

Effect Of Interest Rates Spread On Formal Housing Growth In Kenya

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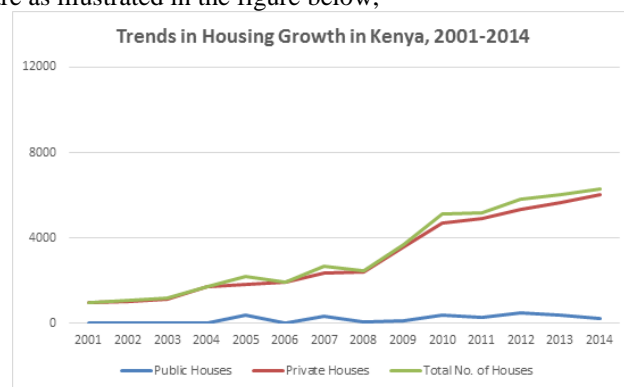
Abstract: With high formal housing shortages experienced across the globe, money market factors such as interest rates have been found to influence formal housing development in advanced economic regions such as USA, South America and Europe. While the annual deficit in Kenya stands at about 200,000 units, several studies in an attempt to explain factors affecting formal housing growth have however mainly focussed on spatial factors and overall macroeconomic variables such as GDP, rental income, public debt, money supply and unemployment. Thus, inadequate attention has been given to interest rates spread which is critical to any housing investment financing. This study therefore sought to analyse the effect of interest rates spread on formal housing growth in Kenya. This study is anchored on the Solow Neoclassical Growth theory which uses the Cobb-Douglas approach suitable to specify a housing growth function. This study adopted a correlational research design and used time series data from 1970-2014. Data was analysed using ordinary least squares approach at 0.05 level of significance. The study findings show a negative relationship between formal housing growth and interest rates spread. Interest rates spread were found significant with in influencing growth in housing units. 7.9% of interest rates spread explained formal housing growth in Kenya and hence should be considered in any housing policy aimed at accelerating housing development. The study recommends for such a policy to ensure reduced spread of interest rates.

Keywords: Housing growth, Interest rates, Interest rate spread

I. INTRODUCTION

The Kenyan formal housing market is characterised with the problem of formal housing scarcity which can be traced back to the time of independence which necessitated the formulation of the first Housing Policy, Housing Policy of 1966/1967 Sessional Paper No 5. This policy advocated for greater budgetary vote for the government to provide affordable housing. The population at the time was about 9,948,000 as at 30th June 1967 (GoK, 1968). With the increased population of about 41 million by the year 2013 in need of formal housing, the Kenya government was still faced with inadequate and indecent housing. The house prices have continued to be exorbitant with majority of the people falling below the poverty line. The government has since been in pursuit of providing adequate, decent and affordable housing to all by the year 2030 (GoK, 2008). The number of formal

houses developed has been increasing but has not been able to match the demand. Trends in growth of formal housing units are as illustrated in the figure below;



Source: Various Economic Surveys, 2003-2015

Figure 1.1: Trends in Housing Growth in Kenya, 2001-2014

One of the latest attempts to address issues of formal housing shortages in Kenya has been recognition of housing as a right in the Constitution of Kenya, 2010. The strategy to be used in providing the right is as spelt out in the National Housing Policy of 2004, a policy that targeted to bridge the then existing deficit gap of over 150,000 units at the time. One way according to the policy was to make housing affordable to the majority poor (low income earners) by addressing several housing inputs such as housing financing, provision of infrastructure, improvement of land tenure rights, eradication of poverty through slum upgrading and legislation (GoK, 2011). Despite this effort, the housing market in Kenya has continued to experience a mismatch between demand and supply. The Kenya Housing Survey of 2012 later established that while the annual demand for housing was estimated to be 250,000 units, only 50,000 units were being developed. The annual development of residential units has therefore continued to fall short of demand to an estimated deficit of 200,000 units by the year 2012 (GoK, 2012). This has eventually led to proliferation of slums and informal settlements characterised by various social ills and poor living standards. The housing market according to the National Housing Policy of 2004 is characterized by a number of weaknesses including low supply, financial and regulatory constraints. However, based on the level of supply, the measures in the housing policy can be said to be ineffective since they have not been able to facilitate the delivery of the required number of formal houses over the years and above all the annual deficit has been widening from 150,000 units in 2004 to 200,000 units by 2012.

To address the widening deficit, attempts to establish factors that can be used to help alleviate the problem have been done. Interest rates have been particularly identified as one of the most explanatory variables in facilitating growth in housing units in the US. Abraham and Hendershott (1992) established that macroeconomic factors including interest rates and employment are significant in influencing housing prices. The effect of interest rates on house prices was supported by Iacoviello and Minetti (2003) who argued that house prices became more sensitive to interest rate changes in the European countries. Sensitivity of house prices was discovered to intensify when interest rates have been relatively low in the previous recent past. Short term interest rates, according to Adams and Fuss (2010) affect demand for housing due to the effect on mortgage rates and the cost of financing for construction firms.

While available literature on formal housing provision in other countries (Abraham & Hendershot 1992; Iacoviello and Minetti 2003; Adams and Fuss 2010) have been carried out and show that interest rates affect growth in formal housing units, there is little evidence to show that any study in Kenya has linked interest rates spread and growth in housing units. While the findings have mainly been based in the United States and other advanced economies, there is need for such a study in Kenya since the two countries differ in their economic policies which may not enable comparisons. Available literature shows that studies in the Kenyan case have mainly focussed on spatial factors that affect formal housing growth (Chesang 1991; Mwanja 2010 and Wagura 2013). While other studies in Kenya have also focussed on

overall macroeconomic determinants of housing supply (Juma 2014 and Kariuki 1993), little evidence exists that there is a study which has directly linked only interest rate spread to formal housing growth. Most of these studies have mixed both spatial and macroeconomic variables as independent variables and hence a direct relationship between housing growth and interest rate spread cannot be clearly drawn. This study therefore intends to fill this gap by looking particularly at how interest rates as identified by Handa (2009) and Piotrowska (2013) affect formal housing growth in Kenya. The number of formal houses developed in this case will be the ultimate output determined by interest rates spread which can clearly be explained by a Cobb-Douglas production function which assumes that the output, number of formal houses developed is influenced by interest rates spread aforementioned.

STATEMENT OF THE PROBLEM

With the annual demand requirement of 250,000 formal housing units and only 50,000 being provided, there exists an annual deficit of 200,000 units. Despite the Kenyan government's efforts to help reduce the gap mainly through legislation and policy formulations, the gap seems to be widening rather than decline. Studies done in the area of formal housing provision have mainly dwelt on spatial factors such as planning and availability of land. Other studies have looked at the general macroeconomic factors such as Gross Domestic Product and per capita income. However, these studies alongside their policy recommendations have not been able to offer a solution to the problem of housing shortage. On the other hand, interest rates play a significant role in financing economic activities and hence can play a significant role in increasing formal housing units being a major economic activity. However, there is little evidence that a study has been done in Kenya to establish how the interest rates spread in particular affect formal housing growth. It was therefore important to do this study to explain the relationship between interest rates spread and growth in formal housing units in Kenya.

OBJECTIVE

The general objective of this study was to establish the effect of interest rates spread on formal housing growth in Kenya.

HYPOTHESIS

H_0 : There is no relationship between interest rates spread and formal housing growth.

II. LITERATURE REVIEW

Interest rates according to Hyman (1994) refer to the rate of the price for the use of funds usually expressed as a percentage per shilling of funds borrowed for investment. Samuelson (1970) defines interest rate as 'that percentage return per year which has to be paid on any safe loan of money which has to be yielded by any safe bond or other type of

security and which has to be earned on the value of any capital asset in any competitive market where there are no risks or where all risk factors have already been taken care of by special premium payments to protect against risk'. In Kenya, the base lending rates are set by CBK which is the custodian of all commercial banks in Kenya. These rates are important in affecting access to capital needed for economic activities such as formal housing development. This study thus intended to establish how the interest rates would affect growth of housing units in Kenya.

Theodore & Panagiotis (2015) did a study on the macroeconomic determinants of the housing market in Greece using a VECM approach. They looked at the interdependence between the housing price index and macroeconomic determinants including retail sector, Consumer price index and taxes. According to them, the retail sector and mortgage loans emerge in the long run as the most important variables for housing. Mortgage loans in particular had the most explanatory power (29%) for the variation of housing price index. Mortgage loans are particularly affected by the prevailing interest rates in the market. When the rates are high, few mortgage loans will be taken. Therefore, the interest rates will thus play a critical role in assessing housing growth in any given market. However, their study having looked at the overall effect of macroeconomic determinants on housing market, it does not give a precise hint of how interest rates spread would affect formal housing growth. While lending interest rates would affect mortgage uptake, it is not clear if the interest spread would have any significant effect of the overall growth of formal housing units. Since interest rates play a significant role in any economic activity, their relationship with formal housing growth thus ought to be fully explored in any housing study. This study thus narrows down to establish the effect of interest rates spread on formal housing growth in Kenya.

Kariuki (1993) sought to establish the real factors affecting the level of supply for houses in the Kenyan housing market. This supply is what Syagga (1994) defines as real estate development which according to him is similar to any other industrial or manufacturing process where a particular commodity is produced in response to a given demand. Using primary data, he established among others the main factors affecting the supply for housing and gives them as availability and cost of credit (interest rates) together with return on housing investment. According to him, when interest rates are low, more houses would be supplied and vice versa. He concluded that measures be put in place to lower the interest rates and this would boost housing growth. However, the finding by Kariuki (1993) that interest rates and return on housing investment as the main factors affecting development of housing and subsequent recommendation that lowering interest rates and raising return on housing investment is not exhaustive. He ignored the critical aspect of interest rate spread since this is important as it takes into account savings interest rates which could provide avenue for other investment other than housing. It is therefore important to show how a combination of both lending interest rates and savings interest rates would affect formal housing growth.

Adala (1978) also did a study on the housing market in Nairobi and established that the greatest barrier to new

residential construction is the availability of credit finance at levels that can significantly alter the stock of housing and at prices that will promote the kind and form of long term investment required in housing development. She proposed that improved access to mortgage facilities by low income segment in the economy be enhanced in order to increase the supply of low income housing. According to her, housing finance, insurance, pension schemes, and commercial banks can play a big role in delivery of housing stock. However, her finding that only access to credit finance can significantly increase housing stock is unrealistic since affordability also can play a significant role. Lending interest rates could be so high so that even if they are accessible, many people may not afford. While lending interest rates significantly determine cost of credit, interest rates on investments can also significantly affect the purchasing power of an individual and subsequently his choice for consumption and housing investment expenditures and thus ought to be considered when addressing the relationship between interest rates and housing growth.

Adams (2008) did a study on macroeconomic determinants of international housing markets. Using a panel Cointegration analysis of 15 countries over a period of 30 years he established two effects which is likely to have a major impact on the housing development schedule of new construction as a change in the short-term interest rates and construction costs. He noted that higher short-term factors that increase the costs of construction such as an increase in the price of construction materials or stricter building regulations increase the financing costs of construction. According to him both interest rates and costs of construction positively affect housing growth in many countries and therefore should form a critical component of macroeconomic variables affecting housing growth. However, while the study looked at the overall effect of the macroeconomic factors on housing markets, he failed to recognize that other than lending interest rates, interest rates on savings could also play a key role in influencing formal housing growth because when the rates are high individuals could save for housing development. It is therefore important that his discussion ought to have considered the interest rates on savings. This study considers this by looking at the spread.

Chesang (1991) did a study to establish the determinants of private investment in provision of urban housing in Kenya. He did this by collecting time series data on income, construction costs, credit allocated to housing, total housing stock and gross investment to estimate the industry investment function. His findings were that housing investors in Kenya highly responded to income changes, credit and construction costs. He recommended policies that can boost investment in housing including the state allowing supply and demand to determine rent rates, the public sector to provide housing services to low income earners while the private sector left to cater for the high-income earners. He finally advocated for more allocation of funds to the housing sector. Based on this study, gross investment includes the number of houses developed. Normally in economics, Gross investment is given as a function of interest rates. In his study, he therefore failed to consider estimating the role of interest rate (a critical factor of the money market) both lending and on savings in housing

in addition to income and construction costs, the variables he considered. It was therefore important that a related study be done encompassing both interest rates on savings and loans in terms of spread.

III. METHODOLOGY

This study adopted a correlational research design, which according to Kothari (2004), is used when the researcher wants to establish the relationship between two or more variables. The researcher in this kind of study, according to Kothari (2004) uses theories and hypothesis to account for forces that cause certain phenomenon to occur. The relationship between housing growth and interest rates spread was explored. This study was quantitative in nature.

This study involved collection of secondary time series data. Secondary data according to Kombo & Tromp (2006) involves gathering data that has already been collected before. It involves collection and analysis of published material and information from internal sources. The secondary time series data covered a period of 45 years (1970-2014) collected on annual basis. Data on the variables was obtained from various yearly economic surveys and Statistical abstracts obtained from Kenya National Bureau of Statistics.

MODEL SPECIFICATION

This study used the Solow neoclassical production theory which considers output as a function of labour and capital. This theory uses the Cobb Douglas production function to specify the model. This model was linearised using the natural logarithms. It is an exogenous growth model in that long run growth in output comes from features which lay outside the model. The growth is usually spurred by technological change. Technology changes over time through innovation in new products. Capital in the Solow model accumulates based on depreciation rate and investment at a given time. Investment in housing is believed to be dependent upon the prevailing interest rates meant to facilitate housing development. Solow model also advocates for the level of technology to spur growth. Therefore, considering exogeneity of the Solow model, it can be concluded that interest rate is a critical factor with a direct bearing on growth of formal housing in any given economy using the Solow theory (Schenck,2012).

$$Q_t = A_t K_t^\alpha L_t^\beta \dots\dots\dots 1.0$$

Where Q_t is the aggregate output (in this case number of houses developed); A_t is technical factor productivity at time t (positive constant); L_t is labour at time t; K_t is other physical capital of the country at time t; (α) and (β) are positive fractions.

This theory is relevant in this study since it is understood from 1920s to be an explanation of the determinants of the value of output (Biddle, 2012). Production of housing requires both labour and capital. Technology, A is critical in ensuring efficient delivery of housing units. With abundance of labour

in Kenya, L can be held constant and since interest rates affects the cost of capital, then capital would be left to vary. We therefore substitute the output, Q with HP to represent formal housing and K with r for interest rate spread. According to Ciang (1984) equation (1.0) can be modified using the natural logarithms and hence in terms of the Cobb-Douglas function and the model for housing growth will be expressed as;

$$\ln HP_t = \beta_0 + \alpha \ln r + \varepsilon_t \dots\dots\dots 1.1$$

Where HP_t – housing growth at time, t.

$\beta_0 - \ln A_t$: level of technology (assumed to be constant)

r_t – interest rate spread at time, t.

ε_t – error term at time, t.

IV. RESULTS AND DISCUSSION

DESCRIPTIVE STATISTICS

The summary of the descriptive statistics for the variables used in this study are presented in Table 4.1. The summary includes mean, maximum, minimum, standard deviation and skewness.

	HP	R
Mean	3023.089	10.93444
Maximum	7022.000	49.50000
Minimum	952.0000	2.500000
Std. Dev.	1656.607	8.335215
Skewness	0.709460	2.188026
Observations	45	45

Source: Own computation, 2017

Table 4.1: Descriptive Statistics

The data used for analysis comprised 45 observations for the number of houses developed and interest rate spread on annual basis from 1970 to 2014. The averages for the number of houses developed were found to be 3023.089 units. The lowest recorded number of formal houses developed was 952 in 2001 while the highest recorded figure was 7022 in 1979 with a standard deviation of 1656.607. It was found to be symmetrically distributed because the skewness is about 0.

The average interest rates spread for the study period was 10.93% ranging from 2.5% in 1983 to 49.5% in 1993. The deviation of the savings interest rates from the mean was 8.33%. Interest rates spread were found to be positively skewed in terms of distribution.

TEST FOR STATIONARITY

Before data could be used, the series were tested for stationarity using the Augmented Dickey-Fuller test (ADF). Graphs for the series were examined and established that the series exhibited both the trend and intercept. The results for the stationarity are as shown in table 4.1 below;

Variables	At level		At First Difference		Order of Integration
	t-statistic	Critical values 1% 5%	t-statistic	Critical values 1% 5%	
Ln HP	- 0.446328	- 4.186481 - 3.518090	- 8.876779	- 4.186481 - 3.518090	I(1)
lnR	- 2.335096	- 4.180911 - 3.515523	- 7.707667	- 4.186481 - 3.518090	I(1)

Source: Eviews Computation, 2017

Table 4.2: Test for Stationarity

From the results, it is evident that both the independent and dependent variables were non-stationary at levels and hence upon differencing, they became stationary at first difference hence integrated of order (1).

EMPIRICAL RESULTS

The least squares regression was run for the natural logarithm of formal housing growth against interest rates spread and the following output obtained;

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023877	0.043170	0.553088	0.5831
DLNR	-0.261288	0.120361	-2.170876	0.0356
R-squared	0.100887	Mean dependent var		0.018269
Adjusted R-squared	0.079479	S.D. dependent var		0.297929
S.E. of regression	0.285845	Akaike info criterion		0.377653
Sum squared resid	3.431703	Schwarz criterion		0.458753
Log likelihood	-6.308368	Hannan-Quinn criter.		0.407729
F-statistic	4.712701	Durbin-Watson stat		2.301548
Prob(F-statistic)	0.035642			

Source: Eviews Computation, 2017 Dependent Variable: DLNHP; Observations: 44

Table 4.3: Model Estimation

From the table above, a one percentage increase in interest rates spread would decrease the number of housing units produced by 0.26%. Interest rates spread was found to be significant in influencing formal housing growth in their first difference based on the Probability value of 3.56% which is less than 5% significance level. However, when change in interest rates spread is zero, housing growth would not change since the coefficient for the constant obtained as 0.023877 was not significant with a p-value 0.5831.

This finding differs with that of Elmendorf (1996) which established that in the United States a decline in personal savings causes a decline in national savings which in turn leads to increased housing development where returns are good. The study advocated for measures to lower savings interest rates in order to increase housing development. The finding by Malhar (2011) in China also established that to increase housing development, measures to induce households to save less and spend more should be put in place. This finding is however, similar to that by Theodore & Panagiotis (2015) which showed that there existed a longrun inverse

relationship between the retail sector, mortgage loans and housing development in Greece. The study had established that mortgage loans accounted for 29% of variation in housing and thus people will tend to borrow more for housing development when the interest rates are low.

The overall test of significance of the model showed that the F-statistic was 4.712701 with a probability value of 0.035642 in the table of results. The p-value, Prob(F-statistic) of 0.035642 represents the marginal significance level of the F-test. At 5% significance level, the p-value obtained is way below 0.05 hence we do reject the null hypothesis that the slope coefficient is equal to zero.

Therefore, the best model for the relationship between formal housing growth and interest rates spread would be given as;

$$DLNHP = 0.023876831742 - 0.261288033862 * DLNR$$

V. CONCLUSION AND RECOMMENDATIONS

The objective for this study was to establish the effect of interest rates spread on formal housing growth. The estimation revealed a negative relationship between formal housing growth and interest rates spread. Based on economic theory, the finding is in tandem since higher interest rates on lending implies that there would be low borrowing for housing development. Low rates on the other hand would stimulate more borrowing hence increased formal housing development. On the other hand, trends in Kenya show high fluctuating lending rates and low interest rates on savings. This has given rise to a wide interest rate spread skewed towards lending interest rates.

The results of the study have showed that interest rates spread affect formal housing growth and was significant over the study period and hence any policy on accelerating formal housing growth should consider the interest spread. Policy formulators should ensure that policies put in place does not bring a big gap between lending interest rates and interests on Savings. This is because with annual formal housing deficits being estimated at about 200,000 units, there is need to put in place a policy that would enable increased production of more formal houses. Emphasis should thus be put on policies that would lower interest rates spread mainly through the Central Bank lowering the base rates which will encourage lower interest rates on borrowing by the private sector to facilitate housing development and/or increasing interest rates on savings.

There is an upward trend in formal housing growth that also suggest that a large percentage of formal houses are provided by the private sector. With the government, solely in charge of policy, this study recommends that it puts in place a policy to govern private sector housing development. Such a policy can include sound incentives to encourage the private sector to develop formal houses and can include offering financing at very low rates for funds intended for housing development. Consequently, it can increase interest rates on savings meant for housing development in order to encourage the private sector invest in housing development.

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