

A visit to a beautiful place essay sample

[Economics](#)



**ASSIGN
BUSTER**

1. Introduction

There is an increasing body of empirical work studying house prices and their links to the macro-economy. Housing market research has been topical since its role in the recent global economic crisis, specifically referring to the recent boom in house prices in many developed countries following a sharp bust in 2008. Researches and policy makers alike have realised that housing has significant influences on the business cycle.

1. 1 Topic Rationale

Most of the research papers that focus on house price determinants focus mainly on Eastern European countries. There are very few research papers available for more developed countries such as the U. K. and Ireland and very few that analyse the three independent variables of income, interest rates and inflation as house price determinants within the same paper. Hence the aim of this paper is to fill the gap in the literature by conducting an analysis of the determinants of Irish house prices in Ireland between 1997 and 2011.

1. 2 Research Objectives

This paper presents three hypotheses, developed from a review of the literature. Hypothesis one states that there is a relationship between house prices and income. Hypothesis two states that there is a relationship between house prices and inflation. Hypothesis three states that there is a relationship between house prices and inflation. The objective of this paper is to determine if these hypotheses are statistically significant.

1. 3 Data

Quarterly figures for house prices and each of the macroeconomic variables: income, interest rates and inflation have been collected mainly from the Statbank database hosted on CSO Ireland website.

In the next section a review of the current literature on this topic is presented.

2. Literature Review

This paper looks at the relationship between income, interest rates and inflation (see appendix 6 for definitions) on Irish house prices over the period 1997 Q1 to 2010 Q4, the purpose of which is to determine which variables have an effect on Irish house prices. Accordingly, this section begins with an analysis of the determinants of housing demand and housing supply.

2. 1 Demand and Supply Factors of House Prices

House prices are affected through many different determinants and or factors in both the short run and long run. According to Banerji et al (2008) these factors are made up of demand factors and supply factors. Generally demand factors affect house prices more so in the short run and supply factors affect house prices more so in the long run, but they can and do affect each other interchangeably. Amongst other things house prices as suggested by Goodhard and Hofmann (2007) are limited by many variables including incomes of potential buyers, cost and ability to construct new property and demand for rental units. At least eighty percent of all homes

purchased are done so with a mortgage, this limits the house prices, due to the maximum that potential buyers can borrow and repay.

According to Banerji et al (2008) demand factors that affect house prices in the short run include: Current and expected future house prices, income per household, mortgage rates, demographics and credit availability. Supply factors that affect house prices in the long run include: The amount of land available for development, planning and zoning restrictions and the cost of building as reflected in the cost of raw materials and labour.

2. 2 Equilibrium Model

The Walrasian Equilibrium model is a comprehensive way of studying the balance in an economy. This model is comprehensive because it describes all the parts of an economy simultaneously and also shows how each of the variables interacts with each other. Burfisher (2011) describes the equilibrium model as the ' bicycle model'. In general equilibrium Gross National Product (GNP) is the sum of Consumption, Investments, Government Spending and Net Exports. As suggested by Burfisher (2011), an economy is in balance, i. e. at equilibrium when Aggregate Supply (AS) equals Aggregate Demand (AD). For the purpose of this research paper the housing market and its determinants are analysed using the concept of the equilibrium model.

2. 2. 1 Aggregate Demand

Aggregate demand is the total demand for goods and services in an economy at a given price and time period. According to Baumol and Blinder

(2011), higher prices decrease the demand for any particular goods and services as they erode the purchasing power of disposable income and vice versa. This paper looks at how the aggregate demand is affected by changes in the determinants which changes the equilibrium prices of houses in the economy. Aggregate Demand for houses is affected by changes in consumption which may be brought about by inflation; changes in investment may be affected by interest rate changes and any changes in G and NX which affect balance of payments could be affected by surplus or deficit income levels.

2. 2. 2 Aggregate Supply

According to McEachern (2011), aggregate supply is the relationship between the economy's price level and the amount that the output firms are willing and able to supply, determined in the long run by changes in technology, patent laws, conventions of the market place and others. The key resource however is the supply of labour that affects the aggregate supply. All of the determinants in this research paper are short run demand side factors, instead of supply side factors. Suggestively the determinants of house prices cause shocks to the housing market, causing the long term trend to gain momentum. We can relate this to the research paper suggesting that excess supply of labour causes a general drop in the cost of labour which reduces the disposable income in turn effecting consumption i. e. aggregate demand.

Deriving the above equations, we can say that changes to the determinants of aggregate demand and aggregate supply of houses in turn causes house prices to change.

2. 3 Theory/Empirical Findings

The section below shows empirical and theoretical findings in relation to house price determinants from around the world and in Ireland.

2. 3. 1 Findings in other Countries

Anari and Kolari (2002) presented a paper entitled ' House Prices and Inflation'. Their paper examined the relationship of the long-run impact of inflation (non-housing goods and services) and house prices in the USA for the period 1968-2000. Their results indicate through the use of ARDL models that house prices and inflation (non-housing prices) are co-integrated.

Egert and Mihaljek (2007) studied the determinants of house price dynamics in eight transition economies of CEE and 19 OECD countries using panel DOLS techniques. They analysed factors such as real income, real interest rates and demographic factors as well as transition factors such as improvements in housings quality and housing market institutions. Egert and Mihaljek (2007) established a strong positive relationship between per capita GDP and house prices. They also established ' robust' relationships between interest rates and house prices.

Vizek (2010) research paper aimed to detect the most important house price determinants in 48 Eastern and Western European countries, modelling the long run and short run house price determinants. The results suggested that
<https://assignbuster.com/a-visit-to-a-beautiful-place-essay-sample/>

both income and interest rates enter into a ' long-run co-integration relationship with house prices.' He found that in the majority of cases income could be excluded from the model but interest rates could not. Vizek (2010) further suggested that only interest rate changes explain house price behaviour in the majority of cases, in the long run and that income changes were only relevant for Spain and U. K.

Tsatsaronis and Zhu (2004) study the importance of a number of macroeconomic factors affecting house prices in a cross-country examination. Their results suggest a strong long-lasting link between inflation and nominal interest rates on the one hand and housing prices on the other.

Fraser, Hoesli and McAlevey (2010) did a study from 1973 to 2008 on N. Z., U. K. and U. S in order to establish the nature between the two variables namely house prices and income. The second part of the study was to determine the impact on house prices when experiencing permanent (e. g. supply-type disturbances) and transitory shocks (demand-type disturbances).

Fraser, Hoesli and McAlevey (2010) found that there is a long-run relationship between house prices and income and deviations to the stability of that relationship are possible. They found that in N. Z. and U. K. house prices are more responsive to permanent shocks (although both types of shocks had a significant impact on house prices). The U. S. on the other hand was more susceptible to temporary shocks with permanent shocks having no significant initial impact and no lasting impact on U. S. house prices.

Stepanyan, Poghosyan & Bibolov (2010) analyse the recent boom-bust cycle in the housing market of selected Former Soviet Union Countries (FSU) in the hope of determining the house price determinants. Their estimations suggest that fundamentals such as GDP and external financing are significant drivers of house prices in the FSU countries. Stepanyan, Poghosyan & Bibolov (2010) find that house prices adjust to the long-run equilibrium in response to the shocks, and that the correction the long-run equilibrium seems to be rather speedy.

Klyuev (2008) studies development of house prices in the United States from 1970 to 2008. He uses the fundamentals model and the asset pricing approach. In the Fundamentals model, for house price determinants, he uses average household size, real disposable income, construction cost, real mortgage rate and unemployment. Klyuev (2008) links house prices with real rents and interest rates. Both the fundamentals model and the asset pricing approach yield substantial overvaluation in the U. S. housing market, starting from 2001. He also finds that house prices can deviate from their equilibrium values for long periods of time.

2. 3. 2 Findings in Ireland

McQuinn & O'Reilly (2007) produced a paper entitled: Assessing the role of income and interest rates in determining house prices. They identified that although higher income levels and benign interest rates are generally considered to be the reason for the boom in property prices in the last 10 years; the empirical models of house prices fail to achieve credible results concerning the impact of interest rates. The authors base their paper on an

intuitive theoretical model of house prices that measure the demand for housing based on the amount that an individual can borrow from financial institutions, based on their disposable income levels and the current interest rates at the time. The authors, results reveal co-integration between the actual house prices and the level suggested by the average amount borrowed. They further conclude that the low interest rate environment in the Eurozone area has stimulated Irish house prices and that any change in the Euro wide monetary conditions has a direct and significant impact on Irish house prices

3. Data and Methodology

3. 1 Research Objective and Hypotheses

The objective of this paper is to determine if a relationship exists between Irish house prices and a set of chosen variables, namely income, interest rates and inflation. This paper presents three hypotheses, which are summarised in Table 1.

Hypothesis	Relationship	Variable X	Variable Y
H1	A relationship exists	Income	House prices
H2	A relationship exists	Interest Rates	House prices
H3	A relationship exists	Inflation	House prices

Table 1 Hypotheses examined

Hypothesis one states that, a relationship exists between Irish house prices and income. Egert and Mihaljek (2007) concluded that there is a positive relationship between income and house prices. Hypothesis two states that a relationship exists between Irish house prices and interest rates (interest

<https://assignbuster.com/a-visit-to-a-beautiful-place-essay-sample/>

rates referring to mortgage interest rates). Klyuev (2008) links house prices with real rents and interest rates Hypothesis three, states that a relationship exists between Irish house prices and inflation. According to Anari and Kolari (2002) there is a long-run positive relationship between inflation and house prices. The paper expects to find that H1, H2 and H3 will hold true.

3. 2 Data Description

The data description comprises of details regarding the data for Irish house prices and also each chosen independent variable: Income, interest rates and inflation.

3. 2. 1 Y Variable - House Prices

The dependent variable, average quarterly house prices was sourced from the Statbank Database hosted by CSO Ireland. The average house prices are derived from data supplied by the mortgage lending agencies on all loans approved by them. The paper is using average quarterly house prices for all the new houses sold nationally from the period 1997Q1 to 2010Q4. The average house prices are presented in Euro currency.

3. 2. 2 X Variables - Income, Interest Rates and Inflation

The independent variables chosen include income, interest rates and inflation for the period 1997Q1 to 2010Q4. To represent a proxy for income, quarterly figures for GNP are used from the period 1997Q1 to 2010Q4. These figures are obtained from Quarterly National Accounts CSO Ireland publications for the years 2000, 2005 and 2011. The interest rate used is called the ' Representative Building Societies Mortgage Rate'. This is an <https://assignbuster.com/a-visit-to-a-beautiful-place-essay-sample/>

average of the standard variable mortgage rates for credit institutions, as reported to the Central Bank and Financial Services Authority of Ireland by the Mortgage Lenders'. The data is collected from the Central Statistics Office of Ireland from the periods 1997Q1 up to and including 2010Q4 and is presented on a monthly basis. The inflation rate data is collected from the Consumer Price Index (CPI) which is provided by the Central Statistics Office of Ireland. The CPI data is presented on a monthly basis over the period 1997Q1 up to and including 2010Q4. The CPI data excludes housing.

3. 3 Methodology

All data is exported from its sources into a Microsoft Excel spreadsheet. All of the variables are converted into quarterly percentage changes, in order to achieve realistic comparability in the results. Regression, multiple regressions and correlation analysis is undertaken using Excel. Regression helps one to understand how the value of the dependent variable changes when the independent variables changes. Multiple regressions help one to understand how the value of the dependent variable changes when all three of the independent variables change. For the purpose of this paper, the mathematical indicators used from the regression analysis are t-stat, p-values, correlation of determination (R^2) and the correlation coefficients (β).

The findings of the regression analysis will help determine the real relationship between house prices and the proposed determinants.

3. 4 Limitations

There are a number of limitations that affect the research. In comparing house price figures from one period to another, there are different changes to the mix of dwellings that change the average figures, but are not taken into consideration. The income variable is difficult to define, as there are so many different names and descriptions for income. In the time period outlined in this paper Ireland has had two currencies. This fact makes it very difficult to source appropriate data for income as most publications are in small chunks of time, usually only in Punt or only in Euro.

The Economic model is based on assumptions which may not hold true in reality. The regression analysis technique has many limitations: it is demanding because it requires quantitative data relating to many entries; implementing the data collection can be time-consuming; regression analysis is likely to reach a conclusion that there is a strong or weak link between two variables, but the influence of other, perhaps more important variables is not included.

4. Findings

This section looks at results from the series of regressions and correlations between all the variables during the period under review.

4. 2 Regressions

This section represents the findings from the linear regression for the dependent variable house prices and the independent variables income, interest rates and inflation using quarterly figures starting 1997 Q1 to 2010 Q4.

| | Coefficients | Standard Error | t Stat | P-value | | Multiple R | 0. 575325 | 0. 16712 | 0. 44536 | 0. 6905 | | R2 | 0. 330999 | 0. 02793 | 0. 19834 | 0. 4768 | | Adjusted R | 0. 318610 | 0. 00993 | 0. 18350 | 0. 4466 |

Table 6 - Correlation Results

Multiple R is the correlation coefficient which quantifies the direction and magnitude of correlation. The high correlation coefficient values of 57. 5% and 44. 5% for income and inflation suggest that a statistical relationship exists between house prices and income and inflation. The low correlation coefficient value of 16. 7% for interest rates suggests that there is no statistical relationship between house prices and interest rates. R2 represents the coefficient of determination. R2 is 33. 10% for income and 19. 83% for inflation which represents the percentage of variance shared between house prices and income and house prices and inflation respectively. R2 is insignificant for interest rates at 2. 79%.

The above results are in keeping with the regression results. In particular the low correlation for interest rates is further evidence of the absence of any statistically significant relationship between the variable and house prices over the period in question.

4. 3 Summary of hypotheses

The table below shows the summary of Hypotheses. H1 and H3 have not been rejected, but H2 has been rejected. | Hypotheses | Relationship | Variable X | Variable Y | Hypotheses Accepted/Rejected | | H1 | A relationship exists | Income | House prices | Not Rejected | | H2 | A relationship exists |

Interest Rates | House prices | Rejected | | H3 | A relationship exists |
Inflation | House prices | Not Rejected |

Table 7 - Summary of Hypotheses

5. Discussion

This section presents a discussion based on the regression analysis and empirical research and theories that support the findings.

5. 1 Empirical Evidence vs. Research Findings

In the findings section we established that there is a significant statistical relationship between house prices and income (GNP). The results are consistent with previous studies: Egert and Mihaljek (2007) established a strong positive relationship between per capita GDP and house prices and Fraser, Hoesli and McAlevey (2010) suggest that there is a long-run relationship between house prices and income. Stepanyan, Poghosyan & Bibolov (2010) suggest that GDP and external financing are significant drivers of house prices in the FSU countries. A very contrasting view to these findings is with Vizek (2010) who believes that income and interest rates are co-integrated to house prices in the long run, but that the model can do without income but not without interest rates.

Vizek (2010) suggests that only interest rate changes explain house price behaviour in the majority of cases. Klyues (2008) suggests a link between house prices and real rents and interest rates and Egert and Mihaljek (2007) studied 27 countries and established 'robust' relationships between house prices and interest rates. This belief is contrary to our findings as we have <https://assignbuster.com/a-visit-to-a-beautiful-place-essay-sample/>

established that there is no significant relationship between house prices and interest rates. Our findings are in line with the empirical models cited in McQuinn & O'Reilly (2007) that house prices fail to achieve credible results concerning the impact of interest rates. We can say that using interest rates as a determinant of house prices depends on the country that is being analysed.

Our findings establish that there is a significant statistical relationship between house prices and inflation (non-housing goods and services). The results are consistent with Anari and Kolari (2002) who suggest that house prices and inflation (non-housing goods and services) are co-integrated and with Tsatsaronis and Zhu (2004) who suggest that there is a long lasting link between house prices and inflation.

5. 2 Quantitative Discussion

Anari and Kolari (2002) tested the significance of the effect of inflation as a determinant of house prices using the Fisher coefficient estimates. The coefficients range from 1.19 to 1.42 suggesting that a 1% increase in the rate of inflation would lead to approximately 1.19% to 1.42% increase in house prices. The research findings in this case show that when inflation is tested as an individual determinant of house prices, then at 99.9% confidence i. e. the P-value of 0.00058, we can suggest that a 1% increase in inflation would increase house prices by 2.2%. However, when inflation is tested with the other independent variables income and interest rates as determinants of house prices, then the results show that 1% increase in inflation cause 1.9% increase in house prices. The latter is consistent with

the findings by Anari and Kolari (2002) of 1.19 - 1.42% and Egert and Mihaljek (2007) of approximately 2.0%. The results from this paper and results from past literature may vary as the countries and data series used for each research are different.

The P-values and coefficients for income and interest rate from the multiple regressions suggest that we can be 100% confident that a 1% increase in income would cause 0.7924% increase in house prices. Vizek (2010) found that at 95% confidence intervals, a 1% increase in income (GNP) would cause 0.78% increase in house prices. However we can be only 17.12% confident that a 1% increase in mortgage interest rate would cause 0.0110% increase in house prices. The findings for interest rates are not statistically significant, hence suggesting that interest rates and house prices may contain an inverse relationship. Vizek (2010) studied the determinants of house prices in the central, eastern and western Europe and found that at 99.9% confidence level, a 1% increase in interest rate cause -1.1% in house prices in Ireland.

The findings for correlation for this research stood at 57.53% for income and house prices; 16.17% for mortgage interest rates and house prices and 44.53% for income and house prices. It is generally accepted that interest rates and house prices move inversely and have a negative relationship. In this case, correlation is significantly low for interest rate and house prices as well as the P-value is higher than 0.01 and 0.05 which suggests that the result is statistically insignificant. However inflation and income have high correlation values and significant P-value. According to Vizek (2010), there is 67%

correlation between income and house prices and -2% between interest rates and house prices in Ireland.

Hence the findings from the regression analysis are consistent with past literature and academic research.

6. Conclusion and Recommendations

In this paper we have looked at the importance of a number of macroeconomic factors affecting the dynamics of Irish residential real estate prices. The aim of this paper was to detect the most important house price determinants in the long run (Over 14 years). The results of the study reveal that income (GNP) and inflation (CPI excluding house prices) matter the most for house price behaviour in the long run.

Based on the above, we formed three hypotheses unique to this research. Hypothesis one states that, a relationship exists between income and house prices. Hypothesis two states that there is a relationship between interest rates and house prices. Hypothesis three states that there is a relationship between inflation and house prices. Hypotheses one and three are not rejected, hence conforming to the economics theories outlined in section two and past academic literature. However hypothesis two was rejected based on the specific statistical findings in this research. Empirical studies suggest similar results for income and inflation as house price determinants. Interest rate is still a determinant of house prices but consists of an inverse (negative) relationship i. e., an increase in mortgage interest rates leads to decrease in house prices. In looking at available literature of interest rates as

a determinant of house prices it was found that the formulation of such a relationship statistically can be difficult.

The determinates of house prices used for this research should be further tested in a broader sense, using broader economic models and analytical tools (software packages) which would help better understand the determinant relationship between the research variables. This particular research can be useful to understand a few of the determinants of house prices and the underlying economic theory.

The housing market is still changing and it is a highly volatile economic segment. Income and house prices continue to follow the downward trend since early 2008. As of January 2012, residential house prices in Ireland have fallen by 46.3% since its peak in 2008. It is speculated to continue to fall for the foreseeable future which is leading to changes in economic policies in order to provide more stability in the determinants of the Irish housing market.

Income

According to Barr (2004), a general definition of income is the consumption and savings opportunity gained by an entity within a specified time frame, expressed in monetary terms generally. Case and Fair (2007) define income for households and individuals as: “ income is the sum of all the wages, salaries, profits, interests payments, rents and other forms of earnings received... in a given period of time”.

Interest Rates

According to Brigo and Mercurio (2006) an interest rate is the rate at which
<https://assignbuster.com/a-visit-to-a-beautiful-place-essay-sample/>

interest is paid by a borrower for the use of money that they borrow from a lender. Interest rates, of which mortgage rates are one variant, are normally expressed as a percentage of the principal for a period of one year.

Inflation

Frisch (1983) states that in order to define inflation, we describe the symptoms of inflation itself as there is no widely accepted definition of what inflation really is, or what causes it. Inflation is as stated by Laidler and Parkin (1975): “ a process of continuously rising prices, or equivalently, of continuously falling value of money.”

8. References

Anari, A. and Kolari, J. (2002) ‘ House prices and inflation’, Real Estate Economies, Vol. 30, No. 1, pp. 67-84.

Banerji, A., Haiyan, S., Hilbers, P., Hoffmaister, A. (2008) House Price Developments in Europe: A Comparison. International Monetary Fund

Barr, N. (2004) Problems and definition of measurement in Economics of the welfare state. Pages 121-124. New York: Oxford University Press

Baumol, W. J. and Blinder, A. S. (2011), Economics: Principles and Policies New York: Cengage Learning

Brigo, D. and Mercurio, F. (2006) Interest rate models: theory and practice: with smile, inflation and credit (2nd Ed) Springer Finance

Bryan, M. F. (1997) On the origin and Evolution of the word “ Inflation”, Federal Reserve Bank of Cleveland

<https://assignbuster.com/a-visit-to-a-beautiful-place-essay-sample/>

Burfisher, M. E. (2011) Introduction to Computable General Equilibrium Model, London: Cambridge University Press.

Case, K. And Fair, R. (2007) Principles of Economics. Page 54. Upper Saddle River, NJ: Pearson Education

Egert, B. and Mihaljek, D. (2007) ' Determinants of house prices in central and eastern Europe', Comparative Economic Studies, Vol. 49, pp. 367-388.

Fraser, P., Hoesli, M., McAlevey, L. (2010) House Prices, Disposable Income and Permanent and Temporary Shocks: The N. Z., U. K. And U. S. Experiences. Swiss Finance Institute Research Paper No. 09-42.

Frisch, H. (1983) Theories of Inflation: Cambridge Surveys of Economics Literature, Cambridge University Press

Goodhard, E., Hofmann, B. (2007) House prices and the macroeconomy: implications for banking and price stability (Illustrated Ed), Oxford University Press

Klyuev, V. (2008) ' What goes up must come down? House prices dynamics in the United States', IMF Working Paper: International Monetary Fund Vol. 8, Issue 187.

Laidler, D. and Parkin, J. M. (1975) Inflation - a Survey, Economics Journal 85 (December Ed) Pages 741-809

Mankiw, G. N. (2002) Macroeconomics (5th Ed) Worth Publishers

McEachern, W. A. (2011) *Economics: A Contemporary Introduction*, New York: Cengage Learning.

McKenzie, D., Betts, R., Jensen, C. (2010) *Essential of Real Estate Economics* (6th Ed) Cengage Learning

McQuinn, K. and O'Reilly, G. (2006) 'Assessing the role of income and interest rate in determining house prices', *Financial Stability Report*, pp. 123 - 131.

McQuinn, K. and O'Reilly, G. (2007) 'Assessing the role of income and interest rate in determining house prices', *Economic Modelling*, Vol. 25, pp. 377 - 390.

Stepanyan, V., Poghosyan, T., Bibolov, A. (2010) *House Price Determinants in Selected Countries of the Former Soviet Union*. International Monetary Fund

Tsatsaronis, K. and Zhu, H. (2004) 'What drives housing price dynamics: cross country evidence'. *BIS Quarterly Review*, pp. 65- 78

Vizek, M. (2010) 'Short run and long run determinants of house prices in eastern and western European countries', *The Institute of Economics Croatia*, pp. 27-59.

Vizek, M. (2010) 'Short run and long run behaviour of house prices in eastern European countries: A comparative approach', *Research Associate Institute of Economic - Croatia*, pp. 1-26.