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Effect of Foreign Direct Investment on Affordable Housing in Kenya: The Role of Inflation as a Moderating Variable

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ABSTRACT

Purpose: Housing is a natural human necessity that affects health, community, economy, education, and social justice. Currently, Kenya is among countries that are faced with housing challenge both in rural and urban areas. The purpose of this academic paper is to demonstrate the role of Foreign Direct Investment (FDI) on Affordable Housing in Kenya. The study is anchored on Hedonic Price theory and based on the inferential analysis of 22 years (2010 to 2022) time series data obtained from Kenya National Bureau of Statistics, the Central Bank of Kenya, and the World Bank. The paper intends to add value to the knowledge on affordable housing as influenced by FDI inflow in Kenya.

Design/Methodology/Approach: This paper applied a causal research design coupled with econometric models. In order to establish the relationships between FDI and affordable housing in Kenya, quantitative data was analyzed both descriptively and by use of inferential analysis.

Findings: Test for Unit root using Augmented Dicky fuller revealed the presence of non-stationarity which was removed only after first and second differencing. The variance inflation factor indicated no multicollinearity and data were normally distributed. Summarized statistics synthesized its samples while distribution analysis marked FDI with a poor negative co-efficiency on the housing price index (-0.484778). At a 5% level of significance, in the regression analysis, the coefficients of log FDI were significant t (37) = -3.052, p = 0.0039 < 0.05. This model accounted for 45.3% of the variations in Affordable Housing. The overall analysis showed a more fluctuant direct effect of FDI on the Affordable Housing stock and revealed that inflation reduces the demand for affordable houses. Regression analysis carried out revealed an R^2 of 0.795435 without the moderating variable, indicating FDI accounted for up to 79.5435% of variations in the Affordable Housing but no long-

term equilibrium relationship was established. When inflation was included as an intervening variable, R^2 was established at 0.6841 thus reducing from 0. 795435.The study contributes to the understanding of what FDI and inflation do to housing affordability in Kenya and policy recommendations for stability.
Implications/Originality/Value: This work reveals that FDI has a direct but volatile impact on effective housing inventory, consequently, the role of inflation is found influential. The regression analysis of FDI on Affordable Housing revealed a coefficient of determination of 0.795435, meaning that 79.5435% of the total variation in Affordable Housing can be accounted for by FDI. After including inflation as a moderating variable, the value reduced to 0. 684135. However, it is mixed with the result that, although the two sets of variables are in the long-run and short-run stationary relationship, no long-run cointegration was identified between the variables. This research is informative in understanding the effects of such external economic variables as FDI and inflation on the affordability of housing in Kenya and policy measures to encourage stable investment in the sector.

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Introduction

The global housing shortage is a critical issue, with around 2.5 billion people living in poor conditions lacking basic amenities (Dodman et al., 2020). To meet this demand, 300 million new homes are required by 2030, primarily in Sub-Saharan Africa, South Asia, and Southeast Asia (World Bank, 2020). This necessitates an investment of approximately $17 trillion for land acquisition and construction, presenting a significant opportunity for the private sector (Autumn, 2020).

Foreign direct investment (FDI) are investments made by non-citizens who have business interests in the host country through individual investments or parent enterprises. They are characterized by long-term capital injections and significant degree of influence on the management of the recipient enterprises or operations of parent enterprises in the host economy. The stock of Foreign Direct Investment (FDI) for the housing sector was estimated at about Ksh 322 million in 2017, being the FDI for real estate development. This was an increase of Ksh 12 million from 2014 (Kippra,2021). If the real estate sector could have claimed a share of at least 5 per cent in the FDI, this could have raised between Ksh 26 billion to Ksh 34 billion annually over the period 2014-2017.This reveals that FDI has the potential of being a major source of financing the affordable housing sector(Kippra,2021)

Affordable housing remains at the center stage of discussions in Kenya with the government putting in place various programmes and policies to support housing sector since independence. The most recent one being the housing levy which has been considered as a discriminatory policy effort towards housing (The national Treasury of Kenya,2024). There has been an erosion of up to 6% of disposable incomes to those in employment sector (Cyton, 2024). This in effect reduces the ability to service mortgage facilities of the already high-priced housing units. High

construction costs, overvalued land prices and presence of private developers which produce high-end housing units have greatly affected housing affordability (Ndege,2025).

Strategies and approaches to ease access to affordable housing remains a major issue in Kenya with evidence of high-priced houses to low-income earners (Kanjah & Karugu,2020). They further point out that, Kenya has a big gap between high and low-income earners thus making housing affordability and financing difficult.

This paper intends to evaluate the effect of FDI on affordable housing and the role inflation in housing market. Further, it provides insightful knowledge to policymakers on how to spur affordable housing.

Empirical Review

According to Chua el 2020, who investigated both the short and long term association between Foreign Direct Investment (FDI) and overall consumer affordability in Malaysia Real Estate Sector using Vector Autoregressive model with a Sample period used is 2009:Q1 to 2017:Q4. FDI is scapegoated as the leading cause of decreasing affordability in real estate. In most cases, FDI on real estate contributes to the rising income of the country. Increasing income promotes demand to a higher threshold level. Thus, theoretically will cause housing price to increase. Through this study, evidence of no cointegration and absence of Granger causality converge towards deficiency of relationship among FDI and Housing Affordability Index (HAI). Findings pointed out FDI is not the cause of decreasing HAI.However, FDI with improved technological construction methods tend to increase housing affordability due to a reduction in construction costs.

ccording to Nguyen 2023, who used surveys in Canada to study correlation between inflation and home prices concluded that inflation reduces demand because fewer people afford to move to new homes due to an eroded income ability. This study has used secondary data on inflation to determine its effect on Inflation. From the analysis of this document, inflation affects affordable housing in Kenya as it erodes the purchasing power.

Tables and Figures

Both tables and figures were used in ventilating this paper as follows;

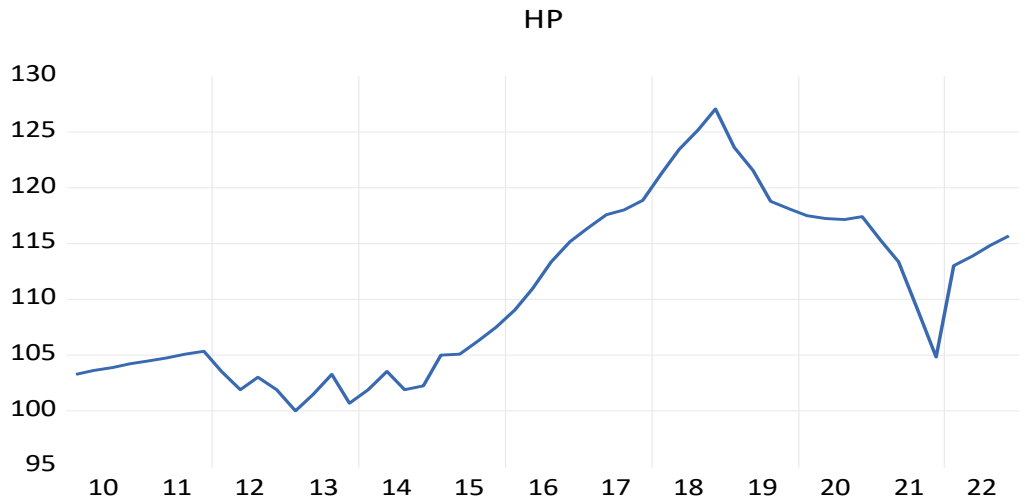

Figure 1: Trends in Affordable Housing (AFH): Author's compilation

The affordable housing market is characterized by fluctuations and represents the various stages of the housing market over a given period. It began at 100, meaning that inflation remained

constant in the first few years. Since 2013, the market has demonstrated a trend of increasing, pointing to an upward movement in affordable housing demand due to factors such as urbanization, housing expansion, and increased investment in the physical framework (Kiambagi& Kagochi,2012). Thus, the index reached 127 in approximately 2018 indicating a housing reiteration that is often associated with high demand and speculation. The housing market began to hike which signify a stabilization or increase in Affordable Housing demand due to increased government participation and focus on housing with a heavy investment by the government (Ministry of Housing of Kenya,2022).

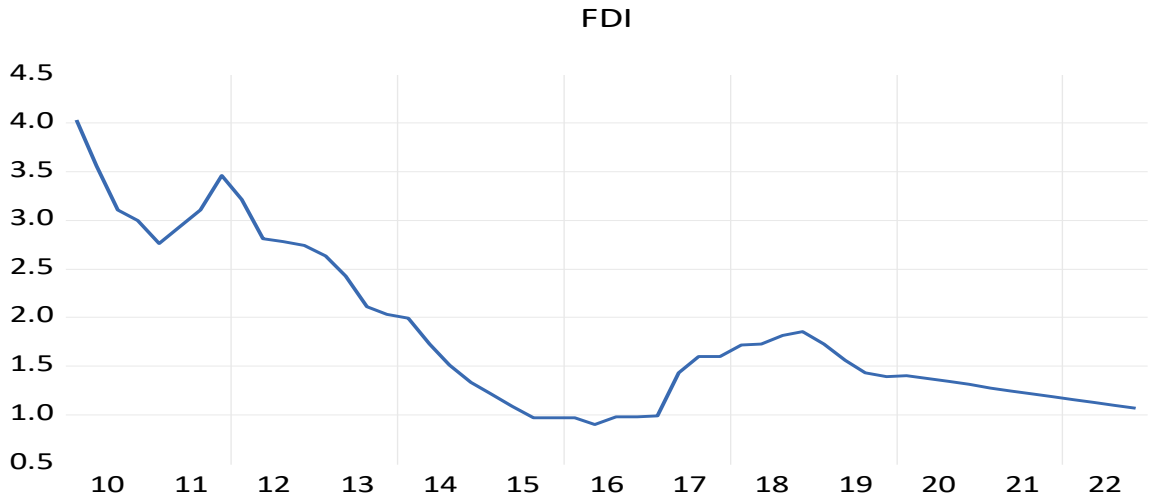

Figure 2: Trends in Foreign Direct Investment

The housing market index is fluctuating and exhibits changes in the housing sector over time. After 2012 the index seems to increase indicating an increase in the price of housing due to aspects like urbanization, growth of the housing sector, and fixed capital involvement in infrastructural projects (KNBS,2019). This is pointed out by the index that rose to about 127 around early 2018, possibly showing that the housing market might be on a boom occasioned by high demand and increased government involvement in housing programmes (Ministry of Housing of Kenya,2021).

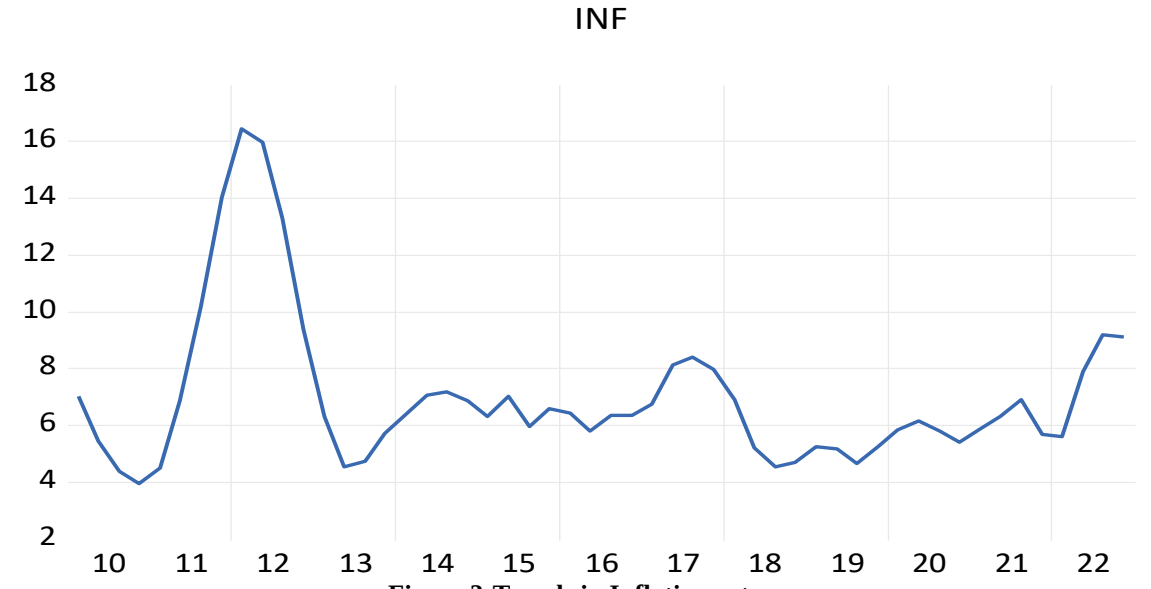

Figure 3:Trends in Inflation rates

Figure 3 shows that inflation rate in Kenya from 2010 to 2022 has been on a fluctuating trend and reached it's highest point at 16.45 in the year 2011 and the lowest value at 3.96 in the year 2018.

The increase recorded in 2011 can be blamed on factors outside Kenya's control such as global inflation in the prices of foods and fuel in addition to internal factors like drought that caused food scarcity(KNBS,2019).With the latter at about 4.7 percent in the pre-crisis period, high inflation was indeed eminent to take its toll and dragged the Kenyan economy to the receiver end as the cost implication of living had shot up significantly. The inflation rate lowered to its best at 3.96% by 2018, meaning that the country was experiencing some level of economic stability, with food and fuel prices and good policies. Nevertheless, starting in 2018, inflation started to increase again and by 2022 it stood at approximately 8 percent. That can be associated with the fluctuations in the international economic environment. The gradual upward movements toward the end of the period demonstrate that Kenya still struggles to sustain price stability dislocation by international factors and domestic economic forces.

Correlation Analysis

The main purpose of correlation analysis is to determine to what extent or to what level the associated variables name them have positive or negative associations (Gogtay & Thattle, 2017).

Table 1: Correlation Matrix Analysis

	HPI (AFH)	FDI	INF
HP (AFH)	1.000000	-0.484778	-0.280741
FDI	-0.484778	1.000000	0.334149
INF	-0.280741	0.334149	1.000000

Source: (Author's computation based on EViews 13)

From Table 1, AFH and FDI have a weak negative correlation because -0.484778 is closer to -0.5. Similarly, there is a weak negative relationship between INF and AFH because their, correlation coefficient of -0.280741 is less than -0.3. AFH tends to have an inverse relationship with INF, although the correlation between the two variables is weak as the number of observations rises, INF has less favorable numbers at lower AFH according to the results. On the other hand, the correlation realized between FDI and INF is a weak positive correlation with a coefficient of 0.334149. This implies that with an increase in the flow of FDI, inflation rates are also likely to reduce the value of FDI though not to the same tune. This means that inflation has an effect on investors who intend to have a share in the affordable housing sector.

Test for Stationarity

As pointed out by Green (2005), time series data has unit roots and, therefore, is a non-stationary data set. This means that the mean and the variance of the data do not have fixed values over the period under consideration for an exchange rate. Any order difference is made to the series containing the unit-roots until the series achieves Stationarity. In this paper Dickey-Fuller unit root test developed by Augmented Dickey & Fuller (1979) was employed.

Table 2: Unit root tests – Augmented Dickey-Fuller (ADF)

Number of observations = 52

Variables	ADF T-statistic	Prob	Critical values			Conclusion
			1%	5%	10%	
FDI%GDP	-4.705565	0.0004	-3.705565	-2.928142	-2.602225	I (1I)

Source: Author's computation based on Eviews

At this level, absolute values are considered and not their respective signs. When ADF t-statistic value is less than the critical value at a given level of confidence, we fail to reject the null hypothesis which means that the values are not stationery thus need to carry out a subsequent differencing.

INFL was stationery at levels as it had an ADF t-static value of 5.418252 which was greater than the critical value at 5% level of confidence of 2.921175

AFH(HPI) was stationary at first difference since it's ADF t-statistics was 5. 760401.This is because its ADF t-statistic value of 5.760401 is greater than its critical value at 5% level of significance.

FDI was not stationary at first difference it only became stationary after performing a second difference thus the ADF t-statistic value of 4.705565. This value was greater than the critical value at 5% level of significance which was 0.928142.

Determination of Optimum Lag Length

When determining or estimating Cointegration ranks or cointegrating in the VECM model, there is usually a requirement to justify the lag length. In the view of Thoma, (2008), the dependent variable takes a time gap to respond to an independent variable, the gap is referred to as a lag. Mittelhammer (2013) opined that excess lags are better avoided since they reduce the degrees of freedom, give rise to serialized correlation in the error terms, and can cause specification errors. Also, they could lead to multicollinearity. Thus, the general rule is always to select the model while pursuing the minimal value of the selection criteria.

Table 3 Vector Autoregressive Lag Selection Criteria

Endogenous variables: D(HPI)
Exogenous variables: C DD FDI INF
VAR Lag Order Selection Criteria
Sample: 2010Q1 2022Q4
Included observations: 46

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-840.3363	NA	6.30e+09	36.75375	36.95252	36.82821
1	-786.4279	93.75373	1.81e+09	35.49687	36.68946*	35.94362
2	-740.0266	70.61069*	7.42e+08*	34.56637*	36.75279	35.38542*
3	-718.6133	27.93037	9.62e+08	34.72232	37.90256	35.91366
4	-696.4575	24.08242	1.35e+09	34.84598	39.02005	36.40961

* Indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source:(Author's computation based on EViews 13)

Nielsen (2001) shows that there are several approaches to identifying the right lag order when the model contains I (1) variables and the VAR model. As illustrated in Table 3, for this multivariate model the maximum number of lags employed was two. This is because the Final Prediction Error (FPE), Akaike Information Criterion (AIC), and Schwarz Information Criterion (SC) tests all estimated two lags.

Bounds Cointegration Test

Wolde-Rufael (2010) states that bounds cointegration test is the best approach to use if variables in a model are cointegrated to different levels.

According to Adom et al (2012), cointegration exists when there is a linear combination of two or more nonstationary variable that are stationery. This means that this test is a useful technique used to discover any relationship that links nonstationary variables together in the long-run. This

test is performed on the level form of variables and not their first difference.

Table 4: Bounds Cointegration Test

Test Statistic			Value			
F-statistic					2.553139	
	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
45	2.402	3.345	2.850	3.905	3.892	5.173
50	2.372	3.320	2.823	3.872	3.845	5.150
Asymptotic	2.200	3.090	2.560	3.490	3.290	4.370

*** I(0) and I(1) are respectively the stationary and non-stationary bounds.**
Source :(Author's computation based on EViews 13)

From Table 4, F-statistic (2.553139) is less than the critical values 2.850, 2.823, and 2.560 of the lower bound *1(0*), at a 5%, significance level. Therefore, the researcher failed to reject the null hypothesis and concluded that cointegration does not exist between the variables. Hence, there is no long-run relationship between the variables in the model. According to Yussuf(2022) who did a cointegration test for the long-run economic relationships of East Africa community using meta data found out that there is a cointegration thus not in conformity of this findings.

Regression Analysis Results and Discussions

This paper sought to establish the effect of FDI, on housing affordability in Kenya over the years 2010-2022. Foreign direct investment was the independent variable and inflation was the moderating variable while the housing price index was the dependent variable. Detailed diagnostics of the time series data were conducted and regression analysis of the results is displayed in Table 5. The goodness and overall fit of the regression model as well as the overall significance was established by the R^2 of 0.795435 and the significance level $p = 0.0000 < 0.05$. This makes it possible for the model to account for 79.5435% of the total variation in the housing prices in Kenya with the remaining 20.4565% being attributed to other factors that are not explained in this study. Furthermore, subsequent diagnostic tests validated post hoc the association between the independent construct and the dependent measures summarized in Table 5.

Table 5: Regression Analysis Results Explaining the Variation of Affordable Housing Kenya at 5% Level of Significance.

Dependent Variable: D(HPI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
DD(FDI)	5.407022	1.959010	2.760079	0.0087
C	-136.6972	36.80769	-3.713821	0.0006
S.E. of regression	2.004474	Akaike info criterion		4.508637

A

Prob(F-statistic)	0.000000

probability value of (0.0000) implies that the variables in the model are jointly significant in
The Regression equation obtained from the analysis is;

$AFH_t = \beta_0 + \beta_1\ FDI_{t-1} + \beta_2\ .INF_t\ + \beta_3\ (INF_{t-1} * INF) + \mu t$ ..... (2)

AFH_t = -136.6972+ 5.407022*FDI_{t-1}+2.004474

Where AFH_t = First differenced of the Affordable Housing
FDI = Foreign Direct Investment acting as an explanatory variable in the model.
$_t$ = Time series data.
The regression model proved to be statistically significant at a 5% level., F-statistic 0.000 < 0.05); the goodness of fit provided a value of 0.865 as observed in Table 5. This means that 86.5 percent of the dependent variable variation was accounted for by the independent variables. Therefore, other macroeconomic factors that were not captured in the study contributed to the other macro factors with variances of 13.5% in the affordable housing sector.

An analysis of the effects of FDI on the provision of affordable houses

The objective of this paper was to examine the effect of FDI on affordable housing in Kenya. The findings showed that FDI had a positive relationship with affordable housing and thus the null hypothesis was rejected.FDI inflows have a direct impact on affordable housing needs; the regression coefficient derived equaled 5.407022. Such a relationship can be explained by the fact that the availability of houses enhances the price decrease hence encouraging the demand. Moreover, the study found FDI with the average selling price in affordable homes implying a higher cost of affordable homes for every decline in FDI. The results drawn from the work reveal that FDI increases the demand for affordable houses, thus lobbying for an increased FDI towards affordable housing so as to meet the demand hence exerting a downward effect on the prices.

Conclusion and Recommendations

Kenya's housing legislation is incomplete, specifically, the legal framework of Kenya does not contain particular regulations concerning the FDI in this area. To encourage significant foreign investment in affordable housing, the Kenyan government should promptly, come up with feasible clear policies with actual conditions legally governing FDI.From the result, it concurs with Liu's (2011) and Amondi's (2016) studies which show that FDI has a significant positive impact on the price on housing. On the other hand, Boers (2017) failed to establish a relationship between FDI and housing prices in Sweden and thus, literature inconsistency. Inflation as a Moderator of the Macroeconomic Variables and affordable housing as explained by Dharma (2018) affect the interaction between independent and dependent variables

The government of Kenya has a role to play so as make housing sector affordable to all income groups especially low income earners. This can be done by establishing tax incentive policies of a given minimum amount by investors allocated to housing investment.

References

Adom, P. K., Bekoe, W., & AkoeModeling (2012). Modelling aggregate domestic electricity demand in Ghana: An autoregressive distributed lag bounds cointegration approach. *Energy Policy*, 42, 530-537.

Amondi, A. (2016). The Impact of Foreign Direct Investment on Housing Markets in Nairobi, Kenya. *African Real Estate Review*, 9(2), 23-35.

Arestis, P., & Gonzalez, A. R. (2013). Housing Market Links to the Financial System. *Cambridge Journal of Economics, 37*(4), 807–822.

Baqutaya el at (2016). Affordable housing policy. Issues & challenges among middle-income groups:International Journal of Social Sciences

Bekoe, W. (2007). *Bounds Testing Approach to Cointegration: An Examination of Some Selected African Countries.*

Boers, M. (2017). Foreign Direct Investment and Housing Prices in Sweden: An Empirical Analysis. *Swedish Economic Review*, 12(3), 67-81.

Breusch, T. S., & Godfrey, L. G. (1981). A Survey of Recent Advances in Econometrics. *The Econometrics Journal, 1*(1), 1–22.

Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation. *Econometrica, 47*(5), 1287–1294.

Dharma, P. (2018). The Role of Moderators in Macroeconomic Variables and Housing Price Index Dynamics. *Journal of Economic Perspectives*, 32(4), 89-106.

GoK. (2019). *Affordable Housing Report*. Government of Kenya Press.

GoK. (2020). *National Budget Report 2018/2019*. Government of Kenya Press.

GoK. (2023). *The Affordable Housing Act*. Government of Kenya Press.

Kenya National Bureau of Statistics. (2017). *Annual economic survey 2017.* KNBS.

KIPPRA. (2023). *Affordable Housing Programme Progress Report*. Kenya Institute for Public Policy Research and Analysis.

KIPPRA.(2021). *Financing Models for Affordable and Adequate Housing in Kenya: Discussion paper No.259*

KNBS. (2021). *Population and Housing Census 2019*. Kenya National Bureau of Statistics.

Liu, X. (2011). Foreign Direct Investment and Housing Prices: Evidence from China. *Journal of Housing Economics*, 20(1), 49-61.

Marutlulle, N. K. (2021). The Global Housing Challenge: Addressing Housing Inadequacies for the Vulnerable. *Housing and Society Review, 30*(2), 50-61.

Ministry of Housing,GOK 2021

Mittelhammer, R. C. (2013). *Mathematical statistics for economics and business.* Springer.

Mwaniki, P., Nzau, G. (2018). The Impact of Urbanization on Housing in Kenya: Historical Insights. *Kenya Journal of Urban Studies, 5*(3), 27–39.

Ogajo, T. (2018). Interest Rate Fluctuations and Housing Prices: Evidence from Kenya. *African Journal of Housing Studies, 7*(2), 65–80.

Phillips, P. C. B., & Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika, 75*(2), 335–346.

Roache, S., & Atties, S. (2009). Remittances and Housing: Modeling Long-Run Impacts. *IMF Working Paper*.

SDP. (2021). *Sustainable Development Plan 2021*. Kenyan Vision 2030 Secretariat.

Thoma, M. A. (2008). *Time series analysis: Cointegration and error correction models.*

Wolde-Rufael, Y. (2010). Bounds test approach to cointegration and causality between nuclear energy consumption and economic growth in India. *Energy Policy*, 38(1), 52-58.

World Bank. (2011). *World economic outlook: Global inflation trends.* World Bank.

World Bank. (2017). *Housing Deficit Report*. World Bank Group.

World Bank. (2022). *Global economic prospects: Impact of international oil prices.* World Bank.

Yussuf,C.(2022).*Cointegration test for the long-run Economic relationship of East Africa Community:Evidence of Meta data.*Asian Journal of Economics and Banking.