primary survey of estate surveying and valuation firms. By integrating professional perceptions with observed trends in residential,

commercial, and industrial property values between 2014 and 2023, the study contributes to existing knowledge by situating global climate–property dynamics within a flood prone inland Nigerian city, foregrounding the role of valuation professionals, and generating empirical insights to support climate responsive urban planning, adaptation strategies, and property valuation standards.

2. Literature Review

Climate change, marked by rising temperatures, sea level rise, and an increase in extreme weather events, is one of the most pressing global challenges affecting the built environment (IPCC 2023). Its consequences are particularly acute in developing countries, where inadequate infrastructure, weak land use planning, and socio-economic vulnerabilities heighten exposure to hazards (Adelekan et al. 2012). For real estate markets, these risks manifest in two broad ways: physical risks, such as flooding, erosion, and storm damage; and transition risks, which include policy shifts, changes in insurance markets, and shifts in investor sentiment (Bernstein et al., 2019). Together, these forces reshape how properties are valued, managed, and transacted in climate vulnerable cities.

The theoretical foundations for understanding this relationship lie in established property valuation frameworks. The hedonic pricing model (Rosen, 1974) suggests that property values reflect a bundle of attributes, structural, locational, and environmental. When environmental risks such as flooding become more salient, the model predicts that property prices adjust downward to reflect the disamenity. This insight aligns with risk perception theory (Slovic, 2000), which stresses that the degree to which risks are recognized and communicated shapes human behavior in the marketplace. In practice, this means that as awareness of climate risk grows, buyers and tenants may demand discounts, leading to reduced demand, lower rents, and capital depreciation.

Empirical research from advanced economies demonstrates how these theoretical dynamics play out in real markets. Hino and Burke (2021), for example, observed that properties in U.S. flood zones were increasingly discounted once clearer flood risk information was disclosed, showing that transparency accelerates risk capitalization. Similarly, Bernstein et al. (2019) found that homes vulnerable to sea level rise consistently sold at discounts of around 7%, particularly where buyers were more financially literate. Further still, Baldauf et al. (2020) showed that such properties also faced tighter credit conditions as lenders and insurers adjusted their pricing to reflect long term flood risk. These findings point to an important conclusion: markets are not perfectly efficient in pricing climate risks. As Murfin and Spiegel (2020) argue, recognition and discounting of risk often evolve gradually, shaped by the availability of information, regulatory disclosure regimes, and insurance coverage. Where such mechanisms are weak, property markets may underprice risk until a major disaster forces sudden corrections.

This gradual adjustment is particularly relevant to African cities, where risk communication and insurance systems are often limited. In sub-Saharan Africa, urban flooding has become a dominant climate hazard, worsened by rapid urbanization, informal development, and inadequate drainage infrastructure (Douglas et al. 2008). The absence of robust insurance

markets means that households and firms bear the brunt of losses directly, which in turn depresses property values, reduces rental income, and increases transaction risks. These challenges illustrate how climate change not only damages the physical fabric of cities but also undermines confidence in urban property markets.

In Nigeria, the weight of evidence has come from Lagos, the country's commercial hub and a city highly exposed to coastal and pluvial flooding. Adebayo et al. (2020) showed that flooding in Isheri North significantly reduced both rental and sales values of residential properties. Complementing this, the University of Lagos Centre for Real Estate Research (2025) reported that recurrent flooding in Victoria Island and Lekki Phase 1 had led to sustained declines in land and building values. Similarly, Bello and Olatoye (2020) confirmed that flood risk has a measurable impact on rental values across Lagos, affirming the link between climate exposure and property market performance.

By contrast, far less attention has been paid to Ibadan, despite its recurrent history of destructive floods. Studies by Adegoke et al. (2018) reveal that many settlements in the city remain highly vulnerable, with weak infrastructure and low adaptive capacity amplifying exposure. Adelekan et al. (2012) further documented how the August 2011 flood, triggered by intense rainfall and aggravated by poor drainage and settlement patterns, caused widespread displacement and property damage. While such studies highlight the scale of vulnerability in Ibadan, they have not explicitly connected these risks to fluctuations in property values, leaving an important empirical gap.

Bringing these strands together, it becomes clear that while global research has firmly established the ways in which climate risks influence real estate markets, localized evidence in Nigeria remains uneven. Lagos dominates the conversation, while secondary cities such as Ibadan, where urban growth is rapid and flood risks are significant, are underrepresented. Moreover, most existing studies focus on hazard mapping and vulnerability assessments rather than market outcomes. Few incorporate the perspectives of estate surveyors and valuers, even though these professionals are central to interpreting risks, guiding investment decisions, and setting benchmarks for compensation and lending. This study, therefore, responds directly to these gaps by examining how climate change is influencing property values in Ibadan across residential, commercial, and industrial segments, thereby extending the literature on climate–real estate interactions in African secondary cities.

3. Methodology

This study employed a survey research design to examine the implications of climate change on property values in Ibadan, Oyo State, Nigeria. Using the 2024 Nigerian Institution of Estate Surveyors and Valuers (NIESV) directory, 55 estate surveying and valuation firms were purposively selected, as they possess the professional competence required for reliable responses. Questionnaires were administered to all firms, with 38 valid responses retrieved (a 69.1% response rate), providing adequate data for robust analysis. The instrument gathered information on firm profiles, perceptions of climate change impacts, and property value trends (2014–2023) across residential, commercial, and industrial categories. Data were analyzed using descriptive statistics (frequency distributions, percentages, mean scores), presented in

tables and graphs for clarity and comparison. The methodological approach aligns with prior studies: Ayedun et al. (2011) validated purposive sampling in engaging valuation firms; Bello and Olatoye (2020) demonstrated the effectiveness of questionnaires and descriptive statistics in assessing climate risks; and Oladokun and Ajayi (2018) confirmed the suitability of descriptive analysis for interpreting expert opinions in housing research. These precedents underscore the appropriateness and validity of the study's methodological choices.

4. Results

The data used for this study were collected from Estate Surveying and Valuation Firms in the study area through the administration of a well designed questionnaire in order to achieve the objectives set out in this study. The questionnaire distribution and retrieval exercise extend over a period of six weeks. This section of the work presents the data as obtained from the field and also discussed it as they relate to the study.

4.1 Profile of Firms Surveyed

The profile of firms presented in the Table 1 below offers an important insight into the characteristics and operational structures of real estate firms within the study area.

Table 1: Profile of firms

		N	%
Years of Experience of Firm in the industry	<5	12	31.6
	6-10	17	44.7
	11-15	7	18.4
	16-20	2	5.3
	>20	0	0.0
	Total	**38**	**100**
Size of Firm	Small	13	34.2
	Medium	17	44.7
	Large	8	21.1
	Total	**38**	**100**
Number of Employees	1-10	24	63.2
	11-20	11	28.9
	>20	3	7.9
	Total	**38**	**100**
Number of Branches	≤2	27	71.1
	>2	11	28.9
	Total	**38**	**100**
Firms with Management Portfolio	Yes	31	81.6
	No	7	18.4
	Total	**38**	**100**

Author's Field Survey, 2024

The findings in Table 1 above show that most firms in the industry are relatively young and small in scale, with 44.7% having operated for 6 to 10 years and 31.6% for less than 5 years, while only 18.4% have 11 to 15 years of experience, 5.3% have 16 to 20 years, and none have

operated beyond 20 years. Medium sized firms dominate the sector at 44.7%, followed by small firms at 34.2%, with large firms accounting for just 21.1%, indicating an industry largely driven by SMEs. This structure is reinforced by staff strength, as 63.2% of firms employ 1 to 10 staff, 28.9% employ 11 to 20 staff, and only 7.9% have more than 20 employees, reflecting limited human resource capacity. Operational scale is also modest, with 71.1% of firms operating two or fewer branches and only 28.9% having more than two branches. Despite these limitations, property management remains a core activity, as 81.6% of firms manage property portfolios, highlighting the centrality of management services in sustaining income and supporting property value preservation.

4.2 Impact of Climate Change on Property

The impact of climate change on properties is a critical area of study, as it has profound implications for homeowners, investors, and policymakers. This impact is also multifaceted, with varying effects depending on the specific climate risks. The question with respect to the effect of climate change on land property values were analysed and presented in Table 2.

Table 2: Impact of Climate Change on Property Value

Item	SD	D	I	A	SA	M ± SD
Structural Damage	0 (0.0)	1 (2.6)	2 (5.3)	28 (73.7)	7 (18.4)	4.1 ± 0.59
Increased management cost	1 (2.6)	4 (10.5)	2 (5.3)	19 (50.0)	12 (31.6)	4.0 ± 1.03
Increased maintenance cost	1 (2.6)	0 (0.0)	4 (10.5)	27 (71.1)	6 (15.8)	4.0 ± 0.72
Change of land use	1 (2.6)	1 (2.6)	8 (21.1)	21 (55.3)	7 (18.4)	3.8 ± 0.86
Change in market demand	2 (5.3)	4 (10.5)	8 (21.1)	16 (42.1)	8 (21.1)	3.6 ± 1.10
Change of use of the land	1 (2.6)	4 (10.5)	7 (18.4)	22 (57.9)	4 (10.5)	3.6 ± 0.91
Decreased Property Value	3 (7.9)	3 (7.9)	8 (21.1)	24 (63.2)	0 (0.0)	3.4 ± 0.95
Displacements of Resident	1 (2.6)	6 (15.8)	10 (26.3)	18 (47.4)	3 (7.9)	3.4 ± 0.95
Reduces Investment potential	1 (2.6)	5 (13.2)	13 (34.2)	16 (42.1)	3 (7.9)	3.4 ± 0.92
Heat waves	1 (2.6)	7 (18.4)	12 (31.6)	14 (36.8)	4 (10.5)	3.3 ± 0.99
Limited access to the land	1 (2.6)	11 (28.9)	7 (18.4)	16 (42.1)	3 (7.9)	3.2 ± 1.05
Wildfire	5 (13.2)	4 (10.5)	15 (39.5)	13 (34.2)	1 (2.6)	3.0 ± 1.05

Author's Field Survey, 2024

The findings from Table 2 and Figure 1 indicate strong agreement among respondents in Ibadan that climate change significantly affects landed property values, with the most severe impacts relating to physical damage and rising costs. Structural damage ranks highest (Mean = 4.1, SD = ±0.59), showing strong consensus that flooding, erosion, and intense rainfall are causing widespread deterioration of buildings, followed closely by increased management cost (Mean = 4.0, SD = ±1.03) and increased maintenance cost (Mean = 4.0, SD = ±0.72), highlighting the growing financial burden of property ownership under changing climatic conditions. Moderate agreement is recorded for change of land use (Mean = 3.8, SD = ±0.86), change in market demand (Mean = 3.6, SD = ±1.10), and change of use of land (Mean = 3.6, SD = ±0.91), reflecting how climate pressures are reshaping land functionality and market preferences, though with varying experiences across locations. Economic and social implications such as decreased property value, displacement of residents, and reduced investment potential all record similar mean scores (Mean = 3.4, SD ≈ ±0.92 to ±0.95), suggesting notable but less uniform concern. Lower ranked impacts include heatwaves (Mean = 3.3, SD = ±0.99), limited access to land (Mean = 3.2, SD = ±1.05), and wildfire (Mean = 3.0, SD = ±1.05), indicating these are perceived as less immediate threats in the local context, though still relevant within the broader climate change discourse.

4.3 Trends of Property Incomes and Capital Values

The trend of Residential, Commercial, and Industrial values provides critical insight into the dynamics of the real estate market, particularly in assessing investment performance. Residential income, derived from rental returns, reflects the immediate cash flow potential of properties, while residential capital value indicates the appreciation or depreciation of property assets over time. This same assertion is true for both commercial and industrial properties in the study area. Together, these indicators serve as benchmarks for evaluating climate change impact on property values in the study area. Table 3 provided data on residential income and residential capital from 2014 to 2023, showing both the mean (M) and standard deviation (SD) for each year.

Table 3: Residential Income and Capital Values between 2014 and 2023

Year	Residential Income		Residential Capital	
	M	SD	M	SD
2014	20,896,363.60	22,459,193.80	22,727,272.70	36,212,575.85
2015	22,457,727.30	24,427,182.93	22,818,181.80	36,201,336.94
2016	22,780,909.10	25,538,247.12	23,000,000.00	36,195,237.78
2017	23,247,727.30	26,429,170.74	22,272,727.30	33,689,311.32
2018	23,603,181.80	27,351,333.80	21,909,090.90	33,396,476.99
2019	23,231,363.60	27,546,167.70	21,727,272.70	33,308,345.61
2020	29,446,818.20	38,780,905.14	21,886,363.60	33,322,354.79
2021	24,125,454.50	30,304,389.39	21,840,909.10	33,382,839.32
2022	25,029,545.50	31,703,622.52	20,545,454.50	30,784,546.64
2023	25,318,181.80	31,965,344.13	21,272,727.30	31,131,337.48

Author's Field Survey, 2024

The residential income data revealed a general upward trend in the mean values, increasing from approximately 20,896,363.6 in 2014 to 25,318,181.8 in 2023. Notably, there was a significant spike in 2020, where the mean residential income surged to 29,446,818.2, coupled with a high standard deviation of 38,780,905.14, indicating substantial variability in that year. The standard deviation remained high throughout the years, indicating significant variation in residential income values, with the highest variability observed in 2020. The residential capital data showed a different trend. The mean residential capital fluctuated around the mid-22 million ranges but slightly decreased from 22,727,272.7 in 2014 to 21,272,727.3 in 2023. Unlike residential income, there was no notable spike in any specific year for residential capital. The standard deviation for residential capital remained consistently high but showed a slight decrease over the years, indicating somewhat less variability compared to residential income. The highest standard deviation was seen in 2014 (36,212,575.85), and it decreased gradually, reaching 31,131,337.48 by 2023. This trend suggested a more stable yet slightly declining residential capital over the observed period.

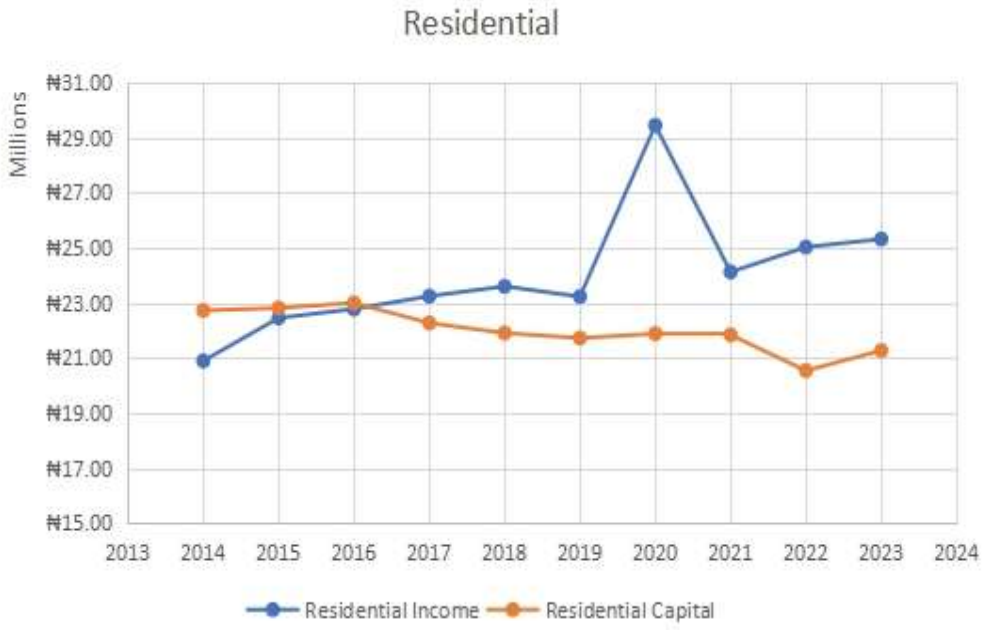

Figure 2: Line graphs showing mean change in residential income and capital values between 2014 and 2023

4.3.1 Commercial Properties

Commercial properties represent a vital segment of the real estate market, encompassing assets such as office buildings, retail outlets, warehouses, and mixed use developments that generate income primarily through leasing and business operations. Unlike residential properties, which are driven largely by demographic and social factors, commercial properties are influenced by economic growth, business expansion, urbanization, and investment trends. Their performance is closely tied to rental yields, occupancy rates, and capital appreciation, making them central to both investors and policymakers concerned with urban economic development.

Table 4: Commercial income and capital values between 2014 and 2023

Year	Commercial Income		Commercial Capital	
	M	SD	M	SD
2014 Commercial Income	121,745,695.70	519,866,204.86	89,772,727.30	73,339,349.42
2015 Commercial Income	122,010,913.00	519,806,483.04	90,000,000.00	72,574,428.13
2016 Commercial Income	122,330,478.30	519,738,143.16	84,090,909.10	73,127,357.33
2017 Commercial Income	187,548,739.10	831,974,246.24	83,363,636.40	73,434,483.57
2018 Commercial Income	186,795,689.10	832,120,487.26	81,461,363.60	73,850,247.33
2019 Commercial Income	186,850,037.00	832,113,360.87	89,000,000.00	73,265,336.44
2020 Commercial Income	186,425,254.30	832,079,712.47	88,863,636.40	73,003,128.08
2021 Commercial Income	360,454,384.80	1,665,740,338.02	89,590,909.10	73,995,275.97
2022 Commercial Income	360,506,121.70	1,665,732,363.01	86,590,909.10	74,735,507.65
2023 Commercial Income	446,564,817.40	2,082,806,893.28	85,181,818.20	73,923,149.52

Author's Field Survey, 2024

Table 4 and figure 3 provide data on commercial income and commercial capital from 2014 to 2023, detailing both the mean (M) and standard deviation (SD) for each year. The commercial income data showed significant increases over the period. The mean commercial income began at approximately 121,745,695.7 in 2014 and saw a notable rise to 446,564,817.4 by 2023. Particularly remarkable were the years 2021 and 2022, where mean commercial income jumped to 360,454,384.8 and 360,506,121.7, respectively, followed by another substantial increase in 2023. The standard deviation was consistently high, indicating substantial variability in commercial income each year, with a peak of 2,082,806,893.28 in 2023. The commercial capital data displayed more stability but also some fluctuations. The mean commercial capital hovered around the mid-80 million range, starting at 89,772,727.3 in 2014 and ending at 85,181,818.2 in 2023. There was a slight dip observed in 2016 and 2017, with mean values of 84,090,909.1 and 83,363,636.4, respectively. Despite these fluctuations, the standard deviation for commercial capital remained relatively stable, ranging from around 72,574,428.13 in 2015 to 74,735,507.65 in 2022. This trend suggested that while commercial income experienced significant growth and variability, commercial capital remained more constant with less dramatic changes over the years.

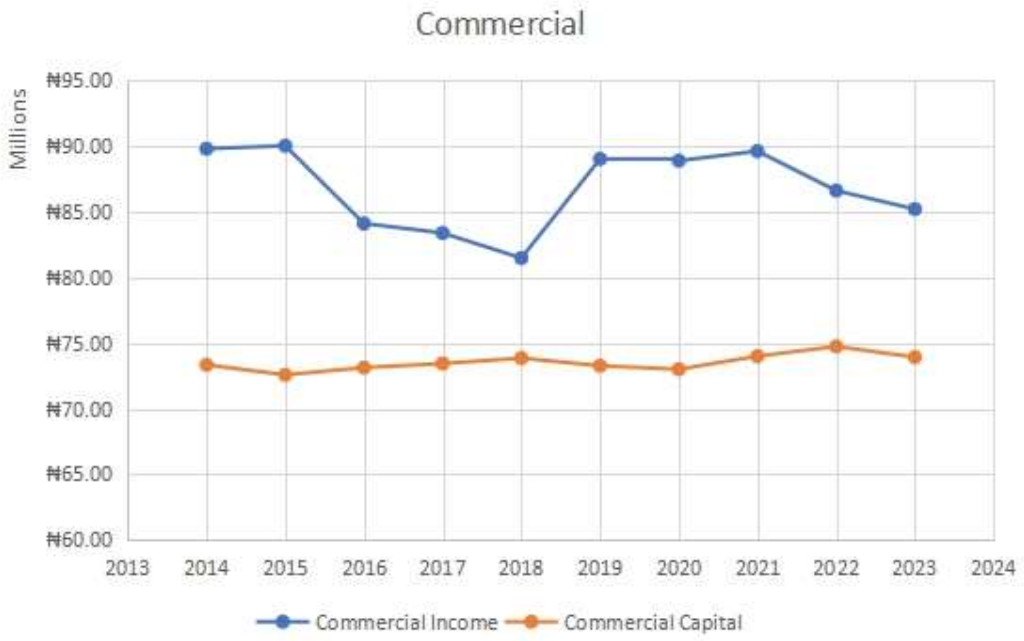

Figure 3: Line graphs showing mean change in commercial income and capital values between 2014 and 2023

4.3.2 Industrial Properties

Industrial properties form a crucial component of the real estate sector, encompassing assets such as warehouses, factories, logistics hubs, distribution centres, and manufacturing plants. These properties serve as the backbone of industrial and commercial activities, facilitating production, storage, and supply chain operations. Unlike residential and commercial properties, industrial assets are directly linked to trade, manufacturing, and infrastructure development, making their demand highly sensitive. Table 5 and figure 4 provide data on industrial income and industrial capital from 2014 to 2023, showing both the mean (M) and standard deviation (SD) for each year.

Table 5: Industrial income and capital values between 2014 and 2023

Year	Industrial Income		Industrial Capital	
	M	SD	M	SD
2014 Industrial Income	4,476,190.50	13,714,477.93	29,486,363.60	108,245,023.18
2015 Industrial Income	4,976,190.50	14,450,325.42	29,668,181.80	108,324,922.98
2016 Industrial Income	165,668,181.80	744,979,739.82	32,454,545.50	109,121,482.01
2017 Industrial Income	167,045,454.50	744,820,798.34	33,863,636.40	110,097,054.78
2018 Industrial Income	4,290,476.20	13,507,475.88	36,168,181.80	112,492,638.43

2019 Industrial Income	237,509,090.90	1,064,252,051.65	36,227,272.70	112,473,460.07
2020 Industrial Income	239,340,909.10	1,064,126,513.54	37,272,727.30	113,792,702.85
2021 Industrial Income	376,163,636.40	1,703,369,767.91	38,363,636.40	115,188,683.91
2022 Industrial Income	559,590,909.10	2,555,696,972.48	40,636,363.60	116,524,489.74
2023 Industrial Income	559,840,909.10	2,555,723,368.79	39,772,727.30	117,051,853.31

Author's Field Survey, 2024

The industrial income data revealed significant fluctuations and a dramatic increase over the period. Initially, the mean industrial income was approximately 4,476,190.5 in 2014. There was a sharp rise in 2016 to 165,668,181.8, which continued to climb to 559,840,909.1 by 2023. This substantial growth was accompanied by increasing variability, as indicated by the standard deviation, which peaked at 2,555,723,368.79 in 2023. The variability in industrial income was particularly high, reflecting the large disparities in industrial income across different years. The industrial capital data showed a more gradual and steady increase over the same period. The mean industrial capital started at 29,486,363.6 in 2014 and rose to 39,772,727.3 by 2023. Unlike industrial income, the standard deviation for industrial capital remained relatively stable but also showed a gradual increase, indicating consistent variability with slight growth over time. The highest standard deviation was recorded in 2023 at 117,051,853.31. This trend suggested that while industrial income experienced substantial growth and increased variability; industrial capital followed a more stable and steadily increasing pattern, reflecting more consistent investment or value retention in industrial properties over the years.

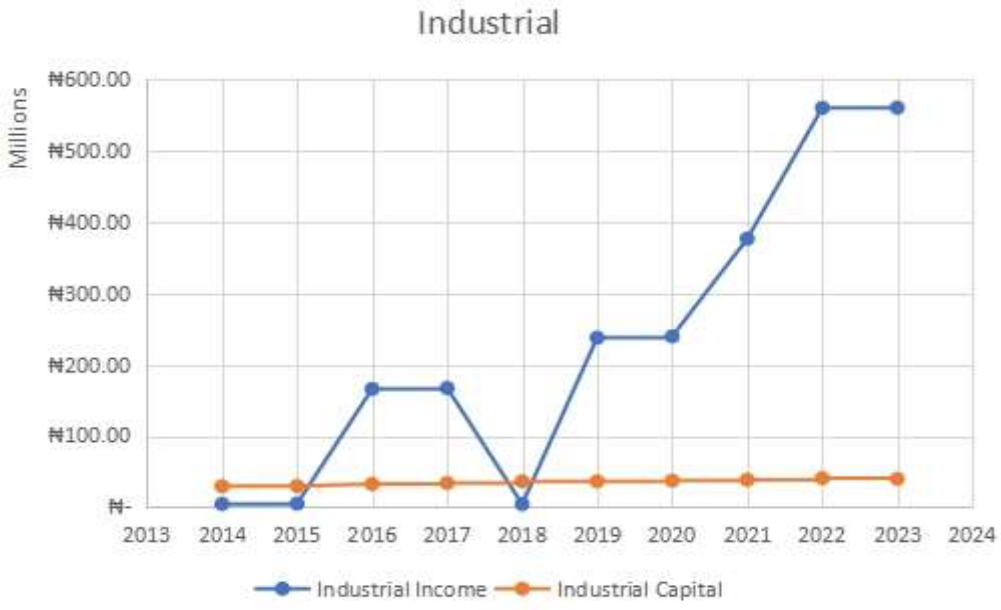

Figure 4: Line graphs showing the mean change in industrial income and capital values

5. Discussion of Findings

The findings show that climate change is significantly shaping property values in Ibadan, with firm characteristics and environmental exposure jointly influencing market outcomes. Most surveyed firms are young, small to medium-sized enterprises with limited staff strength and branch networks, although over 80% operate active property management portfolios, confirming the dominance and importance of SMEs in Nigeria's real estate sector (Ayodele, Agboola, & Ekemode, 2022). While these firms play a central role in managing property assets, their relatively limited resources restrict their capacity to undertake robust climate adaptation measures. Structural damage from flooding emerges as the most critical climate-related impact on property values, alongside rising management and maintenance costs, corroborating earlier evidence of Ibadan's vulnerability to recurrent flood disasters (Adelekan, 2011, 2016). Climate change is also driving shifts in land use, market demand, and residential stability, with flood-prone neighborhoods becoming less attractive to investors, a pattern consistent with observed value discounts in high-risk areas of Lagos (Thontteh, 2024; Cambridge Journal of Economics and Management, 2021).

A key insight from the study is the growing disconnect between property income and capital values. Although rental incomes for residential, commercial, and industrial properties increased markedly between 2014 and 2023, capital values remained stagnant or declined, reflecting inflation-driven income growth alongside heightened climate risk and investor caution (National Bureau of Statistics [NBS], 2023; Central Bank of Nigeria [CBN], 2023). This pattern aligns with global evidence that climate-exposed assets may sustain short-term cash flows while suffering long-term value erosion due to risk repricing (IPCC, 2022). The impacts are spatially uneven within Ibadan, as flood-prone areas face recurrent costs, tenant turnover, and reduced investment appeal, and although initiatives such as the Ibadan Urban Flood Management Project have mitigated some risks, market confidence has yet to fully respond (World Bank, 2014b; African Journal of Environment and Natural Science Research, 2025). Overall, the findings point to a dual market reality in which income resilience coexists with pressured capital appreciation, raising important concerns for valuation practice, property management, and urban governance.

6. Conclusion and Recommendations

From the evidence presented, it is concluded that climate change is already reshaping the trajectory of property values in Ibadan. The city's real estate sector is confronted with increasing operational costs, structural damage, and shifts in market demand, all of which depress long term asset values even as short term rental incomes remain buoyant. Unless deliberate measures are taken to embed climate resilience into valuation methods, property management strategies, and urban planning frameworks, the sustainability of property investments in Ibadan will remain precarious.

Several recommendations arise from this study. First, estate surveyors and valuers should integrate climate risk explicitly into appraisal models by incorporating flood exposure, drainage conditions, and expected maintenance obligations when estimating market and investment values. Second, property managers must adopt adaptive maintenance and retrofitting practices, including flood-resistant construction materials, improved drainage systems, and cooling solutions; to mitigate operational vulnerabilities. Third, urban planning authorities should enforce development control measures to curb encroachment on floodplains and mainstream green and blue infrastructure into city planning. Sustained investment in initiatives such as the IUFMP is vital to reducing hazard exposure and building confidence in climate resilient neighborhoods. Finally, developing a transparent property data system that links market transactions with hazard mapping would enhance investor confidence, improve market efficiency, and support climate informed decision making.

Lastly, Ibadan's case illustrates the pressing need to integrate climate resilience into the real estate sector. While short term rental incomes may continue to rise, the long term sustainability of property values depends on the capacity of professionals, policymakers, and investors to proactively adapt to the realities of a changing climate. By aligning valuation practice, property management, and urban governance with resilience principles, Ibadan can safeguard its property market against climate shocks and position itself as a more sustainable and competitive urban economy.

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