

Factors Affecting Regional Differences in UK Housing Prices Over Time

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Introduction

Since the United Kingdom privatized social housing and liberalized the mortgage in the 1980s, the UK has faced a severe housing crisis. This housing crisis is characterized by extremely high prices, a lack of available housing, and decreasing space per person for private renters.

Currently, experts estimate that the UK housing market has a backlog of 4.3 million homes, and that this severe housing deficit has only served to exacerbate the housing crisis.

With yearly net migration levels of close to 500,000 at the end of 2022, the urgency of this crisis cannot be overstated.

The purpose of this study is to evaluate the factors affecting housing prices in regions across the UK to help inform policy attempts to alleviate this crisis.



Literature Review

- Importance of household income in determining housing prices, specifically that increasing income leads to higher housing demand and drives housing prices upwards. **Greater London Authority (2015), Muellbauer and Murphy (2008), Marsden (2015), Abraham and Hendershott (1966), Cameron et. al. (2006)**
- A low housing stock leads to rising housing prices and specifically in the city of London, an unresponsive housing supply has driven house prices up. **Marsden (2015)**
- Importance of housing affordability in driving housing prices. More specifically, that higher credit availability increases demand and drives housing prices up. **Marsden (2015), Muellbauer and Murphy (2008), Mallick and Mahalik (2014)**
- Higher population leads to higher housing demand. **Capozza et. al. (2013)**

Research Questions

- Does increasing household income across different regions increase the House Price Index over time?
- Does an increase in housing stock across regions in the UK lead to a decrease in the House Price Index over time?

Hypothesis 1: Increasing income leads to an increase in the House Price Index.

Hypothesis 2: An increase in the housing stock leads to a decrease in the House Price Index.



Variables

Table 1 – Variable Definitions

Variable	Definition
House Price Index	Unique index indicating the change in average house prices in the UK, accounting for various household characteristics.
Household Income (in 10,000 pounds)	Disposable income after accounting for various income distributions. Reflects the material wealth of individuals in households.
Total Housing Stock (in 100,000 homes)	Number of residential properties that are available – represents the level of housing availability.
Housing Affordability Ratio	Ratio comparing each city's aggregate debt level to the city's gross disposable household income to indicate housing affordability.
Employment Rate	Percentage of working age population that are employed.
Total Population (in 10,000 people)	Measure of the total number of people living in the specified geographic region.
Net Additions to Dwelling Stock (in 1000s of homes)	Measures the number of dwellings added to the housing stock by accounting for the newly available dwellings and newly removed or demolished properties.

Empirical Framework



$$HPI_{it} = \beta_0 + \beta_1 Income_{it} + \beta_2 Housing\ Stock_{it} + \beta_3 Affordability\ Ratio_{it} + \beta_4 Employment\ Rate_{it} + \beta_5 Population_{it} + \beta_6 Dwelling\ Stock\ Additions_{it} + \delta_i + \epsilon_{it}$$

This regression includes regional fixed effects, which account time invariant differences across the regions: London, Northwest England, Southwest England, Scotland and Wales. The data include years 2012 to 2022.

Regression Results

Table 2 – Regression Results

Variables	Dependent Variable = House Price Index
Income	4.690** [-1.732]
Housing Stock	-19.38** [-8.386]
Affordability Ratio	8.778*** [-2.143]
Employment Rate	1.248*** [-0.193]
Total Population	4.711*** [-1.618]
Additions to Dwelling Stock	0.261 [-0.186]
Constant	133.4 [-205.6]
Observations	35
Adjusted R-Squared	0.9274

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

Sources: Office for National Statistics, UK Land Registry, Centre for Cities Data Tool, London Datastore, Scottish Government Housing Statistics, United Nations World Population Prospects

Conclusion & Further Research

Conclusion:

- On average, a £10,000 increase in income is associated with an increase of 4.7 in the House Price Index
- This is 4.17% of the average HPI
- A 100,000 house increase in housing stock on average is associated with a decrease of 19.4 in the House Price Index
- This is 17.23% of the average HPI

Further Research:

- More detailed regional data regarding housing financing and the cost of developing new housing would have given more insightful details into how the housing crisis can be addressed
- Data regarding household saving and consumption behaviour would be helpful to understand the housing market