Macroeconomic policies, house prices and housing supply in Ghana: The role of economic growth

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ABSTRACT

In many developing countries, housing debates and policies are focused on making prices affordable for consumers and increasing the supply. Despite the ongoing efforts by governments, there is compelling evidence that the informal sector drives the housing markets in developing economies. Hence, sound macroeconomic policies that affect consumers may serve as a lever to reduce prices and increase supply. This paper, therefore, examines the efficacy of monetary, fiscal, and debt policies on house prices (HP) and housing supply (HS), while underscoring the inclusive and exclusive roles of economic growth in Ghana. We utilized the Fully Modified Ordinary Least Squares (FMOLS) and the Canonical Cointegrating Regression (CCR), supported by annual data from the period 2000 to 2023. The study establishes that, regardless of whether economic growth is included or excluded from the model, house prices and housing supply respond to macroeconomic policies. HP and HS are marginally affected by the monetary policy rate (MPR), fiscal policy (FP), debt policy (DP), and economic growth (RGDP). Moreover, both HP and HS have a positive influence on each other. This study has therefore expanded the scope of macro housing studies by utilizing macroeconomic policies and concurrently assessing the inclusive and exclusive roles of economic growth in a developing country. The study, therefore, contends that regulators' reliance on general macroeconomic policies for housing market development may inadvertently impede sectoral growth. Consequently, targeted macro-housing policies that enhance supply and align prices with household income levels are imperative. These include, inter alia, dedicated housing development funds, special lending rates for the housing industry, and strengthening the land tenure security of incremental developers. Furthermore, to sustain the growth of the housing market, the study emphasizes the importance of stable core macroeconomic fundamentals, namely, interest rates, exchange rates, and inflation. These indicators reduce financing costs, preserve purchasing power, and enable households to pursue incremental housing development, which remains a dominant delivery mechanism in developing countries.

Keywords: Economic Growth, Ghana, House Price, Housing Supply, Macroeconomic Policies

I. INTRODUCTION

Housing as an asset is considered a consumption, an investment, and a social good by households, investors, and policymakers. In some emerging and developing countries, ownership of housing serves as a symbol of prestige and enhanced social status (Kwakye et al., 2026). The increasing importance of housing has attracted a plethora of policy interventions, especially in developing economies, by making prices affordable to consumers and increasing the supply. Therefore, house prices and housing supply (proxied by housing stock) dictate the housing market discussions and remain a challenge in developing economies (Afrane et al., 2025; Ameyaw et al., 2025; Kwakye et al., 2025). The pluralistic outcomes of housing studies suggest that housing remains an important component of household wealth; hence, economic policies that trigger local or informal supply should be implemented. Tipple (2015, p. 418) in his paper titled "Housing Policy-Making in Africa: Ten common assumptions," argued that "Instead of concentrating on the small and relatively inefficient formal housing supply at the top end of the market, attention should be turned to enabling the parts of the housing supply system that successfully provide most housing —the informal builders and construction artisans". This assertion echoes the view of Ameyaw et al. (2025) that the weaknesses in the housing market and a lack of government interventions have led to incremental financing and development by households relying on their meager income.

Many macroeconomic variables affect the housing market. However, in this paper, we turned our attention to selected macroeconomic policies (monetary policy, fiscal policy, and debt policy) that influence the Ghanaian housing market and examine the inclusive and exclusive role of economic growth. For the nexus of the housing market and other macroeconomic indicators, kindly refer to the expositions of Kwakye et al. (2025) and Owusu-Ansah et al. (2021). Previous scholars have shown that there is a relationship between macroeconomic policies and the housing

market (Gorea et al., 2026; Houlié, 2025; Nguyen & Le, 2025; Boakye-agyeman et al., 2020; Kwakye & Chan, 2020). It is believed that macroeconomic policies affect every sector of the economy, and the housing markets are not spared from the shocks of these policies. The monetary policy committee (MPC) of the Bank of Ghana (BoG) sets and adjusts these economic policies periodically to influence the direction of the economy, either to increase or reduce the money supply in the economy (Bank of Ghana, 2007). These policies serve as the basis through which commercial banks and other financial institutions adjust their lending rates and other money market securities.

According to Baffoe-Bonnie (1998), the nominal interest rate and the mortgage interest rate are synonymous. Therefore, as the nominal interest rate increases, the mortgage interest rate also increases and vice versa, and this affects credit supply in the real estate market. Gasparėnienė et al. (2016) posited that a key indicator that shakes the financial market is the overall state of the economy, evidenced by economic growth. The real estate market flourishes when the economy booms and declines when it bursts (Houlié, 2025; Nguyen & Le, 2025; Kwakye & Chan, 2020). Despite the increasing scholarly attention to the relationship between the housing market and macroeconomic policies in advanced and other emerging economies, the same cannot be said for sub-Saharan Africa (SSA) and, in particular, Ghana.

Investigating this gap would share insight into the interactions between the housing market, measured by prices and quantity of housing supply, and macroeconomic economic policies. Consequently, our paper utilized the Fully Modified Ordinary Least Squares (FMOLS) and the Canonical Cointegrating Regression (CCR) to examine the effect of monetary, fiscal, and debt policies on house prices (HP) and housing supply proxied by the housing stock (HS), while considering the inclusive and exclusive role of economic growth in the model. The outcome shows that there exists a long-run relationship between macroeconomic policies, house prices, and housing supply. We noted that HP and HS are marginally affected by the monetary policy rate (MPR), fiscal policy (FP), debt policy (DP), and economic growth (RGDP). However, no significant observations were detected when economic growth was excluded from the model, but both HP and HS have a positive influence on each other.

This evidence indicates that current macroeconomic policies are weak in addressing housing market challenges; hence, the need for sustained social housing policies that promote incremental development by households may bring prices closer to the affordability corridor and increase supply. This paper contributes to the limited macro-housing studies in SSA, especially the use of macroeconomic policy variables (monetary policy, fiscal policy, and debt policy); it tests the reliability of the FMOLS and the CCR models in the wake of limited data frequency in Ghana; established a long run relationship between the housing market and macroeconomic policies; and provides findings and recommendations on housing investment and policy making.

1.1 Research Objective

(i) To examine the efficacy of monetary, fiscal, and debt policies on house prices (HP) and housing supply (HS), while underscoring the inclusive and exclusive roles of economic growth in Ghana.

II. LITERATURE REVIEW

2.1 Theoretical Review of Housing Market Dynamics in Ghana

The housing market in Ghana is continually discussed by political pundits, civil society organizations, and academics in the print and electronic media. The dictate of this discussion is driven by demand, supply, deficit, affordability, finance, and general macroeconomic conditions (UN-HABITAT, 2025; Ministry of Water Resources Works and Housing, 2015; Bank of Ghana, 2007). Over the years, demand for housing has not kept pace with supply, leading to a high deficit and high house prices, particularly in the capital city (Accra). Kavaarpuo et al. (2024) reported that Ghana has witnessed a sharp decrease in the total housing deficit from 2.8 million units in 2010 to 1.8 million units in 2021. This sharp decrease can perhaps be attributed to an increase in the number of dwelling units from 2010, 5,817,607 units, to 10,006,420 units in 2021 (Ghana Statistical Service, 2022; University of Ghana-ISSER, 2023). This achievement is, therefore, remarkable in the Ghanaian housing sector, as supply has been one of the fundamental challenges in the housing industry (UN-HABITAT (2025).

Despite the ongoing discrepancies in the documentation of the existence of a housing deficit in Ghana (Kavaarpuo et al. 2024; GIPC, 2022; Ameyaw et al., 2025; Kwakye et al., 2025), the records show that as of 2021, the total housing stock had increased by 12.3% (+724,220) from 2000 to 2021. This therefore indicates a surplus in the supply of dwelling units (Ghana Statistical Service, 2022). The discrepancies in the current housing deficit or surplus estimation by GSS reiterate the view of Ameyaw et al. (2025) for a more realistic alternative measurement of housing deficit. Regardless of the increase in the supply of housing, the evidence suggests that house prices continue to soar, most especially in the capital cities (Gillespie, 2020). For example, according to Northcourt (2022) in the capital cities of Ghana, such as Accra, Tema, Kumasi, and Takoradi, an average house price for a 2-4 bedroom house is estimated at US$150,000. This dollarization of house prices, mostly by real estate developers, has led to an excess supply of

developer-led houses skewed to the high and the upper-middle-income earners at the expense of the low and lower-middle-income groups in need of housing for consumption (Gillespie, 2020; GIPC, 2022; CAHF, 2024).

These challenges in the housing market have attracted a glut of policy interventions by the government to make housing affordable for consumers. These policy interventions include the formulation of the National Housing Policy (NHP) 2015, the Affordable Housing Project (AHP) 2005, the National Homeownership Fund (NHF), Public Private Partnerships (PPP), a five-year tax holiday to encourage private developers to produce low-cost housing, and others (Afrane et al., 2025; CAHF, 2024). Despite these interventions, Afrane et al. (2025) argued that housing policies lack comprehensive need assessments before and during the implementation of the policies. These nuances may explain the reason why literature has documented that about 90% of housing is produced informally by households with incremental financing and development (Kwakye et al., 2026; Kwakye et al., 2025; Ameyaw et al., 2025; Kavaarpuo et al., 2024; CAHF, 2024; GIPC, 2022). The dynamics of the Ghanaian housing market suggest that sound macro-prudential policies that encourage consumers to increase housing development may enhance supply and reduce prices in the medium to long term, since over 90% of houses are produced informally by households.

2.2 Empirical Narration on the Housing Market and Macroeconomic Policies

Post the Global Financial Crisis in 2007-08, macroeconomic policies have been instrumental in setting the tone for the housing market. These policies include monetary policy, fiscal policy, debt policy, and others. Governments, through the Central banks around the world, set these policies to influence the demand and supply of housing in the housing market. Economic concepts indicate that monetary policy influences the cost of borrowing through the lending rate to affect the demand for and supply of housing, which ultimately impacts prices and the supply of housing. Using the U.S listings data, Gorea et al. (2026) gave direct evidence of the causal effect of interest rate on the U.S housing market. Their evidence shows that prices of listed properties respond to monetary policies in both the short and long term, like stock prices, disproving the claims by central banks that house prices are unresponsive to monetary policies in the long term. This evidence refutes the theoretical axiom of only the long-term impact of economic policies on the housing market and further exposes the volatility of the US housing market. This evidence was, however, documented because of an efficient housing finance transmission mechanism. Kwakye et al. (2026) and Chen et al. (2024) provided similar evidence in their empirical investigations.

On another dimension, Liu and London (2013) also recorded a significant impact of monetary policy on housing supply. Such that expansionary monetary policy reduces the cost of borrowing to stimulate housing development to enhance supply. Nijskens et al. (2019) relatedly reported on similar claims when they examined the macroeconomic implications of housing supply restrictions.

Another important macroeconomic policy that has been reported to influence the real estate market is the fiscal policy. Basically, there are two main aspects of fiscal policy, and these are government taxation and expenditure. Theoretical economic suppositions highlight that government tax incentives and subsidies have a reducing impact on house prices, but enhance supply (Vilchez & Kucel, 2023; Yildirim & Yağcibaşi, 2019). In applying the difference-in-difference model to a longitudinal dataset, Vilchez and Kucel (2023) documented a negative causal relationship between tax policy and the Spanish housing market in their quest to investigate how fiscal policy affects the housing market. The authors further showed that credible fiscal policy announcements by way of tax laws on existing and new dwellings change the dynamics of the housing market with an ephemeral decrease in prices and dwellings. This usually occurs when market participants have foreknowledge or have received information on tax policy announcements. However, in the long-term, prices were observed to increase when the tax policy expires, leading to a decline in housing supply. Yildirim and Yağcibaşi (2019), in a similar study, adopted the bound test technique and established a significant long and short-term relationship between government spending and house prices. However, house prices were observed to increase as government spending increases because of an increase in demand, which also increases consumer confidence and disposable income. These evidences indicate that the housing market is responsive to fiscal policies in both the long and short term.

Shifting the focus to the relationship between debt policy and the housing market, the transmission of public debt to house prices is through credit availability and mortgage debt. Thus, an increase in public debt can worsen the overall housing market activity. For instance, Boug et al. (2024) used the co-integrated Vector autoregression (VAR) model to study the relationship between debt policies, house prices, and housing stocks for four decades. In all, they established a cointegration between debt policy and the housing market through prices and housing stock. This cointegrating relationship suggests a long-run relationship between the housing market and public debt policies. After a system-wide shock, departures were observed to converge, but at a slow pace. This slow convergence rate was widely attributed *inter alia* to information cost gathering and asymmetry, which is pervasive in the real estate market. Despite the increasing concerted attention to the effects of macroeconomic policies on the housing market, Houlié (2025) argued that unconventional policies by central banks may lead to arbitrage trading by corporate investors in the bond market and the property market, which may further worsen the plight of the housing market.

Highlighting the role of economic growth in the housing market, scientific evidence suggests that there is a direct relationship between economic growth and the housing market. (Neiwert & Su, 2026; Kwakye et al., 2026). Leamer (2015), in his exposition titled "Housing is Really the Business Cycle," posited that the housing market and the macroeconomy are inseparable and hence both the macroeconomy and the housing market are co-dependent. An increase in Gross Domestic Product (GDP) increases household income and increases demand for housing products, which ultimately drives prices and increases housing development (Gorea et al., 2026; Neiwert & Su, 2026; Gkiosis & Chapsa, 2025; Kwakye et al., 2025). To situate and examine the influence of economic growth in the housing market, we included and excluded economic growth from the model. The foregoing narration, therefore, emphasizes the relationship between the macroeconomic policies, house prices, and housing supply. However, it can be posited that literature is inconclusive, and the spontaneous inclusion and exclusion of economic growth are missing in the literature. While the traditional macroeconomic indicators (inflation, GDP, lending rate, exchange rate, population, income, money supply, etc) are frequently explored in literature, monetary policy, fiscal policy, and debt policy are less-investigated in the housing market. We therefore fill this gap in the literature and influence policy direction.

III. METHODOLOGY

Many macroprudential policies affect the housing market. However, monetary policy, fiscal policy, and debt policy have been identified in the literature as the common macroprudential policies that influence the housing market. Relatedly, in many macro-housing studies, economic growth is observed to be ubiquitous. Consequently, we modelled their inclusive and exclusive role in the housing market. Though many econometric models are applicable in the housing market, we operationalized the fully modified OLS and the Canonical Cointegrating Regression (CCR), engineered by Pedroni (2000) and Park (1992), respectively. The adoption of these models is due to the paucity of property data characterized in many developing economies Cesa-Bianchi et al., 2015; Owusu-Ansah et al., 2021; Kwakye et al., 2025). Nevertheless, we adapted a similar approach to that of Kwakye et al. (2025) and Khan and Hassan (2024). Hamit-Haggar (2012) argued that fully modified OLS tends to correct the challenges of endogeneity and serial correlation even in the use of a smaller sample size. However, for reliability and confirmation purposes, we employed the CCR for a robustness check to enhance policy implications. The house price and housing supply functions are represented in equations (1) and (2), respectively.

$$lhp_t = f(lhs_t, mpr_t, fp_t, dp_t, lrgdp_t, z_t) \quad \ldots\ldots (1)$$

$$lhs_t = f(lhp_t, mpr_t, fp_t, dp_t, lrgdp_t, z_t) \quad \ldots\ldots (2)$$

In equation (1), we represent the log of house price (lhp) as a function of the log housing supply (lhs), monetary policy rate (mpr), fiscal policy (fp), debt policy (dp), and the log real gross domestic product (rgdp), while in equation (2), we express the variables as a function of log housing supply. t and z signifies the period and omitted exogenous variables in the equations. We therefore recalibrated (1) and (2) into time series to represent our empirical model for the study. These recalibrations yield equations (3) and (4).

$$lhpt = \alpha_0 + \beta_1 lhs_t + \beta_2 mpr_t + \beta_3 fp_t + \beta_4 dp_t + \beta_5 lrgdp_t + \varepsilon_t \quad \ldots\ldots (3)$$

$$lhst = \alpha_0 + \beta_1 lhp_t + \beta_2 mpr_t + \beta_3 fp_t + \beta_4 dp_t + \beta_5 lrgdp_t + \varepsilon_t \quad \ldots\ldots (4)$$

In equations (3) and (4), the variables connote the same meanings except α_0, β, and ε_t which represent the intercept, coefficients of the explanatory variables, and the error term correspondingly.

Before estimating our model, we performed preliminary data analysis, which included descriptive statistics to examine the characteristics of the dataset (mean, median, maximum, minimum, and standard deviation), as well as tests for the stationarity of the variables. By testing for the unit roots of the variables, we employed the Augmented Dickey-Fuller (ADF) unit root test and the Philip Perron (PP) unit root test initiated by Dickey and Fuller (1981) and Phillips and Perron (1988) correspondingly. Unlike other unit root tests, these two tests have interrelated features and often produce similar outcomes with the same null hypothesis (H_o: variables have a unit root). After the determination of the unit root, the Johansen (1995) cointegration test was executed to check for cointegration of the variables. This is to ensure that there is a long-run relationship between the explained and the explanatory variables.

IV. FINDINGS & DISCUSSION

4.1 Findings

As already accentuated by scholars, the lack of or inadequate property data in many countries in the Global South has impeded macro-housing studies, of which Ghana is no exception (see Kwakye et al., 2025; Owusu-Ansah et al., 2021; Owusu-Manu et al., 2018; Cesa-Bianchi et al., 2015). For this study, data on the monetary policy rate, fiscal policy, debt policy, and real gross domestic product were drawn from the World Development Indicators (WDI) on annual frequencies. House prices and housing stock, on the other hand, were obtained from the State Housing Company (SHC) of Ghana and the Ghana Statistical Service, respectively. House prices were measured by the average house prices in Ghana Cedis, housing supply was proxied by the number of housing stock measured in total housing units, monetary policy rate represents the base rate announced by the MPC expressed as an annual percentage, fiscal policy represents the Country Policy and Institutional Assessment (CPIA) fiscal policy rating assessment of short to medium term sustainable public expenditure, and debt policy represents Country Policy and Institutional Assessment (CPIA) debt policy rating for the total public debt. The data sources are credible and reliable databases that host various economic and property data in both aggregated and disaggregated forms at the international and national levels, respectively. Data therefore spans from 2000 to 2023, with a total of 23 observations.

4.2 Descriptive statistics

Table 1 displays the basic descriptive statistics of the variables. From the perspective of the mean and standard deviations of the variables, the average house prices and housing supply recorded a mean of 290407.80 and 25389030, and a standard deviation of 3915773.0 and 51436.5, respectively. This, therefore, suggests that house prices and housing supply deviate from their mean values of about 17.7% and 15.4%, respectively. Table 2, on the other hand, presents the unit root test of the variables. The evidence indicates that all the variables are stationary at I(1) for both the PP and the ADF tests. Hence, the null hypothesis of the variables having a unit root is rejected. Finally, we plotted the graph of the studied variables in Figure 1, and the dynamics show that HP and HS appear to have a rising slope, while the other explanatory variables have unique data trends.

Table 1

Descriptive statistics

Variables	HP	HS	MPR	FP	DP	RGDP
Mean	290407.8	25389030	18.77210	2.500000	2.826087	1499.717
Median	279120.8	25220031	17.66667	3.000000	3.500000	1530.359
Maximum	385909.4	31603880	27.00000	4.500000	4.000000	2031.428
Minimum	218100.0	18912079	12.66667	0.000000	0.000000	1020.162
Std. Dev.	51436.47	3915773.	4.772468	1.469385	1.571108	360.4485

HP= House prices: HS= Housing stock: MPR= Monetary policy rate: FP= Fiscal policy: DP= Debt policy: RGDP= Real gross domestic product per capita

Table 2

Unit Root Tests

Variables	Philips Peron test (PP)		Augmented Dickey-Fuller test (ADF)	
	Level	1st Diff.	Level	1st Diff.
LNHP	0.683	0.0164**	0.675	-3.542**
LNHS	-3.224**	0.0066***	-2.625	-3.981***
MPR	-2.135	0.0770*	-2.998*	-2.727*
FP	-2.224	0.0034***	-8.041***	-4.295***
DP	-2.057	0.0037**	-2.056	-4.238***
LNRGDP	-0.551	0.0377**	-0.548	-3.159**

Note: ***, **, and * represent the significance level at 1%, 5%, and 10%, respectively.

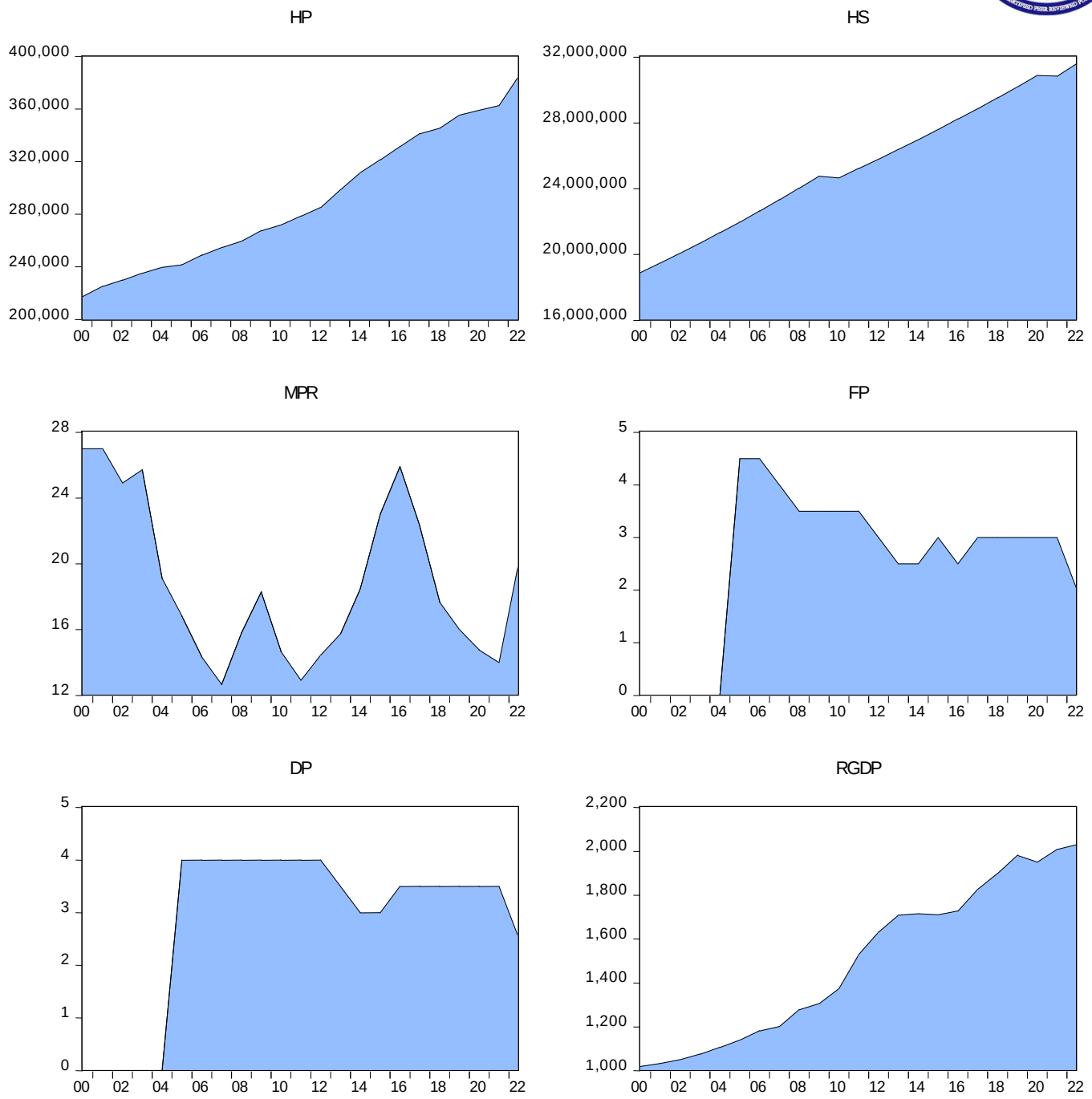

Figure 1
Graph of data pattern relationship

4.2 Discussion

4.2.1 Cointegration Analysis

Table 3 highlights the results of the Johansen Cointegration test. This establishes a long-run relationship or otherwise between the explained and the explanatory variables of the study. The outcome of the trace and maximum eigenvalue indicates that there is a long-run relationship between the explained and the explanatory variables for both the inclusive and exclusive models of economic growth. However, while the inclusive economic growth model indicated three cointegrating variables at 1% level of statistical significance, the exclusive growth model showed one cointegrating variable for both the trace and maximum eigenvalue value at 1% level of statistical significance. This evidence suggests that when economic growth is modelled with macroprudential policies and the housing market, the variables are more cointegrated than when it is excluded. The result confirms that the null hypothesis of no cointegration is rejected for the study. Subsequently, we tested the effect of macroprudential policies on house prices and housing supply, and the results of which are displayed in Tables 4a and 4b, respectively.

Table 3
Johansen Cointegration test

Rank No. of CEs	Trace Outcome			Maximum Eigenvalue Outcome		
	Trace Stat.	**Critical Val.**	**P-value**	**Eigen Value**	**Critical Val.**	**P-value**
Inclusive Economic Growth						
None *	151.3217	95.75366	0.0000	50.32144	40.07757	0.0025
At most 1*	101.0003	69.81889	0.0000	44.36424	33.87687	0.0020
At most 2*	56.63605	47.85613	0.0060	27.49879	27.58434	0.0513
At most 3	29.13726	29.79707	0.0594	17.23339	21.13162	0.1613
At most 4	11.90387	15.49471	0.1616	8.302747	14.26460	0.3487
At most 5	3.601119	3.841466	0.0577	3.601119	3.841466	0.0577
Exclusive Economic Growth						
None *	80.18308	69.81889	0.0059	41.56290	33.87687	0.0050
At most 1	38.62018	47.85613	0.2757	17.72926	27.58434	0.5178
At most 2	20.89093	29.79707	0.3645	12.40521	21.13162	0.5082
At most 3	8.485721	15.49471	0.4150	8.218893	14.26460	0.3569
At most 4	0.266828	3.841466	0.6055	0.266828	3.841466	0.6055

Null hypothesis (H_o): There is no cointegration among the variables. * Represent a rejection of the null hypothesis.

4.2.2 Effect of macroeconomic policies on house prices and housing supply

In panel A in Table 4a, it can be observed that all the explanatory variables have a significant effect on house prices at 1% level of statistical significance, except fiscal policy, which achieved a 10% level of statistical significance for the exclusive economic growth model. These dynamics suggest that the (ex)inclusion of economic growth in macroeconomic policy models is indifferent to house prices. Thus, irrespective of economic growth, macroeconomic policies may still affect house prices. The patterns are therefore not diverged from the evidence in panel B (Robustness check). Nonetheless, it is imperative to state that these statistical significances are marginal for house prices. For instance, the study established that a unit change in housing supply increases house prices by 1.021 and 1.259 for the inclusive and exclusive economic growth models, respectively. This finding contradicts the outcome of Lousie et al. (2025), who argued that supply constraints do not impact house price movements in the United States (US). These differences are perhaps attributed to the levels of housing market development. For example, while in the US, housing supply is driven by the formal sector, in SSA, and in particular, Ghana, housing supply is mainly driven by the informal sector (Kwakye et al., 2025; Ameyaw et al., 2025). The differences imply that the replication of advanced or developed economies' housing market policies in developing housing markets may be a mistaken priority. Hence, the need to embark on local housing policies that enhance supply is recommended. This may include prudent management of the exchange rate, inflation, and improved income. Except for the debt policy that had a small decreasing impact on house prices, monetary policy rate, fiscal policy, and real economic growth had a marginal increasing effect on house prices for both the inclusive and exclusive economic growth models.

On account of the monetary policy in both the (ex)inclusive models, our findings confirm that house prices respond to monetary policy in the long term in panels A and B, such that a one-unit change in MPR from 18% to 19% is associated with a 0.2% increase in house prices. This finding is consistent with the documentation by Gorea et al. (2026) and Kwakye et al. (2026). It can be posited that house prices are affected by the tightening of the monetary policy rate by the central bank. This highlights that while the tightening of the monetary policy rate may be effective in other financial markets, in the real estate market, the tightening of the monetary policy rate to increase the cost of borrowing to reduce demand so as to decrease house prices is ineffective. In developing economies, this economic axiom often diverges from the real estate market because of its informality, underdevelopment, and credit conditions (Afrane et al., 2025; Tipple, 2015). This phenomenon may explain the reason why some individual housing developers secure personal loans at high interest rates for housing projects. A situation that increases the nonperforming loans (NPL) of financial institutions. A reconsideration of a special housing scheme that supports consumers may attenuate the effect of house prices.

Moreover, the study observed a minimal effect of fiscal policy on house prices in a positive direction, contrary to economic suppositions. This direction, similar to the monetary policy rate, could also be underpinned by the underdevelopment of the housing markets, and suggests that government subsidies or tax incentives are awarded to private real estate developers rather than private individuals engaged in incremental development. It is against this background that Gillespie (2020) Tipple (2015) accentuated that attention should rather be shifted to the individual developers who constitute the base of housing supply to minimize prices, rather than the private real estate developers who develop housing for the upper class and upper middle income groups at the expense of the lower middle income group. This according to Gillespie (2020) has led to an oversupply of developer-led housing in the capital city (Accra).

Our study, however, diverged from that of Vilchez and Kucel (2023) who established a negative effect on house prices as a result of government fiscal policies. We therefore posit that the level of economic and housing market development may influence the direction of fiscal policies in the housing market.

This study established a marginal long-term effect of debt policy on house prices in both models. However, the impact of the inclusive model is amplified more than that of the exclusive model. Government debt service on treasury and bonds serves as a financial reward to investors, reflected in the housing market on a marginal scale. Larson and Martinez (2025) and Houlié (2025) also documented a significant effect of debt policy on house prices in their empirical studies.

Shifting the focus to economic growth, the study documented a significant positive effect of economic growth on house prices, consistent with the findings of Neiwert and Su (2026) and Gorea et al. (2026). This revelation, therefore, conforms to the theoretical axiom of a positive relationship between economic growth and house prices. An increase in GDP increases household income and increases demand for housing, which ultimately influences house prices positively. This may be advantageous to property investors for higher returns and government for property taxation purposes. However, aligning this with affordability must be completed by financial and economic indicators.

Table 4a

Estimation result of macroeconomic policies on house prices

Variables	Coefficient	T-Statistics	Coefficient	T-Statistic
Panel A: Fully Modified OLS				
Inclusive Economic Growth			*Exclusive Economic Growth*	
LHS	1.021	14.588***	1.259	53.175***
MPR	0.002	4.770***	0.002	3.421***
FP	0.027	4.911***	0.014	1.946*
DP	-0.040	-7.217***	-0.029	-3.783***
LRGDP	0.160	3.733***	-	-
Panel B: Robustness check (Canonical Cointegrating Regression)				
Inclusive Economic Growth			*Exclusive Economic Growth*	
LNHS	1.033	15.163***	1.263	48.108***
MPR	0.002	4.321***	0.002	3.128***
FP	0.028	3.920***	0.014	1.694
DP	-0.041	-5.928***	-0.029	-3.326***
LNRGDP	0.155	3.661***	-	-

Note: ***, **, and * represent the significance levels at 1%, 5%, and 10%, respectively.

Table 4b

Estimation result of macroeconomic policies on housing stock

Variables	Coefficient	P-values	Coefficient	T-Stats
Panel A: Fully Modified OLS				
Inclusive Economic Growth			*Exclusive Economic Growth*	
LHP	0.900	14.269***	0.791	53.411***
MPR	-0.002	-4.122***	-0.002	-3.346***
FP	-0.020	-3.379***	-0.012	-2.121**
DP	0.032	5.255***	0.023	4.148***
LRGDP	-0.091	-1.839*	-	-
Panel B: Robustness check (Canonical Cointegrating Regression)				
Inclusive Economic Growth			*Exclusive Economic Growth*	
LNHP	0.886	12.463***	0.789	47.645***
MPR	-0.002	-3.578***	-0.002	-3.075***
FP	-0.019	-2.418**	-0.011	-1.803*
DP	0.032	3.996***	0.023	3.606***
LNRGDP	-0.081	-1.458	-	-

Note: ***, **, and * represent the significance level at 1%, 5%, and 10%, respectively.

On the effect of macroeconomic policies on housing supply in Table 4b, the study noted that the inclusion or exclusion of economic growth in the housing supply model is indistinct in the housing market. Thus, regardless of the level of economic growth, other macroeconomic policies may still influence the supply of housing. An increase in house prices is found to have an increasing effect on housing supply in both models. This evidence aligns with the

findings of Boug et al. (2024) and Lousie et al. (2025). Meaning that, as house prices increase, household wealth also increases, and government fiscal policies in the form of property taxation also increase. These increases in wealth creation, therefore, lead to an enhanced supply of housing. A critical question of interest is "Can the increase in housing stock be partly attributed to the increase in average house prices?" This question raises concerns of public interest. The 2022 report of the Ghana Statistical Service indicates that there is an excess supply of housing; however, according to Ameyaw et al. (2025) and University of Ghana-ISSER (2023), the increase in housing stock is merely attributed to the enumeration of kiosks and containers, which cannot be classified as decent housing units. Moreover, the report documented a significant increase in the number of uncompleted houses. Could these shifts be explained by the surge in housing, land, and rental values? We argue that an increase in general house prices, *inter alia*, contributes to an increase in housing supply.

The study further found that the monetary policy rate and government fiscal policy had a negative impact on housing supply. This implies that as the monetary policy rate and fiscal policies increases, the supply of housing declines. Possibly, the increase in the cost of borrowing and high taxes demotivates private and individual real estate developers in the supply of housing units. Liu and London (2013) Serves as a notable example that reported an increase in the monetary policy rate to tighten the economy, has a negative effect on house prices. On the other side, like Vilchez and Kucel (2023) our findings confirm that fiscal policies by way of tax impositions have a reducing effect on house prices. However, it is important to state that these negative effects were minimally documented. Hence, a special mortgage interest rate and a special tax incentive scheme should be implemented to support individual and private real estate developers to enhance supply. In both the inclusive and exclusive models, the study established a significant marginally positive effect on housing supply. These positive effects were recorded as 0.032 and 0.023, respectively. Thus, the supply of housing increases slightly as a result of a unit change in public debt. In this instance, we recommend a complementary reliance on the existing data trend for policy direction.

Departing from the macroeconomic policies and contrary to economic theory, we established that real GDP has a negative effect on housing supply at 10% level of significance. Even though the inverse association between real GDP and housing supply is baffling in developing economies, this is not isolated from the literature (Bozdereli & Rahmatzada,2024). Nonetheless, in such instances, we advise a complementary, recursive review of data trends for practical implications. This directional effect indicates that it is important for regulators to encourage investments in the housing sector, to expand the sector's contribution to the overall economic growth.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

Many governments and consumers in developing economies bemoan the incessant increase in house prices and the state of housing supply. However, while there are efforts to assuage the situation, it does appear the housing markets in developing economies are dominated by informal developers who require housing for consumption purposes. As a result, policies that affect the larger population to mitigate prices and aid the housing supply may enhance the sustainability and growth of the housing market. Consequently, this paper used the Fully Modified OLS and the Canonical Cointegrating Regression (CCR) with data from 2000 to 2023 to examine the efficacy of monetary, fiscal, and debt policies on house prices (HP) and housing supply (HS) while underscoring the inclusive and exclusive role of economic growth in Ghana. Moreover, the effects of HP and HS were controlled for in each estimated model (house price and housing stock models). The study established a long-term relationship between macroeconomic policies and the housing market, measured by prices and supply. We observed that house prices (HP) and housing supply (HS) were slightly impacted by economic policies, regardless of the inclusion or exclusion of economic growth from the model. Nevertheless, we noted that the inclusion of economic growth yielded a slightly better result than the exclusion. Additionally, we documented a significant effect of monetary policy rate (MPR), fiscal policy (FP), debt policy (DP), and economic growth (RGDP) on house prices and housing stock. Controlling for the effect of house prices and housing stock, the paper established that both house prices and housing supply were significantly affected by each other. These findings have implications for policymakers on critical macroprudential policies that aligns to the development and sustenance of the housing market in developing countries. Moreover, the study gives insight to housing investors and consumers, and adds to the litany of macro-housing studies in sub-Saharan Africa (SSA). This study is limited in the number of variables and sample duration. It would have been interesting to incorporate and control for more macroeconomic policies, but it must be acknowledged that no single study and/ or econometric model can accommodate all macroeconomic policies. Besides data paucity and missing values in time series data, particularly in the global south, limit the application of econometric studies in the real estate market in SSA. However, it is believed that the scientific process makes the results reliable for decision-making and replicable in cognate countries faced with similar challenges. Relatedly, we acknowledge the sole reliance on SHC house price data as a limitation of the study. Nevertheless, given their geographical dominance, the price trend gives a fair representation of the national average. We, however, recommend further studies into the nexus of regulatory policies and the housing

market. Additionally, the use of alternative price proxies, such as rental values and the hedonic pricing technique, is recommended for further studies.

5.2 Recommendations

This study argues for the development of house price data in various frequencies, both aggregated and disaggregated, to support evidence-based policy making. This could be achieved through the collaborative efforts of state agencies and sector professional associations. Moreover, policymakers' reliance on general macroeconomic policies for housing market development may impede sectoral growth. Consequently, targeted macro-housing policies that enhance supply and align prices with household income levels are of great importance. These include, inter alia, dedicated housing development funds, special lending rates for the housing industry, and strengthening the land tenure security of incremental developers. Furthermore, to sustain the growth of the housing market, the study emphasizes the importance of stable core macroeconomic fundamentals, namely, interest rates, exchange rates, and inflation. These indicators reduce financing costs, preserve purchasing power, and enable households to pursue incremental housing development, which remains a dominant delivery mechanism in developing countries.

Declaration of Interest

The authors declare that they do not have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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