

Foreign Direct Investment and Housing Prices Nexus in Construction Industry of Malaysia

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Abstract

The housing market in Malaysia has experienced significant upheaval over the past twenty years, driven by consistent inflows of foreign direct investment (FDI) into the building sector. Although these investments have catalyzed urban modernization and economic expansion, they have also been linked to escalating housing prices and diminishing affordability, especially in metropolitan areas. This study examines the association between foreign direct investment in construction and housing prices in Malaysia, determining whether foreign investment serves as a catalyst for housing price inflation or promotes sustainable urban growth. The study utilizes quarterly data from the first quarter of 2009 to the fourth quarter of 2023, employing a Vector Error Correction Model (VECM) to analyze both short-term and long-term dynamics among the housing Price, Foreign Direct Investment in construction sector, real interest rate, and income. Unit root tests indicate that all variables are integrated of order one, $I(1)$, whereas Johansen cointegration results demonstrate a stable long-run equilibrium relationship among them. The results indicate that foreign direct investment in construction has a positive and considerable impact on home prices, whereas real interest rate indicates a negative effect on price fluctuations. Income growth demonstrates a beneficial although insignificant impact. Granger causality studies demonstrate a unidirectional causal relationship from foreign direct investment (FDI) to housing prices, confirming that property market of Malaysia is primarily driven by investment rather than income. The study suggests that whereas foreign direct investment (FDI) fosters construction expansion, it simultaneously impairs affordability constraints. Policymakers ought to implement focused FDI screening, bolster macroprudential instruments, and improve domestic construction efficiency to guarantee equitable and sustainable housing development.

Keywords: *Foreign Direct Investment (FDI), Housing Prices, Construction Sector.*

Introduction

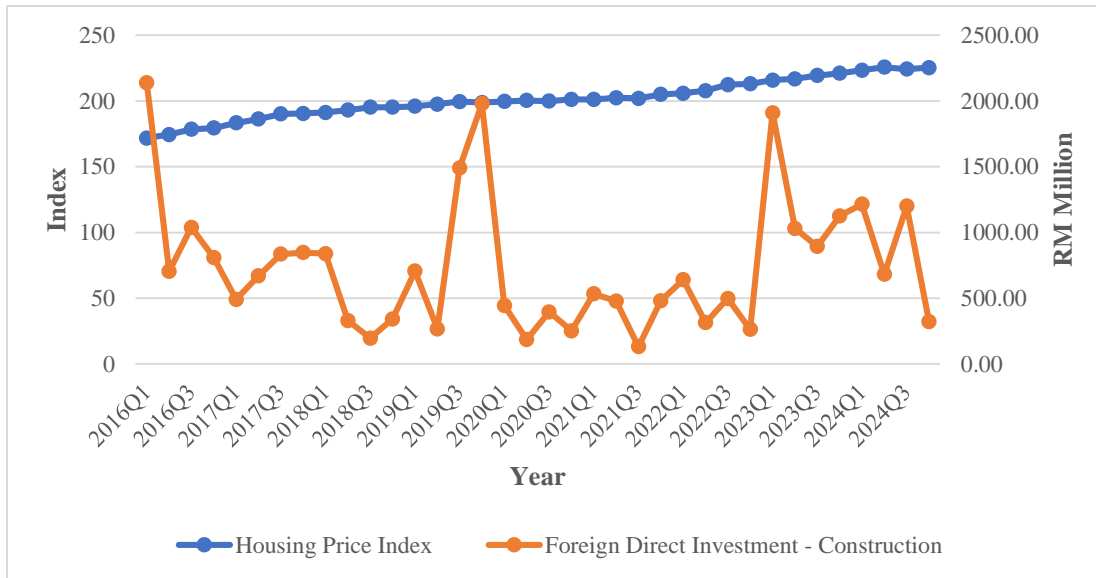
The construction business in Malaysia has historically been a crucial catalyst for economic expansion and urban development. In the last twenty years, the nation has attracted significant foreign direct investment (FDI), especially in the construction and real estate sectors, as part of its initiative to modernize infrastructure and enhance urban housing availability. Prominent urban areas including Kuala Lumpur, Johor Bahru, and Penang have attracted substantial foreign investment, driving extensive residential and commercial developments. This increase in investment has corresponded with a persistent rise in home prices, raising worries regarding affordability and market sustainability.

Figure 1 depicts the quarterly trajectory of the Housing Price Index (HPI) and Foreign Direct Investment (FDI) inflows into Malaysia's construction sector from the first quarter of 2016 to the fourth quarter of 2024. Two unique patterns arise from the data series, illustrating the contrasting dynamics of domestic property prices and foreign investment activities.

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Figure 1: Housing Price and Foreign Direct Investment in Construction



Source: CEIC

The Housing Price Index demonstrates a consistent upward trend, rising from approximately 180 points in early 2016 to over 230 points by the conclusion of 2024. This enduring appreciation indicates that property values in Malaysia have consistently increased despite transient macroeconomic disturbances, including the COVID-19 epidemic, global inflationary pressures, and domestic interest rate modifications. The steady yet persistent rise signifies structural inflexibility in housing supply and persistent demand in metropolitan markets, especially in Kuala Lumpur, Johor Bahru, and Penang.

Conversely, FDI inflows to the construction sector exhibit considerable volatility, characterized by substantial quarterly variations. Peaks were noted in the first quarter of 2016, the third quarter of 2020, and the first quarter of 2023, coinciding with significant infrastructure announcements and stages of policy liberalization under Malaysia's Economic Transformation Programme and post-pandemic recovery initiatives. Nevertheless, these increases were succeeded by significant declines, indicative of global capital market volatility, project postponements, and the cyclical characteristics of foreign investment in the sector. The post-2020 surges align with increased interest from regional investors, especially from China and Singapore, but the ensuing falls reflect escalating construction expenses and stricter financing requirements.

Malaysia's liberalized investment framework and programs like the Economic Transformation Programme (ETP) and Iskandar Malaysia Corridor have significantly stimulated foreign direct investment (FDI) in the construction sector. Capital inflows from nations such as China, Singapore, and the Middle East have accelerated urban redevelopment via extensive infrastructure and residential initiatives. Nonetheless, these investments have increased the demand for construction materials, land, and labor, resulting in elevated home prices and worsening affordability issues. This presents a policy dilemma, although foreign direct investment (FDI) promotes capital formation, technological progress, and job creation, it may concurrently produce price spillovers that compromise affordability. before research (Masron & Kepili, 2017; Chua et al., 2020) examined this association but was constrained to data before to 2017 and neglected post-pandemic cost fluctuations and regulatory changes. Empirical patterns indicate that while FDI inflows are erratic, housing prices demonstrate long-term rigidity influenced by structural and domestic factors.

The primary objective of this study is to examine the impact of foreign direct investment (FDI) in construction on housing price in short-run and long-run perspectives. The paper begins with an introduction that portrays the context, research questions, aims, and importance of the study. This is followed by a literature review, methodology, discussion of results, conclusion, and policy recommendations.

Literature Review

The relationship between foreign direct investment (FDI) and housing markets has been acknowledged as a significant aspect of globalization's influence on urban environments. Foreign Direct Investment functions as a stimulant for development and a source of speculative pressures (Masron & Md. Nor, 2016; Georgieva, 2017). In developing economies, capital inflows can enhance development, generate employment, and promote urban revitalization; yet, excessive foreign involvement in real estate often exacerbates price volatility and diminishes affordability (Bayraktar, 2013; Liu, 2011).

Empirical evidence from various circumstances demonstrates inconsistent outcomes. Foreign Direct Investment (FDI) considerably contributed to housing price inflation in Shanghai from 2008 to 2015 (Huang, Hwang, & Lo, 2014). Likewise, international housing demand in Vancouver, Sydney, and London has intensified land value increase beyond wage growth, exacerbating the affordability gap (Brysch, 2022; Lees, 2021). In contrast, in economies characterized by robust regulatory frameworks and rigorous macroprudential controls, such as Singapore, foreign direct investment inflows were efficiently directed into productive building sectors without significant erosion of affordability (Le, 2025).

The liberalization of property ownership regulations in Malaysia, particularly through the Malaysia My Second Home (MM2H) program and foreign purchase limits, has facilitated the influx of foreign investment into the mid-end and high-end residential market. Research conducted by Masron and Kepili (2017) and Chua et al. (2020) revealed no direct causal relationship between Foreign Direct Investment (FDI) and the Housing Affordability Index (HAI) from 2009 to 2017. Nonetheless, these studies precede significant structural alterations: the post-2018 surge in construction material expenses, the pandemic-induced deceleration of 2020-2021, and the global interest rate modifications of 2022–2023. Recent reports (Bank Negara Malaysia, 2024; World Bank, 2023) reveal that foreign-driven projects, especially in Iskandar Johor and the Klang Valley, currently display price segments significantly exceeding national median affordability levels.

Ahmad et al. (2014) contended that trade openness increases market competitiveness; but, in the housing sector, such openness without regulation results in price inflation instead of societal advantage. Shukurov (2016) and Carstensen & Toubal (2004) highlighted agglomeration effects, observing that foreign direct investment (FDI) is concentrated in urban areas where skilled labor and infrastructure are aggregated, resulting in localized housing inflation. A recent meta-analysis by Ismail et al. (2025) using ASEAN panel data established that the elasticity of property prices in relation to FDI inflows varies from 0.18 to 0.36, moderate but enduring. The transmission process is frequently non-linear: initial foreign direct investment (FDI) may enhance supply (down prices), but below a certain threshold, speculative dynamics prevail, diminishing affordability. This supports the utilization of threshold or VECM models that encompass both long-term equilibria and short-term changes.

Methodology

This analysis utilizes quarterly time-series data for Malaysia from 2016:Q1 to 2024:Q4, encompassing both pre- and post-pandemic economic variations. Data were obtained from Bank Negara Malaysia, the Department of Statistics Malaysia (DOSM), and the World Bank's World Development Indicators (WDI). Data Housing Price Index and Foreign Direct Investment in Construction are in quarterly basis, while quarterly data of Real Interest Rate and Gross Domestic Product Per Capita obtained from interpolation method, due to only annually data availability. All variables were converted to natural logarithms to stabilize variance and interpret coefficients as elasticities.

This study utilized the Vector Error Correction Model (VECM) framework to analyze the short- and long-term links between home prices and foreign investment in construction. The model outlines both the long-term equilibrium relationship among the variables and their short-term changes towards that equilibrium.

The general model specification is presented as follows:

$$LHPI_t = \beta_0 + \beta_1 LFDIC_t + \beta_2 LRIR_t + \beta_3 LGDPPC_t + \varepsilon_t \quad (1)$$

where;

<i>LHPI</i>	=	Logarithm of Housing Price Index at time <i>t</i>
<i>LFDIC</i>	=	Logarithm of FDI in Construction at time <i>t</i>
<i>LRIR</i>	=	Logarithm of Real Interest Rate at time <i>t</i>
<i>LGDP</i>	=	Logarithm of GDP per Capita at time <i>t</i>
ε	=	Error terms

The expected results are as followed: $\beta_1 > 0$ where Foreign Direct Investment in Construction is anticipated to raise house costs due to increased investment activity and demand for materials; $\beta_2 < 0$ where increased real interest rates are expected to suppress home demand and alleviate pricing pressures; $\beta_3 > 0$ where increased income levels (GDP per capita) are expected to increase purchasing power and apply upward pressure on home costs.

The empirical procedure involves several stages:

Testing for Stationarity

The Augmented Dickey-Fuller (ADF) test, created by Dickey and Fuller (1976, 1981), enhances the original Dickey-Fuller unit root test to address more intricate time-series configurations by incorporating lagged differences of the dependant variable. This enables the ADF test to adjust for higher-order serial correlation in the data, rendering it appropriate for assessing the stationarity of bigger and more dynamic models. The standard representation of the ADF equation is:

$$\Delta Y_t = \alpha_1 + \alpha_2 t + \gamma_1 Y_{t-1} + \sum_{i=1}^p \beta_{1i} \Delta Y_{t-i} + \alpha_t \quad (2)$$

when Δ is the difference operator, Y is the variable under examination, and p signifies the lag duration. The hypotheses are $H_0: \gamma_1 = 0$ (non-stationary) and $H_A: \gamma_1 < 0$ (stationary).

Testing for Cointegration

The Johansen and Juselius (1990) cointegration test is utilized to determine the existence of a long-term equilibrium relationship among LHPI, LFDIC, LRIR, and LGDP. The trace and maximum eigenvalue statistics are employed to ascertain the quantity of cointegrating vectors. The formula for the cointegration test is as follows:

$$\Delta Y_t = u_t + \pi Y_1 + \sum_{i=1}^{p-1} \pi_i \Delta Y_{t-i} + \varepsilon_t \quad (3)$$

where Δ denotes the difference operator; Y_t signifies the $(n \times 1)$ vector of $I(1)$ variables; π and π_i represent the $(i = 1, 2, 3...)$ elements of a $(n \times n)$ coefficient matrix and a $(n \times 1)$ constant vector, respectively; ε_t serves as the error term; p represents the lag of the variable; and t refers to the time period.

The Johansen Cointegration Test, established by Johansen (1988) and subsequently enhanced by Johansen and Juselius (1990), is utilized to ascertain the presence of long-term equilibrium relationships among non-stationary variables. Two test statistics are employed: the Trace statistic and the Maximum Eigenvalue (Max-Eigen) statistic. The trace statistic proposed by Johansen (1988) is expressed by the following equation:

$$\lambda_{trace} = -T \sum_{i=r_0+1}^p \ln(1 - \hat{\lambda}_i) \quad (4)$$

where T is the sample size, p is the number of variables, and $\hat{\lambda}_i$ are the estimated eigenvalues.

The Max-Eigenvalue statistic evaluates the presence of precisely r cointegrating relationships ($H_1: r = r_0$) in contrast to the alternative of $+1$ ($H_1: r = r_0 + 1$), employing the following formula:

$$\lambda_{max} = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (5)$$

Although both statistics assess cointegration, the Max-Eigen statistic is preferable in determining the precise quantity of cointegrating vectors. The null hypothesis of no cointegration is rejected if the test statistic surpasses the critical value at the 1% or 5% significance level.

Vector Error Correction Model (VECM) Estimation

Once cointegration is confirmed, the VECM is estimated to capture both short-term dynamics and long-term adjustments. The general form of the VECM is:

$$\Delta LHPI_t = \beta_0 + \sum_{i=1}^p \beta_1^i \Delta LFDIC_{t-i} + \sum_{i=1}^p \beta_2^i \Delta LRIR_{t-i} + \sum_{i=1}^p \beta_3^i \Delta LGDPPC_{t-i} + \lambda ECT_{t-i} + u_t \quad (6)$$

where λ is the error correction coefficient indicating the speed of adjustment toward long-run equilibrium, and ECT_{t-i} is the lagged error-correction term derived from the cointegration equation.

Empirical Results Discussion

Table 1 presents the findings of the Augmented Dickey-Fuller (ADF) unit root tests for all variables in both level and first-difference, under two specifications: with trend and intercept. The aim is to determine the order of integration for each time-series variable before performing the Johansen cointegration analysis.

At the level form, all the variables, which are log of Housing Price Index (LHPI), log of FDI in Construction (LFDIC), log of Real Interest Rate (LRIR), and log of GDP per capita (LGDPPC) are non-stationary, as their test statistics are less negative than the respective critical values at conventional significance levels. This signifies the existence of unit roots, implying that the series are non-stationary, $I(0)$, at their levels. However, after first differencing, all variables become stationary, $I(1)$. The ADF results validate the use of the Johansen cointegration test, as the series are $I(1)$ and appropriate for investigating the presence of a long-term equilibrium connection inside the Vector Error Correction Model (VECM) framework.

Table 1: ADF Unit Root Test Results

	Level		First Differences	
	t_τ	t_μ	t_τ	t_μ
LHPI	-2.7859 (0)	-2.2521 (0)	-5.5246 (0)***	-5.3033 (0)***
LFDIC	-2.7738 (2)	-2.7865 (2)	-6.1966 (1)***	-6.2924 (1)***
LRIR	-2.3876 (1)	-2.3927 (1)	-3.6775 (0)**	-3.7612 (0)***
LGDPPC	-2.0399 (1)	-0.7454 (1)	-2.8893 (0)	-2.8961 (1)*

Notes: The t statistics correspond to the ADF. The subscript τ term in the model represents trend and intercept while μ term in the model represents intercept. While the asterisks (**, *, *) indicate statistically significant at the 1, 5 and 10 percent level, respectively. Figures in brackets () are the lag length used and Δ represent first difference. LHPI=logarithm of House Price Index, LFDIC=logarithm of Foreign Direct Investment in Construction, LRIR=logarithm of Interest Rate, LGDPPC=logarithm of Gross Domestic Product Per Capita.

Table 2 displays the findings of the Johansen and Juselius (1990) cointegration test, which evaluates the presence of a long-term equilibrium relationship among the variables. The findings indicate that for the null hypothesis $r = 0$ (absence of cointegration), both the Trace statistic (48.89) and the Max-Eigen statistic (31.49) exceed their corresponding critical values (47.86 and 27.58) and are significant at the 5 percent level. This conclusion confirms the presence of at least one cointegrating vector among the variables. Nevertheless, for the subsequent hypotheses ($r \leq 1$, $r \leq 2$, and $r \leq 3$), both test statistics remain below their critical thresholds, signifying the absence of further cointegrating interactions. The findings support the existence of a stable long-term equilibrium relationship connecting home prices, foreign direct investment in construction, real interest rates, and GDP per capita in Malaysia. This indicates that these variables exhibit long-term co-movement, despite potential short-term divergences.

Table 2: Johansen & Juselius Cointegration Test Result

Null		Alternative		$k=1$ $r=1$	
		λ_{max}		Trace	
		Unadjusted	95 percent C.V.	Unadjusted	95 percent C.V.
$r = 0$	$r = 1$	31.4860**	27.58433	48.8925**	47.8561
$r \leq 1$	$r = > 2$	9.1774	21.1316	17.4064	29.7970
$r \leq 2$	$r = > 3$	5.3043	14.2646	8.2289	15.4947
$r \leq 3$	$r = 4$	2.9245	3.8414	2.9245	3.8414

Notes: Asterisks (*) denote statistically significant at the 5 percent level. The k is the lag length, and r is the cointegrating vector(s).

Table 3 displays the normalized long-run cointegrating relationship obtained from the Johansen and Juselius framework. The coefficient for LFDIC (0.0212) is positive and statistically significant at the 1% level, indicating that increased FDI inflows into Malaysia's construction sector elevate housing prices in the long term. This outcome aligns with previous research by Masron and Md. Nor (2016), Huang et al. (2014), and Ismail et al. (2025), which indicated that foreign direct investment (FDI) drives up housing prices by augmenting demand for land, construction materials, and luxury residential developments. The negative and substantial coefficient for LRIR (-0.0659) indicates that elevated real interest rates diminish housing demand, thereby reducing prices. This research corroborates the conclusions of Ahmad et al. (2014) and Bayraktar (2013), who indicated that stringent monetary circumstances inhibit speculative housing demand. The positive yet negligible correlation for LGDPPC (0.0847) suggests that income growth bolsters housing demand, but its impact is minimal when factoring in FDI and financing circumstances. This result aligns with Le (2025) and Brysch (2022), who discovered that income influences on housing prices diminish in markets characterized by foreign capital and speculative investment, rather than by fundamental household demand. In summary, these long-term findings confirm that FDI inflows are the primary structural catalyst for house price inflation in Malaysia, whilst interest rate policy serves as a moderating factor and income growth assumes a subordinate role.

Table 3: Normalized Cointegrating Equation

Variables	Coefficient	t-statistic value
LFDIC	0.0212***	-5.6704
LRIR	-0.0659***	2.7331
LGDPPC	0.0847	-0.2036
Constant	3.275	

Notes: Asterisks (***, **, *) indicate statistically significant at the 1, 5 and 10 percent level, respectively.

Table 4 indicates a unidirectional causality from LFDIC to LHPI in the short term, significant at the 1% level ($\chi^2 = 12.29$, $p = 0.0064$). This data indicates that differences in FDI inflows to the construction sector result in short-term volatility in housing prices, but not the other way around. This causation pattern aligns with Liu (2011) and Ismail et al. (2025), who discovered that foreign investment shocks swiftly propagate across the construction sector, intensifying property market cycles. A weak causality is noted from LGDPPC to LHPI at the 10% significance level ($\chi^2 = 6.43$, $p = 0.0924$), indicating that fluctuations in income exert a minor yet beneficial short-term influence on housing demand. Nonetheless, no substantial causation is observed between LRIR and the other variables, potentially indicating delayed monetary transmission or the prevailing influence of FDI-driven speculative activity over interest rate policy in affecting housing market fluctuations. The short-term findings reinforce the perspective that Malaysia's housing market is primarily driven by investment rather than income, along with the conclusions of Masron and Kepili (2017) and Huang et al. (2014). The asymmetric causality, originating from foreign direct investment (FDI) to housing prices but not the reverse, indicates that foreign investment serves as a catalyst for housing price adjustments rather than a reaction to them.

Table 4: Vector Error Correction Model on Granger Causality Test Result

Variable	LHPI	LFDIC	LRIR	LGDPPC
	χ^2 Statistics			
LHPI	-	6.0910 (0.1073)	3.1224 (0.3731)	6.4303* (0.0924)

LFDIC	12.2916*** (0.0064)	-	5.3805 (0.1460)	1.4313 (0.6982)
LRIR	3.7714 (0.2872)	2.8637 (0.4131)	-	0.8964 (0.8263)
LGDPCC	3.5689 (0.3119)	3.4529 (0.3269)	2.6238 (0.4533)	-

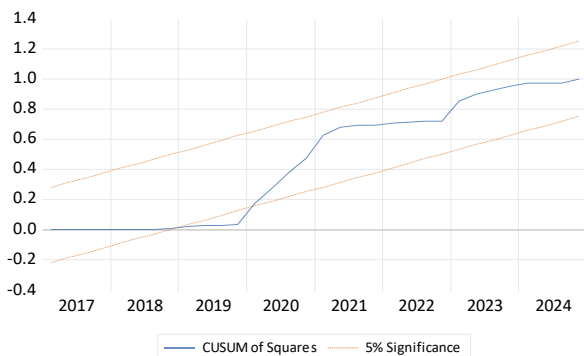
Notes: Δ refers to the first difference operator. Asterisks (***, **, *) indicate statistically significant at the 1, 5 and 10 percent level, respectively. Values in parentheses indicate the probability value.

Table 5 presents the findings of the diagnostic tests performed to verify the validity and robustness of the Vector Error Correction Model (VECM) estimates. Three conventional post-estimation assessments were conducted: the Jarque-Bera normalcy test, the Breusch-Godfrey LM test for serial correlation, and the White heteroskedasticity test. The Jarque-Bera statistic (2.3447, $p = 0.3096$) suggests that the residuals follow a normal distribution. This indicates that the model's residuals adhere to the normality assumption, hence facilitating reliable statistical inference. The serial correlation test (18.6982, $p = 0.2846$) does not reject the null hypothesis of no autocorrelation, indicating that the residuals are independent over time and that the model accurately reflects the data's dynamic structure. The heteroskedasticity test (110.9658, $p = 0.2131$) produces an insignificant outcome, indicating that the residual variance is homoscedastic and that no systematic pattern of heteroskedasticity exists. To enhance the validation of the Vector Error Correction Model (VECM), stability assessments were performed utilizing the Cumulative Sum of Squares (CUSUMSQ) statistics. The graphs in Figure 2 illustrate that all recursive residuals consistently fell inside the 5% significance thresholds for the entire sample period. This verifies that the predicted parameters remain stable over time and that the model is free from structural instability or parameter drift. The stability of the VECM guarantees the reliability of short-run and long-run coefficients for inference and forecasting.

Table 5: Diagnostic Test

Tests	Statistic value	p-value
Jarque-Bera Normality Test	2.3447	0.3096
Serial Correlation Test	18.6982	0.2846
Heteroskedasticity Test	110.9658	0.2131

Figure 2: Cumulative Sum of Squares (CUSUMSQ)



Conclusion

This study analyzed the relationship between foreign direct investment (FDI) in the construction sector and house prices in Malaysia, utilizing quarterly data from the first quarter of 2009 to the fourth quarter of 2023 within a Vector Error Correction Model (VECM) framework. The results indicate that all variables; housing prices (LHPI), foreign direct investment in construction (LFDIC), real interest rate (LRIR), and GDP per capita (LGDPCC) are integrated of order one, $I(1)$, and exhibit long-run cointegration, hence affirming the presence of a stable equilibrium connection. Over time, foreign direct

investment in construction substantially elevates house values, whereas real interest rates have an adverse impact. The impact of GDP per capita is positive although statistically negligible, suggesting that increasing income alone does not adequately alleviate affordability problems. In the short term, causality flows unidirectionally from foreign direct investment (FDI) to housing prices, indicating that capital inflows serve as the primary catalyst for variations in the housing market. Diagnostic and stability assessments validate that the proposed model is resilient and structurally sound, hence enhancing trust in the findings. The findings align with previous studies (Masron & Kepili, 2017; Chua et al., 2020; Huang et al., 2014), which collectively highlight that foreign investment inflows, while advantageous for capital formation and urban growth, also induce inflationary pressures in property markets. Consequently, the Malaysian housing market seems to be driven by investment rather than income, underscoring a fundamental disparity between speculative investment and demand based on affordability.

Policymakers should implement a balanced strategy for managing the FDI-housing relationship by regulating speculative capital inflows, reinforcing monetary coordination, and improving the efficiency of the building sector. Selective foreign direct investment screening can reallocate capital from high-risk speculative ventures to affordable and sustainable housing, encompassing green and mixed-income projects. Simultaneously, efforts should include enhancing macroprudential instruments, such as specific loan-to-value ratios, varied stamp taxes, and borrowing limitations can mitigate speculative credit growth. Enhancing domestic construction productivity via industrialized building systems, digital technologies, and local sourcing can further stabilize prices by diminishing import reliance. Urban planning authorities must merge spatial planning with housing affordability goals to guarantee equitable growth and avert gentrification in large cities. Ultimately, improving institutional openness and governance in project approvals, land-use management, and property ownership disclosure will bolster responsibility, deter speculation, and foster a more sustainable and equitable urban housing market.

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