Macroeconomics Factors Affecting Housing Price in Malaysia

Alvin Ong Yi Jun, Zhang Yi Song, Doris Padmini Selvaratnam

University Kebangsaan Malaysia

DOI: https://dx.doi.org/10.47772/IJRISS.2025.906000473

Received: 14 June 2025; Accepted: 18 June 2025; Published: 24 July 2025

ABSTRACT

This study explores how selected macroeconomic factors shape housing market movements in Malaysia, with particular emphasis on trends captured by the Malaysian Property House Price Index (MPHI). Drawing upon quarterly observations from 2015 through 2024, the analysis is carried out using an Ordinary Least Squares (OLS) estimation strategy, with Newey-West robust standard errors applied to address issues of heteroskedasticity and serial correlation.

The empirical assessment centers on four principal economic indicators: gross domestic product (GDP), consumer prices (CPI), lending rates, and unemployment. Results reveal that GDP, lending rates, and unemployment levels all display statistically meaningful and positive associations with housing price shifts, whereas the effect of inflation—as measured by the CPI—does not reach significance. These findings differ from conventional assumptions, particularly those pertaining to the role of unemployment in affecting housing prices, which is often presumed to exert a downward pressure on them. Instead, the findings suggest that unemployment may act differently in certain economic contexts, possibly reflecting government intervention, housing supply rigidities, or speculative activity.

Keywords: Housing Prices, Malaysian Property House Price Index (MPHI), Unemployment, Lending Rate, Inflation, Gross Domestic Product (GDP).

INTRODUCTION

In Malaysia, concerns over housing affordability have become increasingly pronounced, particularly within the context of expanding urban development and widening income inequality. Housing is more than a shelter—it serves as a financial asset, a social status symbol, and, for many, a pathway toward intergenerational wealth. For the middle class, purchasing a home often represents financial stability and upward mobility. However, for lower-income households, the ability to afford adequate housing often determines their access to decent living conditions, education opportunities, and social inclusion.

In recent years, rising land prices, tighter mortgage regulations, and wage stagnation have driven many urban families to the city outskirts, triggering spatial segregation and social polarization. Simultaneously, the Malaysian housing market has become increasingly intertwined with broader macroeconomic trends. Fluctuations in indicators such as GDP, inflation, interest rates, and unemployment exert complex and sometimes unexpected effects on housing prices. For instance, GDP growth may stimulate housing demand, while inflation erodes real purchasing power. However, the COVID-19 pandemic introduced unprecedented distortions into these relationships. According to Supriya Surendran (2021), Malaysia's unemployment rate reached 5.3%, the highest level in over thirty years in May 2019. Beside, the lending rate during 2018 is around 5% however, due to covid-19 pandemic, it drops to 3.5%. In particular, aggressive monetary easing and fiscal stimulus decoupled rising unemployment from declining housing demand, leading to atypical price movements in Malaysia's real estate sector. Similarly, changes in interest rates affect mortgage affordability, and unemployment may shape household expectations about long-term economic prospects.

Recognizing these multilayered dynamics, this study takes a focused look at the Malaysian Property House Price Index (MPHI) as a lens through which to examine housing market behavior. By analyzing quarterly data from 2015 to 2024, the research aims to quantify the influence of four core macroeconomic variables—GDP,

CPI, lending rate, and unemployment—on housing price movements. To ensure robustness, the study adopts an Ordinary Least Squares (OLS) regression approach, with Newey-West standard errors to correct for heteroskedasticity and serial correlation. This is because even in cases when the error components are heteroscedastic and correlated, they yield reliable parameter estimations.

Rather than offering a purely statistical analysis, the objective here is to interpret the results within Malaysia's post-crisis and post-pandemic realities. In doing so, the study seeks to provide actionable insights for policymakers. Why do certain indicators, like unemployment, exert a positive rather than negative pressure on housing prices? Could this reflect speculative demand, rigid housing supply, or structural policy gaps? These are the kinds of questions this paper intends to explore—not just for the sake of academic inquiry but to inform strategies that promote more inclusive and sustainable urban development.

Research objectives

To investigate the macroeconomicsfactors affecting housing price in Malaysia

Research Specific Objectives

1. To investigate the impact of gross domestic product (GDP) affecting housing price in Malaysia.
2. To investigate the impact of inflation affecting housing price in Malaysia.
3. To investigate the impact of lending rate affecting income housing price in Malaysia.
4. To investigate the impact of unemployment rate affecting housing price in Malaysia.

LITERATURE REVIEW

Introduction of literature review

This section revisits empirical studies concerning the relationship between housing prices and a set of macroeconomic variables in the Malaysian context. Specifically, the focus is placed on five key indicators: Gross Domestic Product (GDP), Consumer Price Index (CPI), lending rates, the unemployment rate, and the Malaysian Property House Price Index (MPHI). For each variable, three peer-reviewed academic sources are referenced, each offering different empirical strategies, timelines, and outcomes. These works collectively provide the rationale—both theoretical and empirical—for the selection of variables used in this research.

Malaysian Property House Price Index (MPHI)

As the dependent variable in this study, the Malaysian Property House Price Index (MPHI) is chosen for its comprehensiveness and wide acceptance in national housing market research. Published quarterly by the Valuation and Property Services Department (JPPH), the MPHI captures price trends across a range of housing categories, including terrace houses, semi-detached units, detached homes, and high-rise residences. Its consistency and breadth make it particularly suitable for empirical modeling.

Gross Domestic Product (GDP)

Afsheen and Diah (2022), using an ARDL framework on data spanning 2011 to 2020, identified a long-run equilibrium relationship between GDP and Malaysian housing prices. Pinjaman et al. (2023), employing a Toda-Yamamoto causality test, found evidence of a bidirectional interaction between economic growth and property values over the 2000–2020 period. In a separate analysis by Ong and Chang (2015), based on data from 2003 to 2013, GDP was observed to have a moderately positive and statistically significant effect on house prices. While the magnitude varied, each of these studies confirms GDP's role as a nontrivial driver in Malaysia's housing price dynamics.

Consumer Price Index (CPI)

Zaki (2021) employed an ARDL model utilizing quarterly Consumer Price Index (CPI) data from 2009 to 2018 and identified a substantial long-term positive correlation between housing prices and CPI. Azmi et al. (2010) conducted a study to ascertain the inflation-hedging characteristics of Malaysian residential property. Their findings indicated that, in general, housing did not serve as a reliable inflation hedge. Chester (2020) demonstrated that, while CPI and housing prices exhibit a long-term upward correlation, the correlation is weak, indicating a limited hedging function.

Lending Interest Rate

According to Tang and Tan (2015), real interest rates exerted a negative influence on housing prices in Kuala Lumpur during the period spanning from 2001 to 2013. Baharuddin et al. (2019) observed a significant long-run negative impact of lending rates on house prices using VECM. According to the findings of Lean and Smyth (2014), significant state-level variations were identified, with notable interest rate effects observed in Kuala Lumpur, Selangor, and Penang. However, these effects did not extend to the national level.

Unemployment Rate

Bahmani-Oskooee and Ghodsi (2018) investigated the asymmetric causality between unemployment and house prices across OECD countries, identifying a long-run negative association. Latif et al. (2020) identified unemployment as a substantial negative factor influencing house prices in Malaysia. Ong and Chang (2015) also reported a negative relationship, although the explanatory power of the report was deemed to be limited.

Review of Relevant Theoretical Models

Demand-Side Theory

Keynesian economic theory is also known as demand-side economics. The idea that economic activity is driven by consumer demand for goods and services is known as demand-side economics (Hall, 2023). According to Keynesian economists, the demand for goods and services is the main driver of economic activity and short-term volatility.

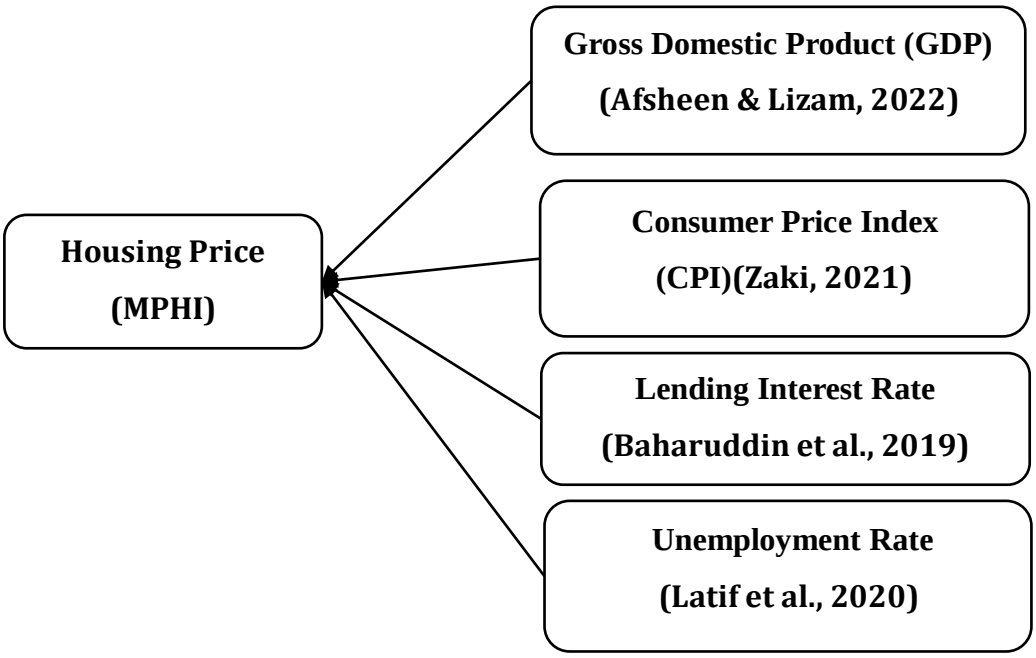
According to Nakajima (2011), wealth and income as well as demographics are key drivers that can identifies demand side of housing. Not only that, demographic considerations such as population and income have a major impact on housing price in Hong Kong (Ho & Ganesan, 1998). Beside, when income is more volatile, households are more inclined to store their whole fortune, which raises home values (Nakajima, 2011).

Monetary Transmission Mechanism

The monetary transmission mechanism explains how changes in the short-term nominal interest rate or the nominal money stock brought about by policy affect real variables like employment and aggregate production(European Central Bank, 2016). Through the impact of monetary policy on interest rates, currency rates, equities and real estate values, bank lending, and company balance sheets, some channels of monetary transmission function.

According to Garriga et al. (2019), lower interest rates can reduce mortgage costs, therefore borrowing may be increase. This is because when people start to borrow more money, housing demand and prices will also increase due to people are affordable to purchase. However, higher rates will reduce demand and prices. This mechanism also works through bank lending channels and credit availability.

Conceptual Framework



Source: Developed from the research

The conceptual framework shows that 4 independent variables which are Gross Domestic Product (GDP), Consumer Price Index (CPI), lending interest rate and unemployment rate had been chosen to examine the relationship between the dependent variable, housing price (MPHI).

METHODOLOGY

Overview of Research Methods

To empirically analyze the impact of macroeconomic factors on Malaysian housing price fluctuations, this study adopts an Ordinary Least Squares (OLS) regression model employing quarterly data spanning from the first quarter of 2015 to the fourth quarter of 2024. The dependent variable is the Malaysian Property House Price Index (MPHI), while independent variables comprise GDP, CPI, Lending Rate, and Unemployment Rate.

Given the frequent presence of heteroscedasticity and serial correlation inherent in macroeconomic data, this research utilizes the Newey-West HAC covariance estimation method, significantly enhancing the robustness and reliability of statistical inference. Newey-West estimators effectively adjust standard errors within the OLS framework, providing corrections for autocorrelation and heteroscedasticity, thus improving estimation accuracy for t-tests and F-tests.

Variable Description and Data Sources

Dependent Variable: Malaysian Property House Price Index (MPHI)

The dependent variable in this study is the MPHI, a national quarterly house price index compiled by the Valuation and Property Services Department under Malaysia's Ministry of Finance. The MPHI uses 2010 as the base year (i.e., 2010 = 100) and reflects average price changes of various residential property types (e.g., terrace houses, semi-detached houses, detached houses, and high-rise residential properties). It is widely used in real estate policy evaluation, market monitoring, and academic research to effectively measure the overall price level and fluctuation trends of the Malaysian real estate market.

Explanatory Variables

This study selected four typical macroeconomic indicators as explanatory variables:

Inflation Rate (CPI): Using the CPI as a proxy variable reflects overall changes in residents' living costs.

Bank Lending Rate: It indicates the average annual interest rate at which banks provide loans to customers and measures financing costs. It is an important variable in the credit market.

Unemployment Rate (UN): It indicates the degree of job vacancies in the labor market and serves as an important countercyclical indicator of macroeconomic conditions.

Gross Domestic Product (GDP): Measured using quarterly nominal GDP in millions of Malaysian ringgit, it quantifies overall economic output and growth levels.

Data Sources

All data used in this study are sourced from the official statistical departments of the Malaysian government, ensuring their authority and verifiability. The specific sources are as follows: Gross Domestic Product (GDP): Sourced from the Malaysia Data Catalogue — Quarterly Real GDP, which provides quarterly real GDP data from the Department of Statistics Malaysia (DOSM). This data is used to measure overall economic output.Consumer Price Index (CPI): Sourced from the DOSM Consumer Price Dashboard, it reflects changes in the inflation rate and serves as a key indicator of the cost of living for residents. Unemployment Rate (UN): Sourced from DOSM's Labour Force Survey Quarterly Report, which is based on quarterly labor market survey reports. Bank Lending Rate (LR): Sourced from the Bank Negara Malaysia Interest Rate Dashboard, it includes average lending rates and benchmark rates and reflects the credit environment. The data range is from the first quarter of 2015 to the fourth quarter of 2024, with quarterly frequency. All data are official statistics, with no additional interpolation or manual adjustments, ensuring the objectivity and reproducibility of model estimates.

Model setting and regression method

Based on the above variables, this paper constructs the following multiple regression model:

$$MPHI = \beta_0 + \beta_1 \cdot \text{INFLATION}_{\text{CPI}} + \beta_2 \cdot \text{LENDING\_RATE} + \beta_3 \cdot \text{UN} + \beta_4 \cdot \text{GDP} + \varepsilon$$

Due to potential issues of serial correlation and heteroscedasticity in macro quarterly data, this paper introduces the Newey-West adjustment based on OLS regression. This adjustment has the following advantages:

The Newey-West standard error, also known as heteroskedasticity and autocorrelation consistent standard errors (HAC), is applicable to situations with heteroscedasticity or autocorrelation. It can effectively correct the biased standard error in conventional OLS estimation, thereby improving the accuracy of t-tests and F-tests.

RESULTS AND DISCUSSIONS

Descriptive Statistics

	MPHI	Inflation	Lending rate	Unemployment rate	GDP (RM million)
Mean	197.8050	1.875	4.5165	3.63	349220.5
Median	199.6	1.95	4.6	3.4	345187.5
Maximum	231	4.7	5.48	5.1	430476.8282
Minimum	160.2	-2.9	3.28	3.1	282255

Std. Dev.	18.18251	1.658351	0.654693	0.560311	38543.15
Skewness	-0.225229	-0.709047	-0.629771	1.437665	0.175979
Kurtosis	2.486111	3.5803	2.420887	3.635427	2.245196
Observations	40	40	40	40	40

Source: Own Data Collection via Eviews

Correlation Metrix of variables that used in model

Correlation T-Statistic Probability	MPHI	Inflation	Lending rate	Unemployment rate	GDP (RM million)
MPHI	1.000000 - -				
Inflation (CPI)	0.001195 0.007365 0.9942	1.000000 - -			
Lending rate	0.172745 1.081125 0.2865	0.038885 0.239885 0.8117	1.000000 - -		
Unemployment rate	0.167 1.0441 0.3030	-0.3303 -2.1573 0.0374	-0.7839 -7.7828 0.0000	1.000000 - -	
GDP (RM million)	0.9290 15.4771 0.0000	0.1074 0.6659 0.5095	0.2657 1.6986 0.0976	-0.06795 -0.4198 0.6770	1.000000 - -

Source: Own Data Collection via Eviews

Regression analysis

Variable	Coefficient	Standard error	T-statistic	P-value	VIF	1/VIF
Inflation rate	0.7373	0.4859	1.5174	0.1381	1.3949	0.7169
Lending rate	9.7172	1.9837	4.8986	0.0000	3.6233	0.2760
Unemployment rate	16.9463	2.3687	7.1543	0.0000	3.7841	0.2643
GDP (RM million)	0.000408	0.0000195	20.8946	0.0000	1.2153	0.8228
Constant	-51.3733	15.98	-3.2148	0.0028		
Number of Observation	40					
R-squared	0.9507					

Source: Own Data Collection via Eviews

Note: ***p<0.01, **p<0.05, *p<0.1

In this analysis, Ordinary Least Squares (OLS) regression is applied to examine how selected macroeconomic variables influence housing price trends in Malaysia. The regression results reveal a high degree of explanatory power, with an R-squared value of 0.9507. This indicates that approximately 95.07% of the variation in housing prices can be accounted for by the variables included in the model, reflecting a strong model fit. Among the predictors, inflation does not appear statistically significant, whereas the other factors demonstrate clear significance.

Lending rates emerge as an important contributor to housing price changes. A 1% rise in the lending rate is associated with an average increase of 9.7172% in house prices, a relationship that holds at the 1% significance level, assuming all other variables remain constant.

The results also point to a robust positive effect of unemployment on housing prices. Specifically, a 1% increase in the unemployment rate corresponds to an average rise of 16.9463% in housing prices, which is likewise statistically significant at the 1% level while controlling for the remaining variables.Through the findings, lending rate, unemployment rate and GDP are significant as their p-value are less than 0.01, 0.05 and 0.1. Therefore, they are sensitive to housing price in Malaysia. However, inflation is not significant to housing price.

Multicollinearity

Variable	VIF	1/VIF
Inflation rate	1.3949	0.7169
Lending rate	3.6233	0.2760
Unemployment rate	3.7841	0.2643
GDP (RM million)	1.2153	0.8228
Mean VIF	2.5044	

Source: Own Data Collection via Eviews

VIF values greater than 10, which show high multicollinearity, are frequently seen as problematic. VIF values under 5 are generally considered acceptable, though this can change according to the particular situation and the area of study. From the table, the mean VIF is 2.5044 and all variable of VIF are below 5.

Heteroscedasticity test: Breusch-Pagan-Godfrey

Hypothesis: $H_0 = Residuals\ are\ homoscedastic$

$H_1 = Residuals\ are\ heteroscedastic$

Diagnostic Test	Result	Decision
Heteroscedasticity test: F-statistic, Probability (P-value): > α=5%	F-statistic = 3.0462 P-value = 0.0296	P- value < 5%, therefore, reject H_0

If the p-value is less than α (5%), the null hypothesis should be rejected. The p-value from heteroscedasticity test is 0.0296, which is lower than significant level at 5%. Thus, reject $H_0$and residuals for the model are heteroscedasticity.

Breush-Godfrey Serial Correlation LM test

Hypothesis: $H_0 = Residuals\ are\ no\ serial\ correlation$

$H_1 = Residuals\ are\ serial\ correlation$

Diagnostic Test	Result	Decision
Serial Correlation Analysis: F- statistics, Probability (P- value): > α=5%	F- statistics= 3.8216 P-value = 0.0321	P- value < 5%, therefore, reject H_0

If the p-value is less than α (5%), the null hypothesis should be rejected. From the result, the p-value obtain from the test is 0.0321, which is lower than significant level at 5%. Thus, reject H_0, and residuals are serial correlation.

Correcting for Heteroscedasticity and Serial Correlation using Newey-West

Variable	Coefficient	Standard Error	T-statistic	P-value	VIF	1/VIF
Inflation rate	0.7373	0.4466	1.651	0.1077	1.3949	0.7169
Lending rate	9.7172	3.4672	2.8026	0.0082	3.6233	0.2760
Unemployment rate	16.9463	3.2427	5.226	0.0000	3.7841	0.2643
GDP (RM million)	0.000408	0.0000268	15.1963	0.0000	1.2153	0.8228
Constant	-51.3733	22.8832	-2.245	0.0312		
Number of Observation	40					
R-squared	0.9507					

Source: Own Data Collection via Eviews

Note: ***p<0.01, **p<0.05, *p<0.1

Table above shows the regression results when using Newey-West Heteroscedasticity and Autocorrelation Consistent (HAC) Estimators to correct heteroscedasticity and serial correlation. These estimators concurrently correct for serial correlation and heteroscedasticity. Even in cases when the error components are heteroscedastic and correlated, they yield reliable parameter estimations. When the autocorrelation structure's shape is unclear, HAC estimators are very helpful (Ao, 2009).

R-square value remain same as before and only inflation rate is not significant but others are significant. Although inflation rate is still not significant but p-value already decrease and almost become significant which is 0.1077. According to Tze (2013), Inflation did not significantly correlate between Malaysia housing price. The Consumer Price Index (CPI) was utilized in the study to gauge inflation. Although Tze Zainuddin (2010) discovered a strong long-term association between inflation and Malaysian housing price, the divergent results may be attributable to the short 10-year study period.

The ordinary least squares (OLS) results of the estimated model show that housing price in Malaysia is increased by lending rate. 1% increase in lending rate, on average, has a positive relationship impact on increasing housing price by 9.7172% with significance at the level of 0.01, holding the other variables constant. The base lending rate has positive and significant relationship on the housing price index in Malaysia, according to the long-run elasticities (Rahman & Ridzuan, 2020). This is because of foreign speculators speculating on the Malaysian housing market. Shi, Jou, and Tripe (2014), along with Tse, Rodgers, and Niklewski (2014), observed that house prices and interest rates can move in tandem under certain conditions, suggesting a counterintuitive positive correlation between the two. As highlighted by Shi et al. (2014), when households perceive that rising property values enhance the collateral value of their homes, they may be more inclined to take on additional borrowing. In such cases, the decision to borrow hinges not solely on income but also on the perceived ability to leverage housing assets for financial gain. They will only take out loans based on the net worth of their holdings. A household's borrowing limits are opened by an increase in home wealth because of the high v*alue of housing securities.*

Besides, estimated model show that housing price in Malaysia is increased by unemployment rate. 1 % increase in unemployment rate, on average, has a positive relationship impact on increasing housing price by 16.9463% with statistically significance at the level of 0.01, holding the other variables constant. According to Iqbal et al. (2023), unemployment exhibits a notable long-term influence on housing prices across nine different economies. In eight of these countries—namely Australia, Finland, France, Japan, Ireland, the Netherlands, Portugal, and the United Kingdom—the unemployment variable is both statistically significant and positively associated with home prices. Italy stands as an exception, where the coefficient turns negative. These findings suggest that unemployment serves as a key indicator of housing market dynamics. Depending on whether an economy is experiencing expansion or contraction, fluctuations in unemployment may exert uneven effects on property values.

Not only that, estimated model show that housing price in Malaysia is also increased by GDP. 1 million ringgit Malaysia increase in GDP, on average, has a positive relationship impact on increasing housing price by 0.0408% with statistically significance at the level of 0.01, holding the other variables constant. In Malaysia, there is a substantial and positive correlation between the GDP and the cost of housing (Ong, 2013). The rise in personal spending is what caused the GDP to rise. The outcome is in line with studies by Ma (2010) that demonstrate the contribution of housing investment to GDP. Therefore, the GDP will rise in response to increased investment.

Through the findings, coefficient will not change after using Newey-West and only standard error and t-statistic will be affected.

CONCLUSION

The paper show several important factors affecting housing price in Malaysia such as lending rate, unemployment rate and GDP (RM million). The time series data is collected quarterly from 2015 to 2024 and there have 40 observations. All the collected data are tested using Eviews12. In conclusion, lending rate, unemployment rate and GDP (RM million) has positive and statistically significant relationship between housing price.

Due to Covid-19 pandemic, therefore, lending rate and unemployment rate have positive relationship between housing price. Unemployment reached highest level in over 30 years. In order to combat Covid-19, lending rate has decrease to reduce financial burdens of people.

Lastly, lending rate, unemployment rate, and GDP (RM million) has significant relationship influence housing prices in Malaysia. Therefore, the government should formulate policies based on these factors to maintain a fair and affordable housing market.

Policy Implications

The government should consider tightening regulations on foreign investment in the housing sector, as such activities may fuel speculative behavior that contributes to market distortion and poses risks to the stability of Malaysia’s housing market. When lending rates rise, housing prices may continue to increase but foreign speculators is unaffected by local borrowing costs. Therefore, they will still gains even though lending rate increase.

One important indicator for assessing the strength of the real estate market is the unemployment rate. During a boom or recession, the unemployment rate may increase or decrease, and the resulting changes may have an uneven effect on housing price (Iqbal et al., 2023). For example, Malaysia's unemployment rate hit 5.3% in May 2020, the highest level in over 30 years, as a result of the COVID-19 pandemic (Surendran, 2021). In order to help individuals relieve their financial obligations and find new jobs, the government should provide more affordable housing.

To lessen the effect of real GDP growth on housing prices, the government must create policies to encourage the increase of the housing supply. For example, low-income families may be eligible for government home

purchase subsidies. Furthermore, the government can cooperate with developers to construct houses but in order to lower development finance costs, the government must provide developers with low interest loans or financing guarantees.

Lastly, in order to maintain housing price in a reasonable price, government should take action to avoid housing speculation for foreign investors, support affordability of residents and ensure a stable housing market in Malaysia.

ACKNOWLEDGEMENT

This paper results from an academic exercise for EPPE6154 funded by EP-2018-001 at the Faculty of Economics and Management, University Kebangsaan Malaysia.

REFERENCES

1. Afsheen, S., & Diah, M. L. M. (2022). The relationship between house prices and economic growth in Malaysia: An empirical analysis. Proceedings of the 7th North American International Conference on Industrial Engineering and Operations Management, 2814–2823.
2. Ao, X. (2009). Heteroskedasticity and Autocorrelation Consistent Standard Errors. Harvard Business School.
3. Azmi, A. S. M., Ting, K. H., Nawawi, A. H., & Othman, A. (2010). Inflation hedging characteristics of Malaysian residential properties. International Real Estate Research Symposium (IRERS).
4. Baharuddin, N. S., Isa, I. N. M., & Zahari, A. S. M. (2019). Housing price in Malaysia: The impact of macroeconomic indicators. Journal of Global Business and Social Entrepreneurship, 5(16), 69–80.
5. Bahmani-Oskooee, M., & Ghodsi, S. H. (2018). Asymmetric causality between unemployment rate and house prices: Evidence from OECD countries. International Real Estate Review, 21(2), 177–202.
6. Case, K. E., & Shiller, R. J. (2003). Is there a bubble in the housing market? Brookings Papers on Economic Activity, 2003(2), 299–362.
7. Chester. (2020). Is residential real estate still a good hedge against inflation in Malaysia? Retrieved from https://www.chester.com.my/isresidentialrealestatestillagoodhedgeagainstinflationinmalaysia
8. European Central Bank. (2016, August 8). Transmission mechanism. https://www.ecb.europa.eu/mopo/intro/transmission/html/index.en.html
9. Garriga, C., Manuelli, R., & Peralta-Alva, A. (2019). A macroeconomic model of price swings in the housing market. American Economic Review, 109(6), 2036–2072. https://doi.org/10.1257/aer.20140193
10. Goodhart, C., & Hofmann, B. (2008). House prices, money, credit, and the macroeconomy. Oxford Review of Economic Policy, 24(1), 180–205.
11. Hall, M. (2023). Demand-Side Economics: Definition and Examples of Policies. Investopedia. https://www.investopedia.com/ask/answers/040915/what-demandside-economics.asp
12. Ho, W. K. O., & Ganesan, S. (1998). On land supply and the price of residential housing. Netherlands Journal of Housing and the Built Environment, 13(4), 439–452. https://doi.org/10.1007/bf02497028
13. Iacoviello, M. (2005). House prices, borrowing constraints, and monetary policy in the business cycle. American Economic Review, 95(3), 739–764.
14. Iqbal, J., Nosheen, M., Rubab, I., Ahmad, S., & Wohar, M. (2023). Asymmetric causality between unemployment rate and house prices in select OECD economies. Journal of the Asian Real Estate Society, 26(2), 173–207. https://doi.org/10.53383/100361
15. Latif, N. A. A., Ismail, S., & Rahman, R. A. (2020). Determinants of housing prices: Evidence from Malaysia and Singapore. Asian Journal of Research in Education and Social Sciences, 2(1), 1–10.
16. Lean, H. H., & Smyth, R. (2014). Macroeconomic determinants of house prices in Malaysia. Journal Ekonomi Malaysia, 54(1), 85–101.
17. Ma, Q. P. (2010). Housing market in China's growth recovery and house price determination. In 21st CEA (UK) and 2nd CEA (Europe) Annual Conference Global Economic Recovery: The Role of China and Other Emerging Economies (pp. 12–13). IEEE.
18. Nakajima, M. (2011). Understanding House-Price dynamics*. Business Review, 20–28. http://www.philadelphiafed.org/research-and-data/publications/business-review/2011/q2/brq211_understanding-house-price-dynamics.pdf

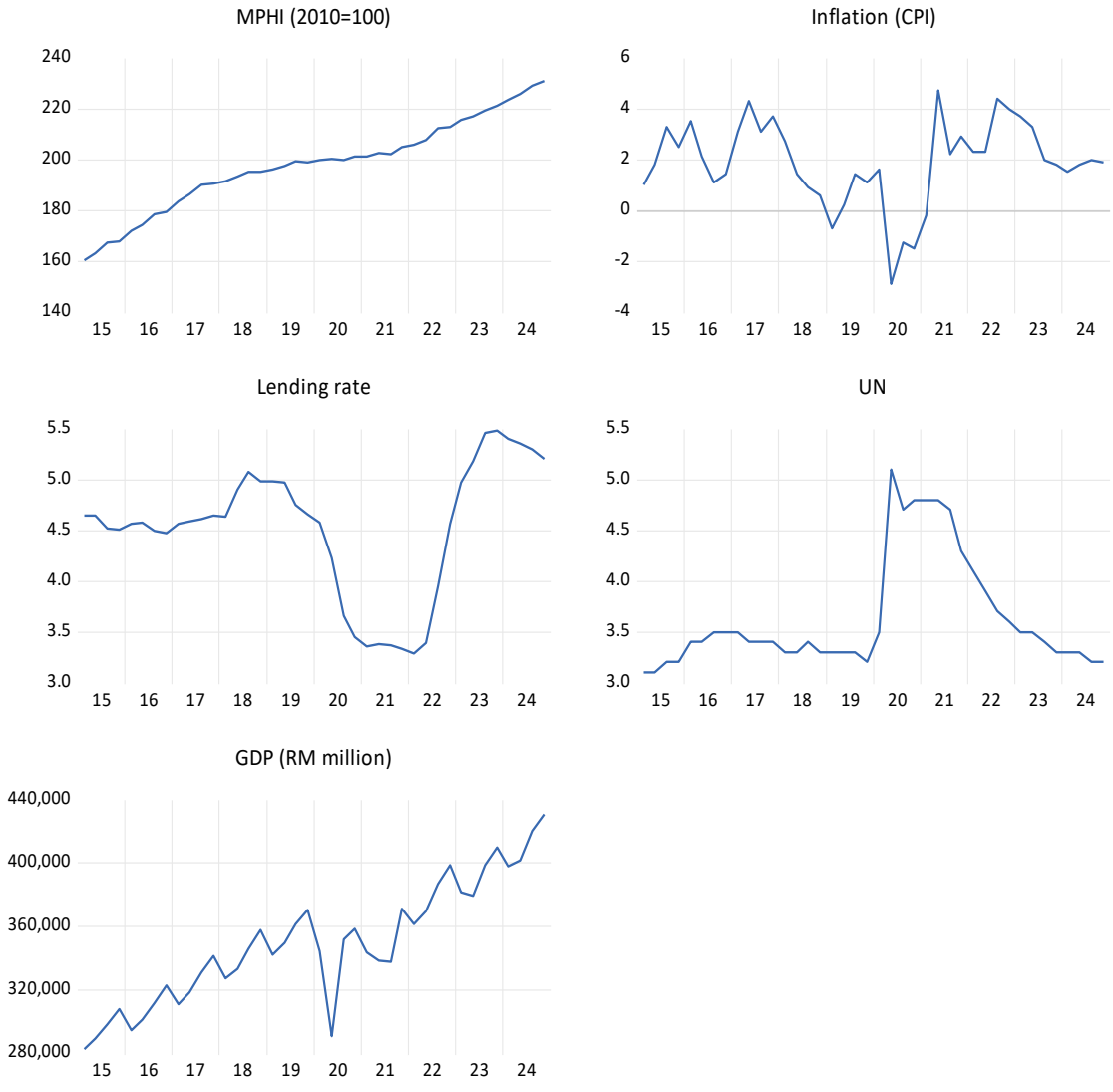
19. Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. Econometrica, 55(3), 703–708. https://doi.org/10.2307/1913610
20. Ong, T. S. (2013). Factors affecting the price of housing in Malaysia. Journal of Emerging Issues in Economics, Finance and Banking (JEIEFB). http://psasir.upm.edu.my/id/eprint/28264/
21. Ong, T. S., & Chang, Y. S. (2015). An analysis of the factors affecting house prices in Malaysia. Proceedings of the 2nd International Symposium on Social Sciences, Humanities and Economics, 224–235.
22. Pinjaman, S., Nipo, D. T., & Aralas, S. (2023). Demystifying the issue of house affordability in Malaysia: The bi-directional relationship between house prices, economic growth, and income inequality. International Journal of Academic Research in Business and Social Sciences, 12(2), 646–660.
23. Pillaiyan, S. (2015). Macroeconomic drivers of house prices in Malaysia. Canadian Social Science, 11(9), 119–130. https://doi.org/10.3968/7482
24. Rahman, M. F. A., & Ritzman, A. R. (2020). Factors that determine house price index in Malaysia. International Journal of Academic Research in Accounting, Finance and Management Sciences, 10(1). https://doi.org/10.6007/ijarafms/v10-i1/7224
25. Saudin, S., Ab Malek, I., Jehani, N. A., & Mastani, N. A. (2019). Modelling of Malaysia House Price Index. Faculty of Computer and Mathematical Sciences, UiTM Cawangan Negeri Sembilan.
26. Shi, S., Jou, J., & Tripe, D. (2014). Can interest rates really control house prices? Effectiveness and implications for macroprudential policy. Journal of Banking & Finance, 47, 15–28. https://doi.org/10.1016/j.jbankfin.2014.06.012
27. Surendran, S. (2021). Surviving the impact of Covid-19: A trying year for job holders. The Edge Malaysia. https://theedgemalaysia.com/article/surviving-impact-covid19-trying-year-job-holders
28. Tang, T. C., & Tan, P. P. (2015). Real interest rate and house prices in Malaysia: An empirical study. Economics Bulletin, 35(1), 270–275.
29. Tse, C., Rodgers, T., & Niklewski, J. (2014). The 2007 financial crisis and the UK residential housing market: Did the relationship between interest rates and house prices change? Economic Modelling, 37, 518–530. https://doi.org/10.1016/j.econmod.2013.08.013
30. Zaki, H. H. M. (2021). The determinants of house prices in Malaysia. International Journal of Management, Finance and Accounting, 2(1), 1–18.
31. Zhu, H. B. (2004). What drives housing price dynamics: Cross-country evidence. BIS Quarterly Review, March.

APPENDIX

Appendix 1 Descriptive analysis

	MPHI__201...	INFLATION...	LENDING_...	UN	GDP RM...
Mean	197.8050	1.875000	4.516500	3.630000	349220.5
Median	199.6000	1.950000	4.600000	3.400000	345187.5
Maximum	231.0000	4.700000	5.480000	5.100000	430476.8
Minimum	160.2000	-2.900000	3.280000	3.100000	282255.0
Std. Dev.	18.18251	1.658351	0.654693	0.560311	38543.15
Skewness	-0.225229	-0.709047	-0.629771	1.437665	0.175979
Kurtosis	2.486111	3.580300	2.420887	3.635427	2.245196
Jarque-Bera	0.778323	3.912898	3.203030	14.45214	1.156006
Probability	0.677625	0.141359	0.201591	0.000727	0.561018
Sum	7912.200	75.00000	180.6600	145.2000	13968820
Sum Sq. Dev.	12893.54	107.2550	16.71631	12.24400	5.79E+10
Observations	40	40	40	40	40

Appendix 2 Graph



Appendix 3 Correlation Analysis

Covariance Analysis: Ordinary
Date: 05/26/25 Time: 20:07
Sample: 2015Q1 2024Q4
Included observations: 40

Correlation t-Statistic Probability	MPHI 201...	INFLATION...	LENDING ...	UN	GDP RM...
MPHI__2010_100_	1.000000 ----- -----				
INFLATION__CPI_	0.001195 0.007365 0.9942	1.000000 ----- -----			
LENDING_RATE	0.172745 1.081125 0.2865	0.038885 0.239885 0.8117	1.000000 ----- -----		
UN	0.167001 1.044127 0.3030	-0.330312 -2.157260 0.0374	-0.783898 -7.782824 0.0000	1.000000 ----- -----	
GDP__RM_MILLI...	0.929023 15.47713 0.0000	0.107406 0.665944 0.5095	0.265650 1.698608 0.0976	-0.067947 -0.419823 0.6770	1.000000 ----- -----

Appendix 4 Variance Inflation Factors (VIF)

Variance Inflation Factors
Date: 05/21/25 Time: 18:53
Sample: 2015Q1 2024Q4
Included observations: 40

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	255.3618	562.6532	NA
INFLATION__CPI_	0.236105	3.223825	1.394914
LENDING_RATE	3.934973	180.4837	3.623323
UN	5.610725	166.6827	3.784140
GDP RM MILLION	3.81E-10	103.5438	1.215335

Appendix 5 Heteroscedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	3.046197	Prob. F(4,35)	0.0296
Obs*R-squared	10.32942	Prob. Chi-Square(4)	0.0352
Scaled explained SS	5.230940	Prob. Chi-Square(4)	0.2644

Appendix 6 Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	3.821622	Prob. F(2,33)	0.0321
Obs*R-squared	7.522277	Prob. Chi-Square(2)	0.0233

Appendix 7 Ordinary Least Square (OLS)

Dependent Variable: MPHI__2010_100
Method: Least Squares
Date: 05/21/25 Time: 20:52
Sample: 2015Q1 2024Q4
Included observations: 40
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-51.37325	22.88321	-2.245019	0.0312
INFLATION__CPI_	0.737333	0.446599	1.650995	0.1077
LENDING_RATE	9.717164	3.467181	2.802612	0.0082
UN	16.94630	3.242694	5.225994	0.0000
GDP__RM_MILLION_	0.000408	2.68E-05	15.19628	0.0000

R-squared	0.950720	Mean dependent var	197.8050
Adjusted R-squared	0.945088	S.D. dependent var	18.18251
S.E. of regression	4.260765	Akaike info criterion	5.853243
Sum squared resid	635.3940	Schwarz criterion	6.064353
Log likelihood	-112.0649	Hannan-Quinn criter.	5.929574
F-statistic	168.8067	Durbin-Watson stat	1.547833
Prob(F-statistic)	0.000000	Wald F-statistic	147.8037
Prob(Wald F-statistic)	0.000000		

Appendix 8 Heteroscedasticity and Serial Correlation using Newey-West

Dependent Variable: MPHI__2010_100_
Method: Least Squares
Date: 05/21/25 Time: 18:56
Sample: 2015Q1 2024Q4
Included observations: 40

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-51.37325	15.98004	-3.214838	0.0028
INFLATION__CPI_	0.737333	0.485906	1.517439	0.1381
LENDING_RATE	9.717164	1.983677	4.898563	0.0000
UN	16.94630	2.368697	7.154271	0.0000
GDP RM MILLION	0.000408	1.95E-05	20.89456	0.0000

R-squared	0.950720	Mean dependent var	197.8050
Adjusted R-squared	0.945088	S.D. dependent var	18.18251
S.E. of regression	4.260765	Akaike info criterion	5.853243
Sum squared resid	635.3940	Schwarz criterion	6.064353
Log likelihood	-112.0649	Hannan-Quinn criter.	5.929574
F-statistic	168.8067	Durbin-Watson stat	1.547833
Prob(F-statistic)	0.000000		