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The effect of Monetary Policy on Housing Prices a UK case study

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The effect of Monetary Policy on Housing Prices a UK case study

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Abstract

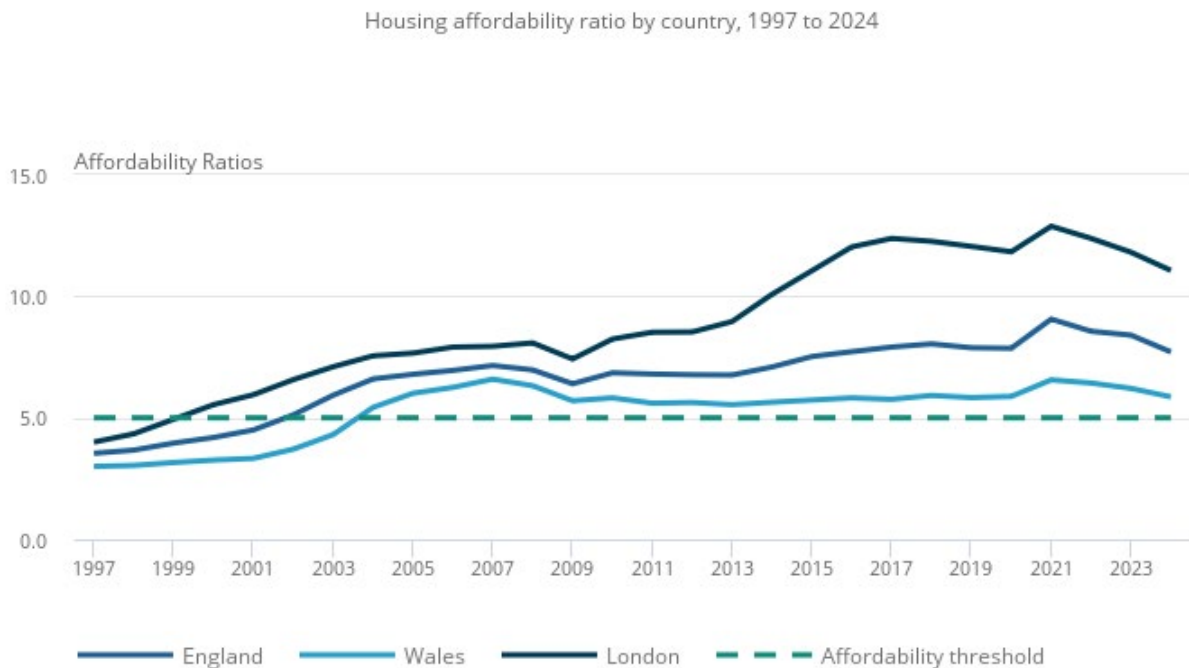
This paper investigates the effect of monetary policy on UK house prices, with focus on the role that interest rates have on the housing market. The analysis and discussion are topical as the cost of living and housing affordability are both key modern concerns in the UK. This study examines dynamic interactions between house prices, interest rates and aggregate demand through the use of a Vector Autoregressive (VAR) model and the Augmented Dickey-Fuller (ADF) stationarity test, using quarterly data from 1997-2023. A unique feature of this analysis is the construction of the demand variable, which incorporates housing related components to provide a targeted macroeconomic lens. The Impulse Response Functions (IRF) generated reveal that interest rate increases lead to an immediate and significant decline in house prices, and that over several periods this returns to zero, consistent with asset pricing theory. This study further acknowledges behavioural and institutional complexities which shape the policy transmission mechanisms and offers timely insights for policy makers navigating a housing market with affordability and uncertainty concerns.

Keywords: Monetary Policy, Interest Rates, House Market, United Kingdom, VAR Model, Macroeconomics

Introduction

The UK is currently facing a cost-of-living crisis, as household's expenses are rising faster than wages (Harley, 2023). This issue can most visibly be seen by the housing affordability crisis. Figure 1 shows the affordability ratio, where median house price is divided by gross annual workplace earnings (Office for National Statistics, 2025a). It

shows the evolution of this ratio across England, Wales and London from 1997-2024, and it highlights a persistent and widening gap from the affordability threshold, which is when housing costs are five times earnings. Since the early 2000s housing has been consistently unaffordable, notably with housing being the most unaffordable in London. Low affordability signals inaccessibility to homeownership, having profound effects both economically and socially. Homeownership is not only a traditional marker of financial security, but it is also found to be linked to community engagement, educational outcomes, mental health and poverty levels (Yun and Evangelou, 2016; Waters and Wernham, 2023).

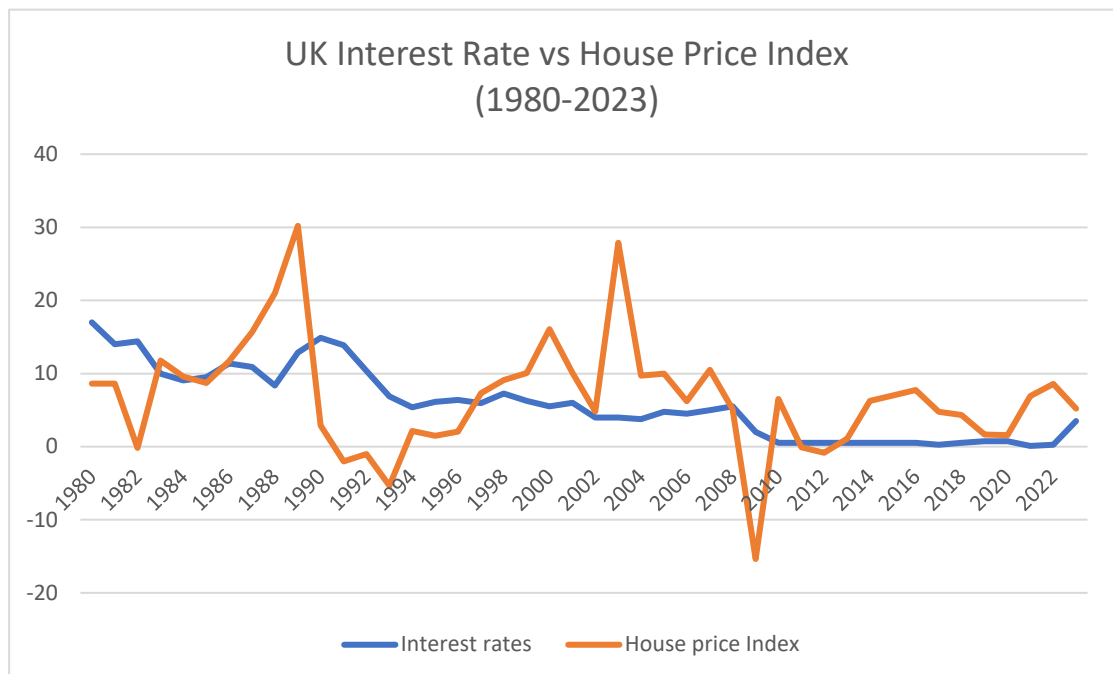


Source: Office for National Statistics, 2024
Figure 1: Housing affordability ratio by UK country, 1997-2024

Recently the Bank of England has raised interest rates in response to inflationary pressures, which puts a larger emphasis on the role that monetary policy has in its influence of asset prices, with housing being a key example. This study investigates how interest rates shock effect UK house prices using a three variable Vector Autoregression (VAR) model that also includes a uniquely created housing sensitive aggregate demand variable. By isolating the monetary transmission mechanism in a UK specific context, this research contributes to both academic understanding and practical policy making; this is particularly important in the current time period where housing affordability is under intense pressure.

Literature review

The understanding of how monetary policy influences house prices is a central issue in macroeconomics. Existing research (Mishkin, 2007; Andaloussi et al, 2024) identifies there are numerous macroeconomic determinants of housing prices such as income, inflation and employment, but there are fewer recent studies that isolate the direct impact of monetary policy, especially in the UK market. Historically, UK data shows that there is a broad inverse relationship between interest rates and house price growth. This is illustrated on figure 2 by sharp price corrections in periods of monetary tightening (Mishkin, 2007), such as in the early 1990s and during the financial crash of 2008. However, this link is not always linear due to structural breaks, such as credit expansions and supply shocks. This highlights the need for models that can capture dynamic interactions, which is what the VAR approach of this study aims to achieve.



Data sources: Bank of England (2025a); GOV.UK (2025b)

Figure 2: Plot of UK interest rates on House Price Index

Some papers such as Meen (1996) argue that traditional factors such as income and demographic changes are dominant while others such as Bragoudakis (2024) found that interest rates have a significant role. Said and Hicham (2025) also note that monetary policy affects housing, but with varying intensity depending on market structure. These studies support the theoretical expectation that interest rates influence borrowing costs and thus demand, but they often rely on differing assumptions or have international settings. This paper builds on this by using a VAR

model that allows for endogenous interaction among UK specific variables, including interest rates, house prices and a custom aggregate demand metric.

There are two main means of monetary policy transmission; the credit view and the money view (Mishkin, 2007; Bernanke, 1986). Traditionally in the UK the predominance of variable rate mortgages amplifies the transmission of interest rate changes (Meen, 2002; Dhillon et al, 1987). Supply constraints further intensify price sensitivity to credit conditions (Andaloussi et al, 2024). Additionally, behavioural factors are relevant as housing acts as both a consumption necessity as well as an investment asset. The rise of second home ownership and speculative purchases distorts traditional demand functions. This is driven by psychological factors such as loss aversion (Kahneman and Tversky, 1979) and conspicuous consumption (Veblen, 1899). This dual nature of housing complicates monetary transmission and discrete investment decisions, policy expectations, and institutional frictions all shape responses to rate changes. Therefore, this study contributes to these discussions by using a structural time series approach to better reflect these interactions and provide empirical evidence for UK-specific monetary policy effects on the housing market.

Method

This study employs a Vector Autoregression (VAR) model that is estimated in the statistical software Stata to analyse the dynamic relationship between UK house price, interest rates and aggregate demand (AD). VAR models, introduced by Sims (1980) enable insights into inter-causal relationships over time, without imposing strict theoretical structures, but require large data sets and assume stationarity (Luetkepohl, 2011; Canova, 1999).

Quarterly data from 1997-2023 has been used, with the house price data used being UK House Price Index (GOV.UK, 2025), the interest rate data from the Bank of England (2025). AD is constructed from macroeconomic identity:

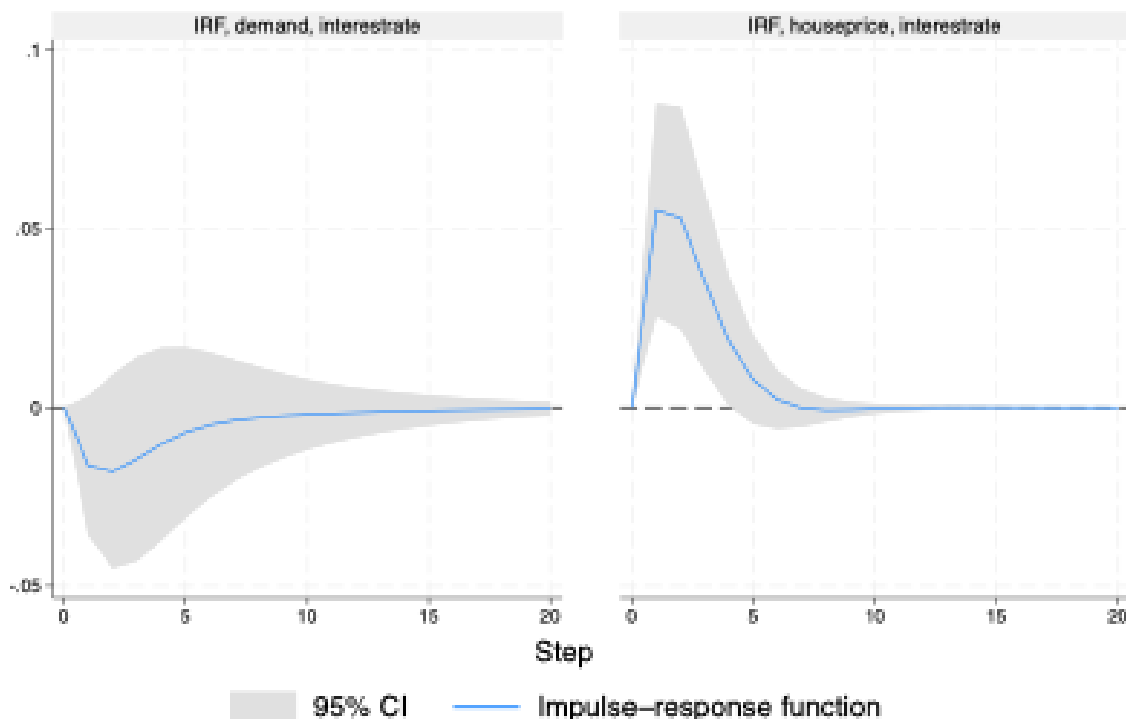
$$AD = C + G + I + (X - M) \quad (1)$$

Each component has been sourced from UK official statistics. Consumption is represented by imputed rents (ONS, 2025b), aligning with the housing market focus. Investment is proxied by Gross Capital Formation (ONS, 2025c), and for Government consumption, government spending (ONS, 2025d) has been used. Exports and Imports have been taken from Macrotrends (2025a; 2025b). Not all of these components had available quarterly data, so quarterly data was manually made by repeating the annual data across four quarters. This is a key limitation of the study as it effects the precision of the found results. All three series were transformed into percentage changes for comparability.

There are three main tests performed for this study, the stationarity unit root test, which in this study is the Augmented Dickey Fuller (ADF) test, the Vector Autoregression (VAR) and the Impulse Response Functions (IRF). The ADF test is initially performed to ensure the series used are stationary (Dickey and Fuller, 1979). Also, lack of cointegration found meant a standard VAR rather than a Vector Error Correction Model was used (Stock and Watson, 2020). The VAR model (Sims, 1980) framework is used to analyse dynamic interactions between Interest rates, Aggregate Demand and House Prices, allowing the forecasting of variables (Kilian and Lütkepohl, 2017). Once the VAR model has been estimated, Impulse Response analysis can take place. This is conducted to examine the impact of a one-unit shock of the independent variable (the impulse) on the dependant variables (the responses) over time (Stock and Watson, 2020).

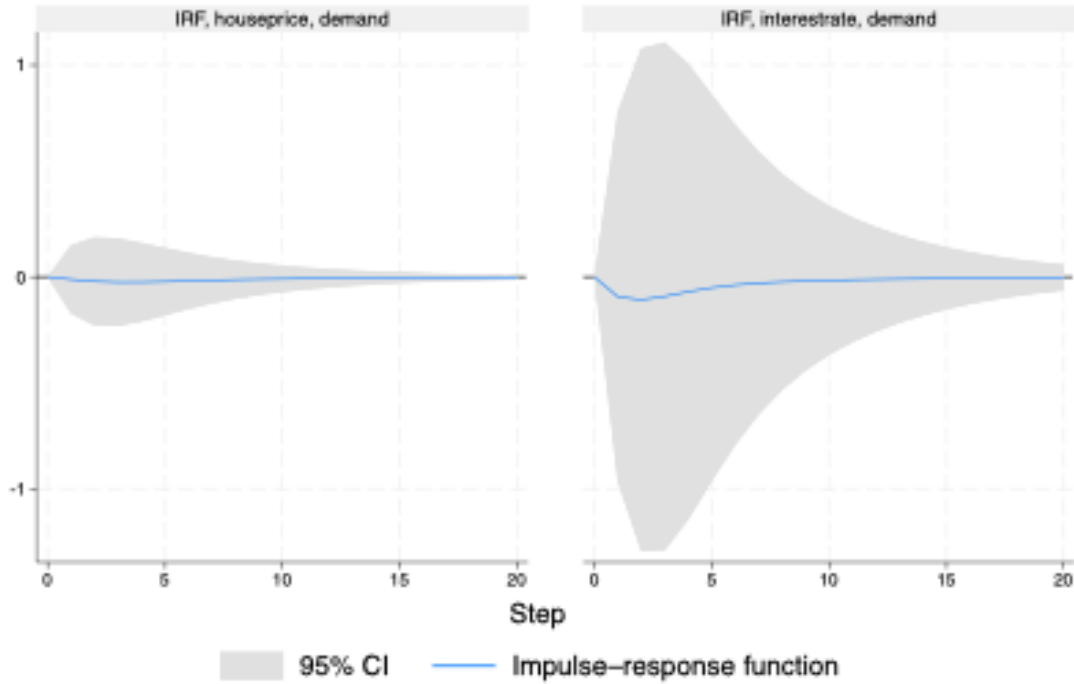
Results

The initial Dickey-Fuller test shows that all three series are stationary at level, so have $I(0)$, which helps to maintain robustness as the series do not need to be differenced. For the VAR test, the optimum lag length is found to be 1. All four VAR model assumptions are proven to be true, including the stability check, autocorrelation test and multicollinearity test. Using these VAR results, the following IRFs were generated:



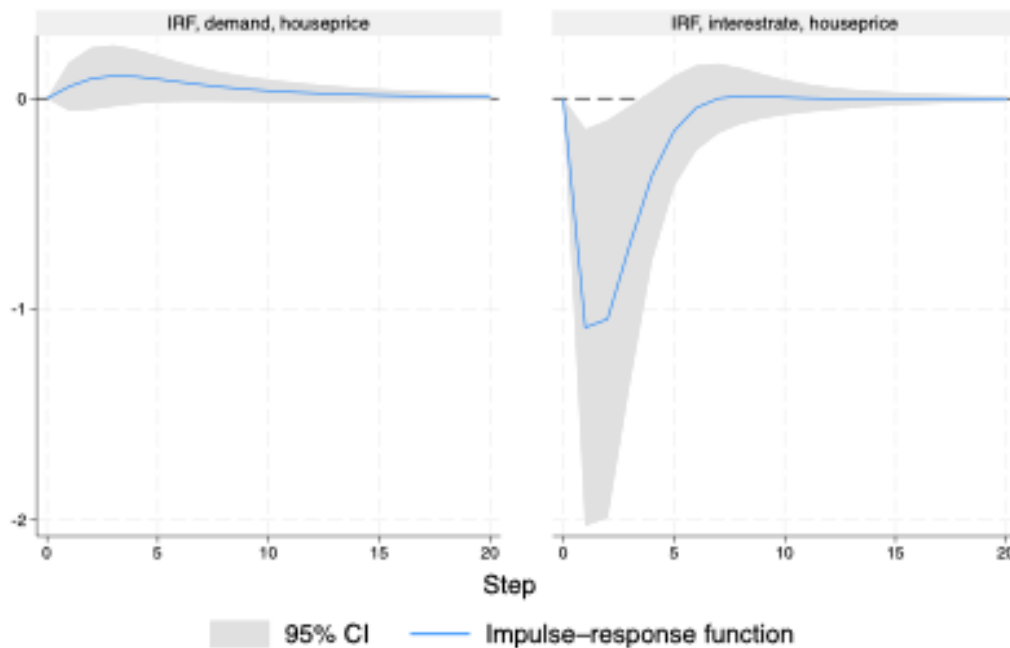
Graphs by irfname, impulse variable, and response variable

Impulse: shock to Interest Rate
Figure 3: IRF, Interest Rate as response



Graphs by irfname, impulse variable, and response variable

Impulse: shock to Demand
Figure 4: IRF, Aggregate Demand as response



Graphs by irfname, impulse variable, and response variable

Impulse: Shock to the House Price
Figure 5: IRF, House Price as response

Discussion

The IRF shown on Figure 3's right panel demonstrates that an exogenous interest rate shock leads to an immediate and pronounced decline in the price of houses. This response aligns with fundamental economic theory, which suggests that higher borrowing costs will reduce mortgage affordability, therefore leading to lower housing demand and placing a downward pressure on property prices (Duca et al, 2021). This is consistent with monetary policy transmission mechanisms, such as the mortgage affordability effect, which asserts that since the UK has a majority of variable rate mortgages, their borrowing costs are particularly susceptible to interest rate changes. This is important as a rise in interest rates will increase mortgage payments, which reduces homebuyers purchasing power, decreasing demand and creating downward price adjustments. This idea is consistent with asset price theory where housing's value is inversely related to the discount rate (Munk, 2013).

The IRF suggests that after this initial drop, house prices then follow a relatively stable adjustment path without volatility. This pattern indicates that the immediate shock from the interest rate increase has a persistent effect on prices perhaps as economic fundamentals and policy adjustments counteract the immediate shock. This has connection to Minsky's (1986) idea that the business cycle is the housing cycle.

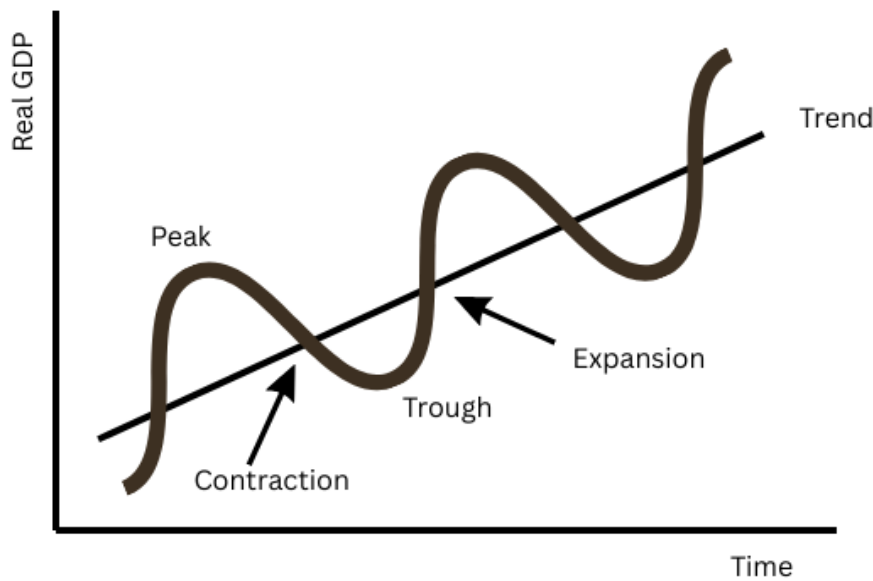


Figure 6 - The Business Cycle

The IRFs initial decrease can be seen as a business cycle contraction, as the financial shock of the increase in interest rate slows down economic activity. After the initial drop, house prices decrease begin to stabilise which can be viewed as the trough, where house prices adjust to the new economic realities, and policy makers step in with monetary or fiscal policies to encourage the markets recovery. The IRF shows house prices then increasing as they return to the initial level, which can be related to expansion of the business cycle, as the policies implemented begin to take effect and speculative behaviour, credit expansion and increased demand cause the prices to increase. This increase is limited as the IRF dampens to zero. The IRF shows the house price reaction from an interest rate increase or expansion, from this reaction it can be expected that a monetary policy contraction will decrease housing prices. It is this that means in terms of the business cycle a price peak is hit, as house prices reach a point where they may be overinflated due to speculation and excessive credit, and policy makers may try to counterbalance the inflation and economic overheating.

UROS Experience

This experience has allowed me to expand my knowledge on how academic journals are structured. It has given me opportunity to engage in my preferred areas of economic research, allowing me to deepen my understanding of economic concepts and practice my use of econometrics, data gathering and analysis. These are skills that are crucial as I continue on my academic journey.

Conclusion

This paper's results show the full impact interest rates and aggregate demand have on UK housing prices. The impulse response functions provide clear evidence that an increase in interest rates will lead to an immediate and substantial decline in house prices. This idea is consistent with the theoretical expectations and empirical findings within the literature. This supports the notion that higher borrowing costs reduce mortgage affordability and speculative investment in housing, which leads to a contraction in demand and a subsequent downward pressure on prices. The IRFs also revealed a more complex outcome. The IRF's wave movement suggests that financial shocks may not produce one-time adjustments but rather trigger a sequence of behavioural and structural responses from within the market. Suggested future research would be to estimate the model again using a structural VAR to address potential endogeneity, as well as to perform the same VAR analysis but to another country, such as the United States, which would help the generalisability of the results.

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