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Multinomial Logistic Regression to Estimate and Predict the Influence of Gentrification and Urban Renewal on Residential Choices in Kisumu City, Kenya

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Abstract:
Residential location choices involve making trade-offs between housing status and dwelling quality because no single residential area can provide all of its housing needs. In this work, we used multinomial logistic regression to predict the effects of gentrification and urban renewal on residential choices. A mixed-method research design was employed in the study. The Multinomial logistic regression's likelihood ratio test showed that the relationship between the component gentrification and residential choices was significant (p = 0.022) at the p<0.05 level, while that of urban renewal was significant (p=0.000) at the p<0.05. Hence, gentrification and urban renewal significantly influenced choice. The odds ratio for gentrification in a low-income neighborhood was found to be 0.672 (<1). This meant that the probability of selecting a home from a low-income neighborhood fell by 33% relative to selecting a home from a high-income neighborhood. Residents are more likely to consider gentrification when selecting residents from a high-income area than a low-income one. In the middle-income neighborhood, the odds ratio for gentrification was found to be 0.714 (<1). This meant that the probability of selecting a home from a low-income neighborhood decreased by 29% relative to selecting a home from a high-income neighborhood. Residents are more likely to consider gentrification when selecting residents from a high-income area than a middle-income one. In the study to predict how the effect of urban renewal on residential choices varied between neighborhoods, the odds ratio was found to be 2.829(>1), implying that the probability of selecting a home from a low-income neighborhood increased by 182% as compared to choosing from a high-income neighborhood. Residents are more likely to consider urban renewal when selecting residents from low-income areas than high-income areas. As in the case of the middle-income neighborhood, the odds ratio for gentrification was found to be 2.419 (>1). This meant that the probability of selecting a residence in a middle-income neighborhood decreased by 142% relative to selecting a home in a high-income neighborhood. Residents are more likely to consider urban renewal when selecting a residence from a middle-income area than from a high-income one. These findings will help with policy formulation in housing provision by the national government, the county government and property developers.

Keywords: *Multinomial logistic regression, gentrification, urban renewal, residential choices*

1. Introduction

People often move within the city to secure a residential location that best suits their specific needs. Residential location choice, therefore, becomes a very important decision that a household makes. There are many reasons for the change of residence, with the most common being job-related, housing-related, family-related, health-related, and increased transportation facilities (Clark & Lierop, 1986). Gentrification and urban renewal have had a significant effect on residential choices, thus attracting meaningful attention from the individuals in the housing provision (Davidson, 2009). Proponents of gentrification argue that the economic improvement of the neighborhoods through the high incomes of middle-class gentrifiers and the subsequent economic opportunities that new businesses in these neighborhoods attract can help to raise the wealth of lower-income residents who were already living in these areas and that the process may not

actually cause displacement or involuntary movement (Freeman & Braconi, 2004; Freeman, 2005; McKinnish et al., 2008). On the other hand, opponents of gentrification contend that the neighborhood's economic development does not aid long-term inhabitants since they are forced out by rising rents, property tax rates, and home prices (Lees et al., 2008). If the original residents are evicted, they may be unable to obtain the jobs offered by new firms drawn to gentrifying neighborhoods. In contrast, urban renewal refers to plans and initiatives to revitalize distressed or declining communities and suburbs (Richards, 2014). The study employs multinomial logistic regression to estimate and predict the influence of gentrification and urban renewal on residential choices in the study area. Multinomial logistic regression extends logistic models to multiple explanatory variables, as shown in equation 1. Let $x = (x_1,...,x_P)$ denote a generic vector of p explanatory variables:

$$\pi(x) = \frac{\exp(\alpha+\beta_1 x_1+\beta_2 x_2+...+\beta_p x_p)}{1+\exp(\alpha+\beta_1 x_1+\beta_2 x_2+...+\beta_p x_p)} \quad \text{.....1}$$

Where:

$\pi(x)$ = the probability that a case is in a particular category

α = the constant of the equation

β = the coefficient of the predictor or independent variables.

Equation 1 above can be re-written as shown below:

$$\ln\left(\frac{pi}{1-pi}\right) = \alpha + \beta iXi + \cdots + \beta pXp \quad \text{.....2}$$

2. Literature Review

Gentrification generally happens when middle- and upper-class families move into and rebuild economically downtrodden inner-city districts, displacing existing working-class people (Glass, 1964; Lees et al., 2008). The neighborhood's disinvestment and subsequent decline imply that gentrification occurs in low-income inner-city communities (Lees, Slater, and Wyly, 2008). Smith (1996) highlights a connection of factors that facilitate the gentrification process. They include developers, builders, mortgage lenders, government agencies, and real estate agents. Glass (1964) pointed out that wealthy residents were a major factor driving gentrification. Ley (1978) argued that the new middle income is an important factor represented in the context of post-industrial economic and occupational change, whereas Smith (1979) maintained that physical changes (or improvements) in neighborhoods due to capital investment are responsible for gentrification. Freeman (2005) found in his study that locomotion and high mobility do not play a large role in gentrification. The neighborhood will become gentrified, but there will be no movement. Gentrification, according to Freeman, has the potential to raise investment and attract middle-class households to underserved and underinvested regions of community housing and urban landscape. In light of this, Freeman clarified that gentrification's benefits might enhance many core cities' revenue bases and even promote socioeconomic inclusion (Freeman, 2005). Urban renewal, as stated by Xue et al. (2015), is a concept that evolved from urban redevelopment in the Housing Act of 1949 in the USA. It was used to describe the process by which downtown areas of cities were demolished and reconstructed. Compared to urban redevelopment, urban renewal became a more comprehensive and forceful strategy following the 1954 Housing Act. Through changes to housing policy, it sought to address housing-related issues in the community (Xue et al., 2015). According to Ploegmakers (2015), one strategy used by governments to revitalize underprivileged, dilapidated, and run-down communities is physical improvement. It includes improvements to public areas and infrastructure in urban areas. Urban renewal, in its broadest definition, refers to plans and activities to revitalize distressed or declining areas and suburbs (Richards, 2014). The renewal associated with gentrification is not for the poor. Rather, getting rid of the poor is the calling card of gentrification. Changes in the urban landscape due to gentrification are for the benefit of new residents of middle and upper income and the developers and investors of the project. The government of Kenya created the Kenyan Slum Upgrading Programme (KENSUP) to carry out slum upgrading initiatives in selected urban slums. KENSUP's pilot project in Kibera was implemented by the Ministry of Housing and local authorities, initially in partnership with the United Nations Human Settlement Programme (UNHABITAT) (UNHABITAT, 2008). A memorandum of understanding between the government of Kenya and the UNHABITAT was signed in 2003, but KENSUP was officially launched on October 4th, 2004. The program was implemented afterwards in other urban slums in Mavoko, Mombasa, and Kisumu. In Kisumu Manyatta, Kaloleni, Bandani, Obunga, and Nyalenda/Nyamasaria benefited from KENSUP (UHHABITAT, 2008), where different social amenities and infrastructure were constructed and upgraded. Gentrification and urban renewal may or may not lead to the displacement of the incumbent residents. It is important, therefore, to find out their influence on residential choices in Kisumu city.

3. Methodology

3.1. Research Design

In this study, a mixed-method research design was applied (Creswell & Plano-Clark, 2018; Johnson et al., 2007). The mixed-method research design was deemed appropriate because it helped to understand the influences of gentrification and urban renewal on residential choices through a multifocal perspective (Johnson & Onwuegbuzie, 2004; Collins et al., 2006; Bhattacherjee, 2012).

3.2. Study Area

The research was conducted in Kisumu City, which is the third largest city in Kenya. According to Kenya National Bureau of Statistics (2019), the city has a population of 397,957, with the highest density distribution in the informal settlements surrounding the urban core (Figure 1).

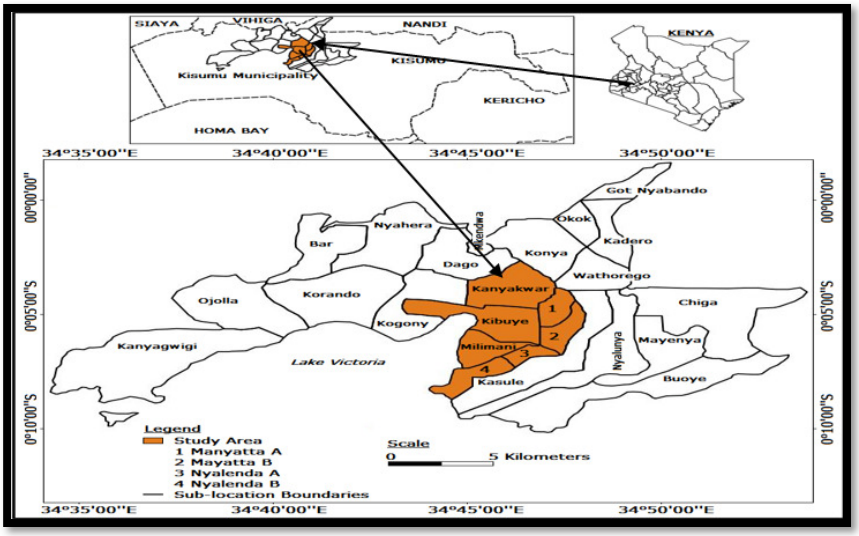

Figure 1: Map of Kisumu Municipality Showing the Location of the Study Area
Source: County Government of Kisumu, 2015

The city is located 10km south of the equator at longitude of 34° 45'E and latitude 00° 5'S. Kisumu city was chosen for the study because it has a strategic geographic position within the country and the East African Community.

3.3. Target Population

71,491 households in Kisumu City served as the target population for this study. The households interviewed were from seven different sub-locations within the city.

3.4. Sampling Procedure and Sample Size

Households were selected based on stratified random sampling. The number of households interviewed was proportionate to the number of households in each sub-location (Kothari, 2004; Bhattacherjee, 2012). A questionnaire was administered to every tenth dwelling. Four hundred and sixty households in all were chosen for the study from the sub-locations. The targeted respondents were the household heads or next of kin. The sample size for the study was determined using equation 3 (Cochran, 1977).

$$n = \frac{Z^2 \times p \times q}{e^2} \quad \ldots\ldots\ldots\ldots 3$$

Where:
n = the sample size
z= the critical value (1.96 for a confidence level of 95%)
p = 0.5, the estimated population with attributes of interest which is infinite
q = 1- p, e is the degree of desired precision

Therefore, the sample size n

$$n = \frac{1.96^2 \, x0.5x.0.5}{0.05^2} \quad \ldots\ldots\ldots\ldots 4$$

The above formula yields a sample size of 384. This was adjusted to 460 to cater for any non-response. Additionally, four key informants and twelve focus group members were included.

3.5. Data Collection Tools

The questionnaire, interview schedule guide, observation checklist and focus group discussions (FGD) guide were used to collect data in this study.

3.6. Pre-testing of Tools

The pre-testing of tools in this research was done in February 2023 at Nyamasaria estate in Kisumu city, where 40 questionnaires were administered, ensuring that the sample selected for the pre-test was fitting the cultural and demographic profile of the larger sample to be surveyed and that it was 10% of the sample anticipated for the bigger parent study (Converse & Presser, 1986; Ferketich, Phillips, and Verran, 1993; Bless et al., 2006).

4. Results and Discussion

4.1. Assumptions for Multinomial Logistic Regression

The results for the assumption testing for no outlier indicated that there were no outliers for the variables on gentrification and urban renewal except for the conservation of cultural heritage. Table 1 shows the Tolerance and Variance Inflation Factor (VIF) Statistics for the no multicollinearity assumption assessment for multinomial logistic regression. The VIF factors for all six variables were less than 2.5, while the tolerance value of the independent variables was above 0.30. Hence, all six variables were included in the multinomial logistic regression analysis.

Model		Collinearity Statistics	
		Tolerance	VIF
	(Constant)		
	Demolition and reconstruction	.829	1.207
	Structural reinforcement	.726	1.377
	Plastering and painting	.728	1.373
	Environmental improvement	.684	1.461
	Drainage improvement	.702	1.425
	Conservation of cultural heritage	.761	1.314

Table 1: Tolerance and Variance Inflation Factor (VIF) Statistics
Source: Survey Data, 2023

4.2. Factor Analysis

Redundant items in the variable list were removed considering the loadings. Components with more loadings were retained and named by looking at the contents that loaded more on the same factor and identified the common themes (Field, 2005). These new variables were used for further analysis to test the hypothesis.

The test for sampling adequacy was computed considering Kaiser-Meyer-Olkin Measure of Sampling Adequacy as indicated in table 2. Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.696. Bartlett's Test of Sphericity was highly significant at $p<0.0001$.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.696
Bartlett's Test of Sphericity	Approx. Chi-Square	182.673
	df	15
	Sig.	.000

Table 2: KMO and Bartlett's Test
Source: Survey Data, 2023

The data collected was deemed suitable for factor extraction, as indicated by the Kaiser-Meyer-Olkin measure of 0.802, which was higher than 0.5. Given the significant results of Bartlett's Test of Sphericity, factor analysis was deemed appropriate for this particular investigation.

These variables were subjected to principal component analysis, where the data in table 3 was extracted.

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.954	32.565	32.565	1.920	31.995	31.995
2	1.061	17.690	50.255	1.096	18.260	50.255
3	.913	15.216	65.471			
4	.753	12.546	78.017			
5	.691	11.515	89.532			
6	.628	10.468	100.000			
Extraction Method: Principal Component Analysis						

Table 3: Principal Component Analysis Results for Gentrification and Urban Renewal on Residential Choices
Source: Survey Data, 2023

The results in table 3 indicated that only two factors were extracted, and they accounted for a total variance of 50.26% in the observed variables. Additionally, a scree plot of the Eigenvalues versus the factor number is presented in figure 2.

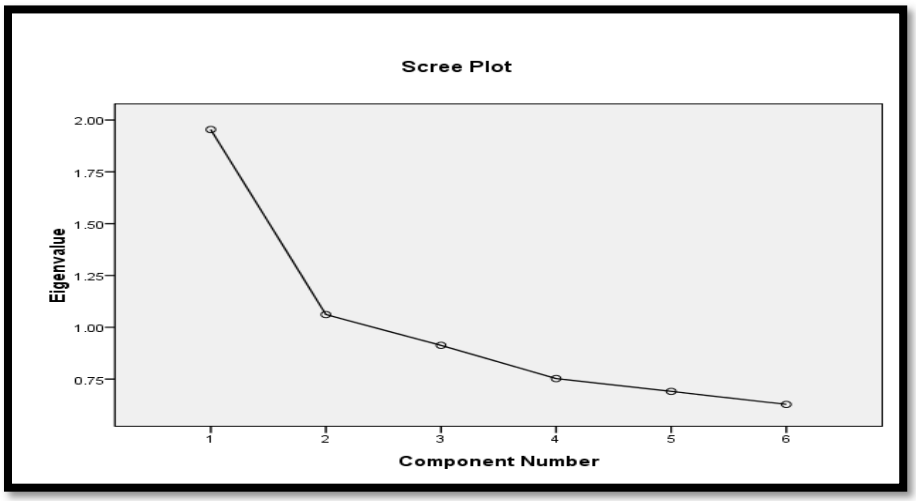

Figure 2: Scree Plot for Gentrification and Urban Renewal
Source: Survey Data, 2023

The extracted factors in table 4 were renamed such that the factors in the first component: Structural reinforcement of old buildings, Plastering and painting, Environmental Improvement, Drainage improvement and Conservation of cultural heritage building, were related to urban renewal and thus, they were named 'urban renewal' while the factor demolition and reconstruction in the neighborhood in component two was named 'gentrification' as the highest contributing factor was more related to gentrification. The two factors generated from the principal component analysis were used as the predictor variables in the multinomial logistic regression model.

	Component	
	1	**2**
Demolition and reconstruction in the neighborhood	.102	.916
Structural reinforcement of old buildings	.684	-.009
Plastering and painting	.547	.085
Environmental Improvement	.545	-.388
Drainage improvement	.595	-.293
Conservation of cultural heritage building	.701	.115
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.		

Table 4: Rotated Component Matrix on Gentrification and Urban Renewal

4.3. Multinomial Logistic Regression for Gentrification and Urban Renewal

The two extracted factors, urban renewal and gentrification were subjected to multinomial logistic regression as the predictor variables. Table 5 presents the valid observation used in the study as distributed among three categories of the outcome variable.

		N	**Marginal Percentage**
Social and economic status	low-class	153	39.8%
	middle-class	135	35.2%
	high-class	96	25.0%
Valid		384	100.0%
Missing		0	
Total		384	
Subpopulation		109[a]	
a. The dependent variable has only one value observed in 64 (58.7%) subpopulations.			

Table 5: Case-Processing Summary for Gentrification and Urban Renewal
Source: Survey Data, 2023

4.4. Multinomial Logistic Regression Model Fit for Predicting the Effect of Gentrification and Urban Renewal on Residential Choices

Table 6 shows the observed relationship between the residential choices and the predictor variables urban renewal and gentrification. The null hypothesis for the intercept model is that gentrification and urban renewal do not influence residential choices. The results shown in table 6 indicated that the -2 log-likelihood value of the model only with intercept

term was 465.697. This value decreased to 410.568 when the independent variables were factored into the model. This is a good indication that the model was a good fit for the data. The model was significant at $x^2(98) = 60.749$, p=.000. These results indicated that the final model in which the independent variables, urban renewal and gentrification, were included, predicted significantly better or more accurately than the intercept-only model without the independent variables. The null hypothesis, which stated that there was no relationship between urban renewal and gentrification, was, therefore, rejected.

Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	465.697			
Final	410.568	55.129	4	.000

Table 6: Model-Fitting Information for Gentrification and Urban Renewal
Source: Survey Data, 2023

4.5. Multinomial Logistic Regression Model Pseudo R-Square for Gentrification and Urban Renewal

The values for Cox and Snell, McFadden, and Nagelkerke were 0.134, 0.066, and 0.151, respectively, as reported in Table 7 when the pseudo R-squared for this model was evaluated. These results imply that between 13% and 15% of the variability can be attributed to the following: demolition and reconstruction, painting and plastering, environmental improvement, drainage improvement, structural reinforcement, and preservation of the model's cultural heritage. Out of the three, the Nagelkerke value (15%) suggested that the model is not very good at predicting the effect of gentrification and urban renewal on residential choices. The classification table, however, was used to test the predictive ability of the model further.

Cox and Snell	.134
Nagelkerke	.151
McFadden	.066

Table 7: Pseudo R-Square for Gentrification and Urban Renewal
Source: Survey Data, 2023

The pseudo-R-squared results presented suggest that the model, including the outcome variable residential choices and independent variables, demolition of old buildings and reconstruction, environmental improvement, drainage improvement, plastering and painting of houses, structural reinforcement and conservation of cultural heritage, is a slightly better fit than a model without the independent variables.

4.6. Multinomial Logistic Regression Classification Table for Gentrification and Urban Renewal

The model classification table for gentrification and urban renewal indicated how well the model predicted residential choices. Table 8 results show that the MLR model was able to classify 82.4% of the residents who preferred low-income residence correctly. Similarly, the model correctly classified 3.7% of residents, who chose middle-income residence. Finally, the model was able to classify 61.5% of the residents who preferred high-income areas correctly.

Observed	Predicted			
	Low class	Middle class	High class	Percent Correct
Low class	126	2	25	82.4%
Middle class	100	5	30	3.7%
High class	35	2	59	61.5%
Overall Percentage	68.0%	2.3%	29.7%	49.5%

Table 8: Model Classification Table for Gentrification and Urban Renewal
Source: Survey Data, 2023

A total of 49.5% of the people were correctly classified, according to table 8. These results are in good agreement with the intercept-only model, which assigns the modal category to every case. Models with classification accuracy greater than 50% are deemed acceptable by Kahn (2006); this model's classification value was, therefore, almost acceptable. The model performed the worst in predicting the middle-income group, while it was the best at predicting the low-income group, at 82.4%.

4.7. Likelihood Ratio Tests for Gentrification and Urban Renewal

Table 9 presents the likelihood ratio tests for this model, which assess the overall relationship between urban renewal, gentrification, and residential choices. From the table, the p-values of urban renewal and gentrification were 0.000 and 0.022, respectively. These were all statistically significant at 0.05, indicating that both urban renewal and gentrification influenced residential choices in the study area.

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	434.718	24.149	2	.000
Urban renewal	457.214	46.646	2	.000
Gentrification	418.179	7.610	2	.022

Table 9: Likelihood Ratio Tests for Gentrification and Urban Renewal
Source: Survey Data, 2023

4.8. Multinomial Logistic Regression Model Estimation for Gentrification and Urban Renewal

The estimation of the model was obtained from table 10, which included the parameter estimates for house type and demographic characteristics. The high-income residential neighborhood was selected as the reference category.

Social Economic Status[a]		B	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
							Lower Bound	Upper Bound
Low class	Intercept	.690	19.673	1	.000			
	Urban renewal	1.040	35.186	1	.000	2.829	2.006	3.989
	Gentrification	-.397	7.185	1	.007	.672	.503	.899
Middle class	Intercept	.597	14.430	1	.000			
	Urban renewal	.883	25.320	1	.000	2.419	1.715	3.413
	Gentrification	-.336	5.080	1	.024	.714	.533	.957

Table 10: Parameter Estimates for Gentrification and Urban Renewal for Low Income Neighborhood
Source: Survey Data, 2023

From equation 2, the above results were used to formulate equations 5 and 6 that defined the fitted models for MLR used in this study for each category of the dependent variable, except for the reference category. The results demonstrated that all the components of the predictor variables were statistically significant in the low-income residence group model; hence, they were all included in the model equation (Menard, 2002).

Logit (P_{LC}) = .690+1.040X_1-.397 X_2 ……5

Where:

P_{LC} = the probability of predicting the choice of a low-income neighborhood

X_1 = urban renewal,

X_2 = gentrification.

Likewise, because the results demonstrated that all the components were statistically significant in the middle-income residence group model, all the components of the predictor variables were included in model equation 6 below (Menard, 2002).

Logit (P_{MC}) = .597+ .883X_1-.336X_2 ……6

Where:

P_{MC} = the probability of predicting the choice of a middle-income residence

X_1 = urban renewal

X_2 = gentrification.

4.9. Effect of Gentrification on Residential Choices

Gentrification was measured by the presence of demolition and reconstruction of houses in the study area (Davidson & Lees, 2005). Results from the likelihood ratio in table 9 indicated that gentrification had an influence on the residential choices. The parameter estimate results in table 10 were further used to assess how gentrification influenced residents' choice of an either low or middle-income residential neighborhood in comparison with the high-income residential neighborhood. The results of this study demonstrated that gentrification was significant (p=.007) at the p<0.05 level for a low-income residential neighborhood. This suggested that it had an impact on the respondents' decision to live in either a high- or low-income neighborhood. The odds ratio was found to be 0.672, which was less than 1, meaning that the probability of selecting a home in a low-income neighborhood fell by 33% relative to selecting a home in a high-income neighborhood for every unit increase in the level of concern about demolition and reconstruction. This led to the conclusion that, when reconstruction and demolition are taken into account, residents are more likely to select a high-income area than a low-income one.

Gentrification was found to be significant (p = 0.000) at the p<0.05 level in the middle-class residential neighborhood. This implied that gentrification has an impact on respondents' decisions to live in middle-class or high-class neighborhoods. The odds ratio was 0.714, which was less than 1; this showed that for a unit increase in the level of concern about gentrification, the likelihood of choosing a residence in the middle-income neighborhood decreased by 29% in comparison with choosing a residence in a high-income neighborhood. This meant that gentrification was less influential in choosing a residence in a middle-income residential neighborhood than in a high-income residential

neighborhood. It can be concluded that a resident is more likely to choose a residence in a high-income neighborhood than in a low-and middle-income neighbourhood. This might be due to the fact that demolition disorients people's primary living conditions and, at the same time, brings about the problem of segregation, as stated by Verhage (2005). Demolition might have been necessitated by the lapsing of the design life span, a life expectancy of between 70 -100 years, after which the structure is regarded unsafe for human habitation (Adiukwu et al., 2018). During the focus group discussion, it also emerged that when new buildings are reconstructed after demolition, residents are attracted to occupy the new houses. The following statements were captured from the focus groups:

Though demolition has had some bad effects on residents, there is a good side to it: the reconstruction that follows avails better housing facilities. For instance, the same can have a bigger residential capacity with modern facilities and new designs.

(Focus Group Discussion 2, 2024)

4.10. Effect of Urban Renewal and Residential Choices

The components of urban renewal were structural reinforcement, plastering and painting, environmental improvement, drainage improvement, and conservation of cultural heritage. Results from the likelihood ratio of 9 indicated that urban renewal had an influence on residential choices. The null hypothesis stating that urban renewal did not have an influence on residential choices among residents in Kisumu City was rejected. The effect of urban renewal on residents' decision to live in a low- or middle-income residential neighborhood as opposed to a high-income residential area was also evaluated using the parameter estimate results shown in table 10. The results of this study indicated that urban renewal was significant (p=.000) at the $p<0.05$ level for a low-income residential neighborhood, suggesting that it affected the respondents' decisions to live in either low-income or high-income neighborhoods. The odds ratio was found to be 2.829, greater than 1, indicating that for every unit increase in the level of concern about structural reinforcement, painting and plastering, environmental improvement, drainage improvement, and cultural heritage conservation, the likelihood of choosing to live in a low-income neighborhood increased by 182% as compared to choosing a high-income neighborhood. This led to the conclusion that a resident is more likely to choose a low-income neighborhood than a high-income neighborhood when structural reinforcement, plastering and painting, environmental improvement, drainage improvement and conservation of cultural heritage are put into consideration when making residential choices.

According to the research findings, urban renewal was significant ($p = 0.000$) at the $p<0.05$ level in the middle-class residential neighborhood. Subsequently, it was determined that urban regeneration impacted the respondents' decision to live in a high- or middle-class neighborhood. The odds ratio was 2.419, which was greater than 1; this showed that for a unit increase in the level of concern about structural reinforcement, plastering and painting, environmental improvement, drainage improvement and conservation of cultural heritage, the likelihood of choosing a residence in middle-income neighborhood increased by 142% in comparison with choosing a residence in high-income neighborhood. This meant that urban renewal was more influential in choosing a residence in a middle-income residential neighborhood than in a high-income residential neighborhood. This may be due to the fact that in the middle- and low-income neighborhoods, housing rent is more affordable than in high-income neighborhoods.

The assertions of Crisan (2010) confirmed that structural reinforcement has popularly been applied for the preservation of historical structures, with numerous heritage churches and monastery buildings having undergone various repairing and strengthening procedures with the objective of improving their structural capacity. Kaburi (2007) found that residents in Nairobi appreciated the importance of painting and wanted to change the color in their interiors as often as possible to help them refresh, rejuvenate and grow if only they owned the houses or had enough disposable income. These findings were in agreement with the work reported by Isti and Sugini (2022) in their study on the effect of income on the selection of the price of wall painting materials in low-income community home construction, where they found that one's economic status influences the choice of wall paint material, hence the inability to consider painting and plastering of buildings in their residential choices. The findings were further validated by the information obtained from the focus groups, where participants emphasized that plastering of houses and painting affects residential choice. Their highlights were as follows:

Plastering and painting make houses look new and attract tenants, though the old residents may well know that the house may not be new.

(Focus Group Discussion 1, 2024)

In another research by Wen (2021), an analysis of the racial and spatial distribution of benefits revealed that Hispanics and African Americans living in downtown LA (i.e., most impacted areas in Los Angeles County) became worse off after environmental improvements as they were mostly renters and with low income. This highlighted that the benefits of environmental improvements are distributed regressively, and the fact that renters are, on average, both poorer than owners and are mostly people of colour also raises environmental justice concerns in policy design and evaluations.

These findings contradict the assertion realized during the interview with a property developer quoted below:

The low-income neighborhood is characterized by a poor drainage system that hinders transportation services, thereby discouraging residents from choosing houses in such areas. Locations like Nyamasaria, Obunga and parts of Nyalenda are synonymous with frequent flooding during rainy seasons due to poor drainage. This may make such a neighborhood less attractive and hence reduce rental prices.

(Interview with a property developer, 2024)

The observation from the survey depicted in figure 3 some neighborhood in the study area had very poor drainage.

Figure 3: Stagnant Water Due to Poor Drainage in Nyalenda Estate in Kisumu City
Source: Survey Data, 2023

As much as the results indicated an influence of the conservation of cultural heritage on residential choices, this aspect of urban renewal suffered several drawbacks, including stringent housing designs that the county government had set out. This did not allow for the incorporation of cultural heritage conservation by developers in their building designs, as was expressed in the focus group discussions depicted below.

> *The issue of cultural heritage conservation may exist, but every building in Kisumu City must adhere to the stipulated house plans, which may not include their cultural heritage. This is the main challenge the people face in conserving their cultural heritage.*
>
> *(Focus Group Discussion 1, 2024)*

5. Recommendation and Conclusion

The findings in this research demonstrated that both gentrification and urban renewal influenced residential choices in the study area. Gentrification was more influential in choosing residence in a high residential neighborhood than in a low or middle-income neighbourhood, whereas urban renewal had a greater influence on choosing a residence in a low or middle-income area than in a high-income neighbourhood. This meant that residents who considered gentrification in their residential decisions were more likely to pick a residence in a high-income neighborhood, whereas those who considered urban renewal were more likely to choose their residence in a low-income or middle-income neighborhood. The study is important in guiding policy formulation in the provision of better housing by the national government, the county government and property developers, which will, in turn, contribute to the realization of the United Nations' Sustainable Development Goal of sustainable cities and communities and Kenya's Vision 2030.

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