A NOTE ON MEASURING THE AFFORDABILITY OF HOMEOWNERSHIP

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1. Introduction

In the late 1990s Irish house price inflation accelerated rapidly. At the same time the booming economy delivered strong wage growth and entry to Economic and Monetary Union resulted in interest rates falling to exceptionally low levels. The average new house price in 2003 was €224,567, an increase of over €26,000 on the 2002 average price and over double the average price in 1997. Housing output from the construction sector has also risen rapidly with each year since 1995 setting a new peak for completions. A regular question is how developments in the housing market and the overall economy affect housing affordability. Although initially seeming to be a relatively simple concept the measurement of affordability is not without its difficulties. Indeed, alternative measures can show a different picture of the affordability of homeownership for the same time period. Despite these difficulties the importance of housing affordability means that a number of alternative measures have been developed and are produced regularly internationally.[1]

This note describes a number of alternative measures of the cost of homeownership in Ireland. It does not deal with the issue of housing policy and how housing policy might deal with the broader issue of affording accommodation, be it rented or owned. This is dealt with by Tony Fahey in an accompanying article in this volume.

2. Trends in Housing Affordability

The recent property price boom in Ireland has generated interest in the affordability of housing. Measures of affordability such as house price to income ratios give some indication of difficulty in accessing the housing market. However, more commonly, measures look at the ability to repay a mortgage on becoming a homeowner. The measures that are generally used are based on a series of ratios designed to provide an indication of affordability at a point in time and are concentrated around income, mortgage, house price and loan data. Table 1 gives annual averages for some of the variables

[1] For example the National Association of Realtors in the US (www.realtor.org), the Office of the Deputy Prime Minister in the UK, (www.odpm.gov.uk), and the HIA-Commonwealth Bank measure in Australia (www.research.commsec.com.au).

used in the construction of affordability measures and the measures themselves.

Table 1: National Affordability Indicators, Annual Averages

	1980-85	1985-90	1990-95	1995-2000
Personal Disposable Income, euro	15,389	20,558	26,071	35,879
Representative Mortgage Rate, %	13.4	10.6	10.0	6.5
Average New House Price, euro	42,601	53,187	70,388	118,405
Loan-to-Value ratio, %	53.7	60.6	61.3	59.0
Mortgage Cost//Personal Disposable Income, %	22.6	19.6	19.9	17.2
Deposit/Personal Disposable Income, %	27.9	25.8	27.0	32.4
House Price/Personal Disposable Income	2.8	2.6	2.7	3.2

Sources: ESRI, CSO and Department of the Environment.

Measuring the affordability of homeownership is not without difficulty. Analysis has been hampered by the fact that income data tends to be at an aggregate national level and consistent data in Ireland is confined mainly to the industrial sector.[2] Furthermore, there is a wide distribution of earnings across the economy. Thus, use of a national average will not capture the full range of affordability. Average earnings do not take account of borrowers using two salaries to repay their mortgage. Measures of affordability must also make assumptions about loan to value ratios. Commonly the borrower is either assumed to be taking a 90 per cent mortgage or to have a loan-to-value ratio in line with the national averages that can be calculated from the Department of the Environment *Housing Statistics Bulletin*. Another data constraint was highlighted by the authors of the Bacon reports (1998, 1999, 2000), who noted that their affordability calculations are *based on the average new house price paid by all buyers. However, there is considerable variation around this average*. Within these, and other limitations, attempts have been made to construct affordability measures.

3. Measuring Affordability

A number of alternative methods of measuring affordability tend to be commonly used. The measures can be broadly divided into those that consider access to the housing market and those that measure the affordability of repaying the mortgage debt.

Access to the housing market

1. house price to earnings ratio;
2. loan to income ratio;
3. deposit to income ratio.

Repayment of Mortgage Debt

4. service cost of the mortgage stock;
5. debt-service to income ratio;
6. housing expenditure to total expenditure ratio.

In this section these alternative measures are constructed. The different measures can reveal a very different picture of

[2] For a discussion of this with regard to the Dublin Housing Market see M. Finnegan, (1997).

developments in affordability. Much of the difference emerges depending on whether you are considering access to the housing market or the cost of servicing the cost of a mortgage once you become a homeowner.

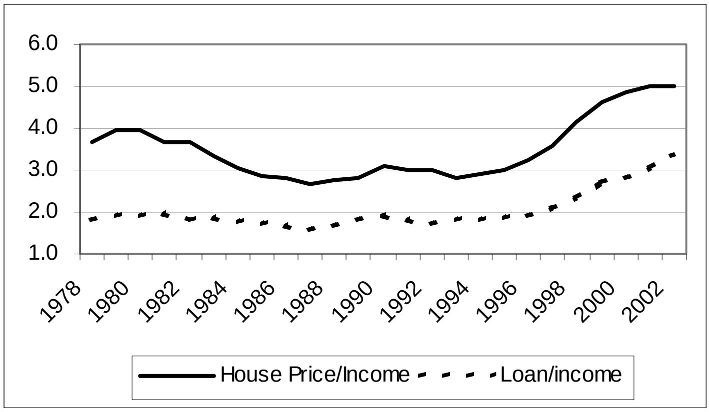
In assessing the alternative measures it is important to remember the data constraints within which they are constructed. Most of the measures are constrained by the data issues outlined in Section 2. A mismatch exists between data for the housing market and income data. House price and mortgage data by its nature relates to those who have purchased a property. However, average personal disposable income data is an economy wide measure that includes those who do not own a dwelling. National averages do not provide any insights into how affordability may vary regionally. Income, house price and loan data are macro averages and so do not capture the distribution of affordability across different income groups. This distribution can be very important from a macroeconomic perspective. For example, a rise in interest rates could have a much more severe impact on sections of the economy not represented by the national average, e.g. those on low to moderate incomes and/or those who have stretched themselves financially to buy a dwelling. This group could suffer a sharp decline in affordability and as a consequence many could be forced to sell their houses at the same time. This would occur at the same time as house price growth was already moderating as a result of the interest rate rise. Given the importance of price expectations in the housing market, the combination of higher interest rates, reduced affordability and a large number of house being placed on the market would have a very serious negative impact on the Irish housing market. This type of scenario means that it is important that we understand what is happening in the housing market across the full distribution of incomes and house prices.

3.1 Access to the Housing Market

HOUSE PRICE TO INCOME RATIO AND LOAN TO INCOME RATIO

Figure 1 shows the ratio of house prices to personal disposable income and the ratio of mortgage loan to personal disposable income. Both follow a similar trend. As is evident the ratio of house price to income peaked in 1979 before declining steadily until 1987. Following a short-lived increase until 1990 the ratio declined until 1995 before increasing sharply. Since 1999 the ratio has risen to levels above the previous recorded high of 4 in 1979. Although there has been a stabilisation in this ratio between 2000 and 2002 the most recent data from the Department of the Environment suggests a further deterioration in 2003. It is worth noting that a similar stabilisation has not occurred in the loan to income ratio, confirmed by a rising loan-to-value ratio.

Figure 1: Ratio of House Prices and Mortgage Loans to Income

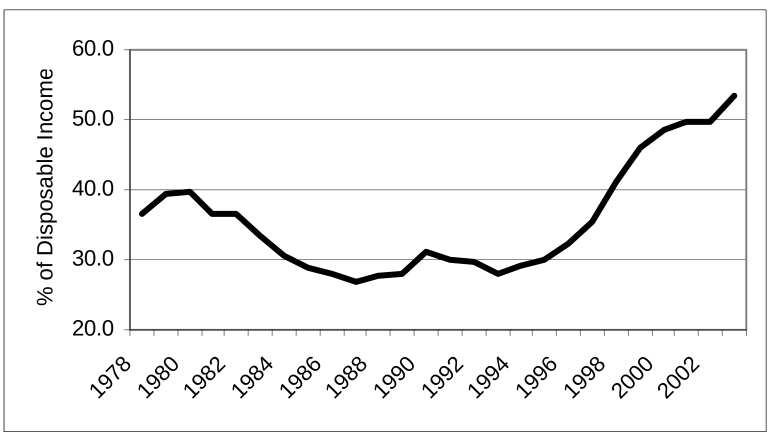


DEPOSIT TO PERSONAL DISPOSABLE INCOME RATIO

The rise of house prices and the house price to income ratio suggests that saving for a deposit has become more difficult. As put by Gyourko and Tracey (1999), "While lower interest rates reduce the income necessary to purchase a home, they do not directly reduce the down payment requirements." Mayer and Engelhardt (1996) find that savings for a deposit is the main constraint to homeownership. Green (1995) suggests that this ratio gives a sense of the deposit burden relative to incomes. In recent years the ratio of house prices to personal disposable income has been five-to-one. Given that the minimum deposit is 10 per cent this implies that households need to accumulate 50 per cent of one year's disposable income to purchase a house. Figure 2 shows a deposit ratio, the required deposit as a percentage of disposable income, assuming a 90 per cent mortgage. This is similar to the access measure used in the UK and Australia.

Figure 2: Deposit as Per Cent of Personal Disposable Income

(Deposit assumed to be 10 per cent of new house price)

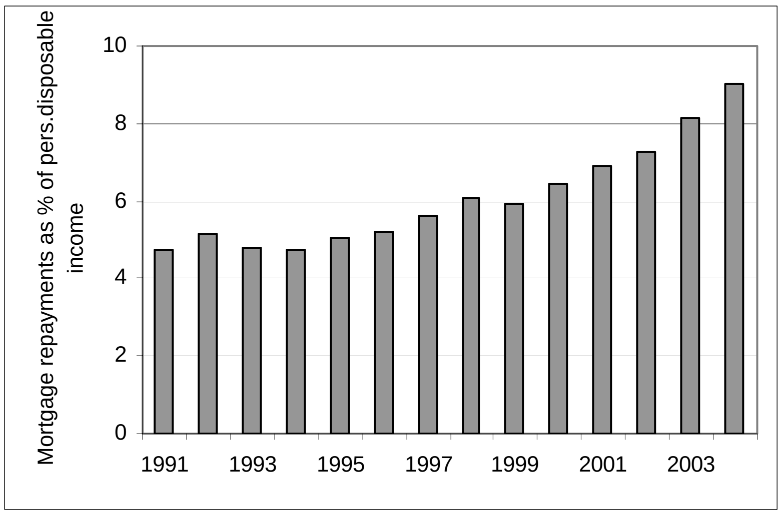


3.2 Repayment of Mortgage Debt

SERVICE COST OF THE MORTGAGE STOCK

A broad indicator of affordability trends can be constructed using data on the level of outstanding mortgages, taken from the Central Bank *Quarterly Bulletin*. This measure is also constructed by the Bank of England. Based on an assumption that the average length of the stock of outstanding mortgages in Ireland is 10 years then it is evident from Figure 3 that affordability has deteriorated since 1991. In 1991 repayment of mortgage principal and interest accounted for 4.7 per cent of personal disposable income. By 1996 this had risen to 5.2 per cent. The house price boom has resulted in an increase to 8.1 per cent in 2003. This measure is very dependent on the assumption regarding the average term of the mortgage stock. For example, if it is assumed that the average term is 12 years then this presents a more favourable picture of affordability.

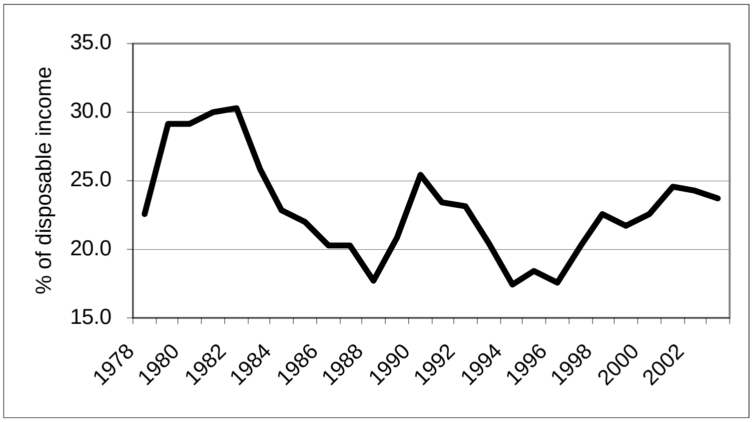
Figure 3: Service Cost of the National Mortgage Stock



MORTGAGE SERVICE COST AS A PERCENTAGE OF DISPOSABLE INCOME

Figure 4 shows mortgage service cost for new houses. This indicates a different trend in affordability of homeownership in recent years. On the basis of this measure affordability deteriorated during the price boom, but there has been an improvement in affordability as measured by mortgage service costs since 2000. The recent rise in Irish house prices has been much faster than income growth, while the reduction in interest rates following accession to EMU has reduced the cost of servicing a mortgage once you are a homeowner. Recent statistics from the IIB Bank/ESRI Consumer Sentiment Survey would indicate that those that have purchased a dwelling since 1999 do not, in general, perceive their mortgage repayments to be a difficulty. Of those that bought a dwelling since 1999 over 55 per cent indicate that their mortgage repayments are somewhat of a burden. A further 25.5 per cent indicate that their mortgage repayment is no burden at all, while 19.3 per cent indicate that their mortgage repayment is a burden.

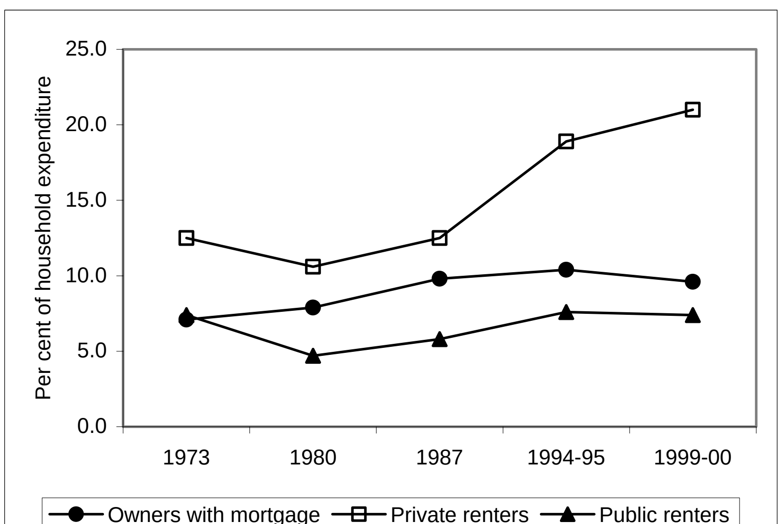
Figure 4: Mortgage Service Cost as Per Cent of Personal Disposable Income



HOUSING EXPENDITURE TO TOTAL EXPENDITURE RATIO

This approach is a variation of the housing expenditure to income ratio and was adopted by Fahey, Nolan and Maître (2004) in an analysis of Household Budget Survey data that included the rental sector, see Figure 5. Total household expenditure is used as "expenditure is usually regarded as less liable to under-reporting in survey data than income". The main change has occurred in the private rented sector, where the share of total household expenditure going on rent has risen rapidly since 1987, from 12.5 per cent to 21 per cent by 1999-2000. For owner-occupiers with mortgages there has been some deterioration since 1973 with the share of total expenditure accounted for by mortgage payments peaking at 10.4 per cent before falling slightly to 9.6 per cent in 1999-2000.

Figure 5: Weekly Rent/Mortgage Payments, (as per cent of total housing expenditure, 1973-2000)



Source: Fahey, Nolan and Maître (2004).

4. Conclusions

Affordability is a complex topic, driven by house prices, mortgage amount, interest rates, after tax incomes and wealth. Traditionally affordability measures have either focused on the cost of gaining access to the housing market, a house price to income ratio, or on the cost of servicing mortgage debt once you become a homeowner. However, these measures can portray different pictures of affordability for the same time period. A further note of caution can be taken from Weicher (1978), who finds that *in general, affordability measures have no predictive power; correlations between affordability and actual market behaviour are insignificant.*

Mayer and Engelhardt (1996) in an analysis of gifts and house purchase included in their conclusions a call for *broader measures of affordability that incorporate both house prices and the effect of interest rates, as well as income.* The differing patterns of affordability suggest the need for an affordability index that deals with access to the housing market as well as affordability of homeowners.

Affordability as measured by mortgage service costs suggest that the affordability of owning a home has improved in recent times. However, this indicates that affordability of homeownership once you have purchased a property has improved. Alternative measures such as the ratio of house price to income or measures based on the required deposit would indicate that access to homeownership has not improved and remains difficult.

Data constraints would suggest that affordability measures can for the moment be viewed only as providing an overall picture. When considering the affordability of repaying mortgage debt some of the data issues can be dealt with by using the measure based on mortgage expenditure as a percentage of household expenditure. This overcomes the problem of using macro data as the available data is based on the *Household Budget Survey* and so uses micro data that captures the range of incomes across the economy. Unfortunately the benefit gained has an associated cost of timeliness.

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