National Economic
Social Council NESC

Housing in Ireland:
Performance and Policy

Background Analysis

The Interaction of Supply and Demand

5.1   Introduction

The price, quantity and quality of private housing are shaped by the interaction of supply and demand. It is clear from earlier Background Papers that a range of factors (including the increased disposable incomes, a rise in the population in the household formation age and lower interest rates) led to a sharp increase in the demand for housing in Ireland during the 1990s.

On the supply side, the stock of housing in Ireland was and is still lower than other EU countries of comparable income levels. A key characteristic of housing is that it is an asset with a long life span (measured in hundreds of years) and that it takes time to adjust the housing stock. Given these features of housing, the sharp increase in demand would be expected to result in significant price increases and an increase in housing output. It is clear that both of these have occurred. This Paper examines the quantitative research evidence on these adjustments.   Section 5.2 examines the evidence from econometric research on whether the rise in house prices that occurred can be explained in terms of changing underlying conditions. For the most part this research has focussed on the relationship between house prices and the elements that drive housing demand. Section 5.3 reviews the research on whether the rise in housing output that occurred is what would be predicted from the changing market situation. The housing market seems to have been under the most pressure in the Dublin area and Section 5.4 examines the adjustment of housing supply and demand in Dublin. Section 5.5 addresses the issue as to whether housing has become less affordable in recent years.

5.2   House Pricing and Economic Fundamentals

National House Prices

Several studies have examined whether the rise in house prices can be explained as a result of changes in economic fundamentals. The general approach (with one exception of Roche (2003)) has been to relate changes in house prices to factors that drive demand such as income, demographics and so on. The rationale for focusing on demand rather than supply factors is that the housing stock changes slowly so that house prices in the short run are mainly demand driven.

The first formal examination of Irish house prices in recent years was contained in the first Bacon report (Bacon, Murphy and Mac Cabe, 1998). This study related house prices to the following variables: the rate of change in the lagged value of real per capita personal disposable income, the housing stock per capita, the user cost of housing and the proportion of the population in the household formation age group (25 to 34). The equation was estimated for the period 1974 to 1996 and the variables were generally highly statistically significant. The relationship appeared to be stable and there was a correlation coefficient of 86 per cent, indicating that these variables could account for a high proportion of the variation in house prices over this period.

This relationship (i.e., using the same variables) was subsequently estimated with more recent data (1974 to 1999) by Murphy and Brereton. The extra data corresponded to a period of very fast price increases. The relationship between house prices and these demand variables was no longer a stable one. The ability to forecast/explain recent price increases was examined using the following approach: the relationship was estimated using the data for 1974 to 1996 and the model estimated for this period was then used to forecast price levels for the years 1997 to 1999. The forecasted price levels were then compared to the actual price levels for this period. Actual prices levels were significantly higher than predicted. This is an indication that speculative factors could have been driving house prices. The results suggested that house prices in 1999 could have been 20 per cent higher than their fundamental value.

A number of other studies that used somewhat different but similar sets of demand variables also estimated that house prices in the late 1990s were higher than might be expected (Bacon and Mac Cabe, 2000; Stevenson, 2003 and IMF, 2003). For example, the forecast value of house prices in 2000, based on the demand model of Bacon and Mc Cabe was around €89,000 while the actual average was around €165,000. Bacon and Mac Cabe inferred from this that speculative or transitory factors could have contributed significantly to the level of housing demand by 1999.

The research findings are consistent on the evidence of prices growing faster than would be expected based on fundamentals in the late 1990s. This can be interpreted in more than one way. One possible explanation of this is that a bubble was beginning to form in the late 1990s, whereby prices were increasing on the basis of previous price increases and had become divorced from the underlying value of the asset. However, the rise in prices above their fundamentals value can also be understood as a gradual adjustment process. With the sharp rise in demand, it is not possible for the stock to rise immediately to reflect the higher demand. Higher prices are used to allocate the stock in the short run and, for a while, prices rise above their underlying value. The appropriateness of each of these interpretations to Irish house price developments is considered below.

An important issue is whether *current* prices are underpinned by fundamentals. There are three studies that use data to 2001 or 2002. The first study is that by the IMF (2003). This study modelled house prices as a function of real disposable income, real mortgage rates and the proportion of the population in the household formation age group (25 to 35). When actual prices are compared to those

estimated from their preferred model of house prices (estimated using data from 1976 to 2002), house prices were 16.5 per cent above their equilibrium value in 2002. If the relationship is estimated omitting the most recent years of rapid price growth (on the basis that the underlying relationship should be viewed excluding this period) then the implied deviation of actual house prices from their fundamental value could exceed 50 per cent in 2002. On the other hand, an alternative specification of house prices that included construction costs found that house prices in 2002 were close to their estimated level (using the data up to 2002 to estimate the model). The IMF study does not draw definite conclusions from these results. It notes that, 'as long as the change in demand that seemed to have occurred during the 1990s is permanent, the sustained rise is quite consistent with the strong fundamentals'. On the other hand, 'it is possible that the housing boom itself spurred changes in market psychology and led to a temporary change in demand behaviour. In this case house prices would be considerably above their long run equilibrium values, indicating a bubble' (IMF: 2003: 29).

The second study that covers this most recent period is Stevenson (2003). Stevenson models house prices as a function of the following demand variables: population, real disposable income per capita (current and lagged), per capita housing stock, consumer confidence, employment and the user cost of housing. Stevenson tests for the presence of a bubble by comparing actual prices to those forecast one year ahead by the model. As noted above he estimated that prices were above their fundamental value in the late 1990s (ranging from a premium of 11.7 per cent in 1997 to 18.1 per cent in 1999). However he also estimates that the premium fell in 2000 and by 2001 he estimates that prices had returned to their fundamental value.

The final study that incorporates the most recent house price data is that of Roche (2003). The approach of Roche differs from the other studies in that he argues that prices should be modelled as a function of both demand and supply variables. House price values estimated from his model (using data to 2002) track actual house prices very closely and in 2002 actual house prices were just 0.2 per cent over their estimated value. He also adopts the approach of other researchers of estimating his model excluding the most recent years of data (up to 1997), and comparing actual house prices to those predicted by the (pre-boom) model. Actual house prices in 2002 were 4.6 per cent higher than this estimate of prices.

A possible criticism of Roche's approach is that one of the supply side variables that he includes in his model is land prices. It can be argued that land prices are driven by house prices and hence should not be included as an independent variable used to explain house prices. Roche acknowledges this possibility and conducts a range of statistical tests on the causal relationship between land and house prices. The findings of these tests are that land prices cause house prices and not vice versa. However, he does not offer any economic

explanation as to why the causation works in this direction. It was argued in the second Background Paper that land prices are mainly determined by house prices as developers bid up the prices of the available land to eliminate excess profits although the overall supply conditions of land are important.

What can be inferred from these three studies of whether current house prices are underpinned by fundamentals? Of the three studies, just one (the IMF study) finds possible evidence that current house prices are significantly above their fundamental value. Even this study does not draw the inference that house prices are clearly significantly over valued. This would only be the case if there had been no change in demand behaviour in recent years. On balance, the current evidence does not provide much indication of house prices being significantly overvalued.

Regional House Prices

Most of the research on modelling house prices has focussed on national house prices. While house prices are available at sub-national level, most of the relevant explanatory variables are only available nationally. One study that constructs regional house price models is that by Stevenson. He uses the national data as his explanatory variables, with the exception of the user cost of capital which he estimates separately for each region (using the regional house prices). Models of house prices are estimated for Dublin, Cork, Limerick, Galway, Waterford and other areas. The broad pattern of results is similar to the national results. In each case prices were above their forecast value in the late 1990s and had returned to their predicted values by 2001. The one exception was Waterford in which there continued to be a premium in 2001. The premiums that existed to forecast values in Dublin in the late 1990s were higher than the corresponding national estimates.

Demand Elasticities

Estimates of the income elasticity of house prices are presented by Bacon and Mac Cabe (2000). The income elasticity of prices is the effect of a 1 per cent increase in income on prices. Using data from 1972 to 1996 it was estimated by Bacon and Mc Cabe that the long-run effect of a 1 per cent increase in disposable income was to increase prices by 1.2 per cent. However, using data that extended from 1972 to 1999 it was estimated that the effect of 1 per cent increase in disposable income was to increase prices by 4 per cent. The first estimate is within the range of estimates in the UK housing literature (1.5 to 3) but the second estimate is considerably higher than this range (Meen and Andrews, 1998). The large increase in the income elasticity of prices that occurred with the addition of the data for 1997 to 1999 points to a speculative or transitory element in house prices in the late 1990s.

The price elasticity of demand refers to the percentage change in housing demanded that results from a 1 per cent change in prices. Estimates of the price elasticity of demand are also presented by Bacon and Mac Cabe (2000). The elasticity of housing demand for the period 1974 to 1996 was estimated at around an average of 0.3. It fell sharply in the period since 1995 and by 2000 was

estimated at around 0.1. This means that a 1 per cent increase in prices was associated with a reduction in the quantity demanded of just 0.1 per cent. This implies very low responsiveness by house buyers to higher prices.

5.3   Modelling Supply

The first study that modelled housing supply in recent years was that of Bacon, Mac Cabe and Murphy (1998). This study estimated a model of housing completions with the following variables as the explanatory factors:

◆ House completions in the previous year;

◆ Change in real house prices;

◆ Real house prices in the previous years.

All of these factors were shown to be statistically significant and this equation was able to explain a high proportion (86 per cent) of the variation in housing completions over the period 1974 to 1996. In other specifications the relationship between construction costs and housing completions was examined. These did not emerge as statistically significant and the sign was the opposite of that expected by the authors in some instances (higher costs were associated with higher housing completions). The finding of construction costs being statistically insignificant in explaining completions was replicated in several other studies.

This model of housing supply was re-estimated by Murphy and Brereton using more recent data (1974 to 1999). The relationship was still reasonably stable, but housing output in the late 1990s was somewhat less than that predicted by the model. This finding of housing output being less than predicted in this period was replicated by Duffy *et al.* (2001). However, such an analysis is by its nature retrospective and has the benefit of hindsight including outturn numbers for population, including immigration, interest rates and economic growth, An alternative means of examining supply is to look at the number of units delivered compared to the number forecast to be required at the time. When supply is examined in this way it shows that the actual number of units supplied consistently exceeded forecast levels of demand.

While three studies found that housing output was less than might be expected on the basis of economic fundamentals in the late 1990s, the most recent study by Brereton found that in recent years housing output was greater than would be predicted. Bacon and Mac Cabe (2000) provided future forecasts of private housing completions for the years 2000 to 2005. Actual housing completions over this period have been close to their forecasts; in 2002 they forecast completions of 51,740 while actual completions were 51,930. Hence, it would appear with the initial rise in house prices, completions were less than would be expected given the higher prices, but that private housing completions are now in line with or possibly ahead of what would be expected given the fundamentals.

The short-run elasticity of supply was estimated by Bacon, Mac Cabe and Murphy to be 0.92. This implied that 1 per cent increase in prices was associated with an increase in supply of 0.92 per cent. However, it was also estimated that allowing

for adjustment over time that the long run elasticity was higher and equal to three. A subsequent estimate of the long-run elasticity of supply by Bacon and Mac Cabe (2000) using data up to 1998 estimated that it had fallen to 1.5. This suggests that the supply responsiveness of the market to price increases fell in the late 1990s.

5.4 Supply and Demand in Dublin

The supply of housing in the Greater Dublin Area was discussed in considerable detail in Background Paper 4. It is in Dublin and the surrounding area where the market has been under the greatest pressure. House prices in Dublin in the second quarter of 2004 were 30 per cent above the national average (which includes Dublin). The price premium for Dublin fluctuates over time, tending to fall when economic growth is weak and rising at times of buoyant growth. The price premium fell in the early 1990s from 23 per cent in 1990 to 8 per cent in 1993. It then increased sharply over the period of buoyant growth from the mid-1990s, rising to 33 per cent in 2000. It has fallen slightly since then.

The increase in the price premium for Dublin over the period of buoyant growth could arise from both demand and supply factors. The pressures driving demand have been strongest in the Dublin area. The growth of per capita disposable income in Dublin city and county has been close to the national average (but from a higher base) and was above the national average in the Mid East region. Employment growth has been stronger than the national average in the East region. While the employment in the total economy grew by 48 per cent over the period 1993 to 2002, it grew by 57 per cent in the East region and by 50 per cent in Dublin. Employment growth figures are based on the location of residence rather than the workplace so these figures understate the concentration of employment growth in Dublin and to some extent in the East, given the growth of commuting.

Turning to supply, the increase in housing output in Dublin and the East region has been slower than the national average. While national housing output grew by 169 per cent over the period 1993 to 2002, it increased by just 17 per cent in Dublin City, by 79 per cent in Dublin City and County and by 130 per cent in the East region. As an area that is already developed one would expect slower housing output growth in Dublin City. These figures somewhat understate the relative supply response in the Dublin area insofar as primary residences are concerned in that they include second homes, the output of which is lower in the Dublin area, as discussed in Background Paper 4. Furthermore new housing output is not a comprehensive measure of new housing units being made available to the market insofar as these also come from existing stock.

It was estimated by Bacon Mac Cabe and Murphy (1998) that the responsiveness of housing output to increased prices in Dublin (city and county) was significantly less than the national average. The long run supply elasticity for the country as a whole was estimated at 3 (indicating that a 1 per cent increase in prices led to an eventual increase in housing output of 3 per cent) while the corresponding figure for Dublin was 1.8.

It seems clear that the imbalance between supply and demand has been greatest in Dublin. The apparent excess demand relative to supply that exists in the Dublin area raises the question as to whether the hoarding of land is contributing to the problem of housing supply in Dublin. However, this does not appear to be that significant a factor in practice: the local authority managers that were consulted by the Secretariat in the course of this study were of the view that the with-holding of land from development was not a problem. The recent figures on land supply for the Dublin area (see Background Paper 4) suggest that the supply of serviced land currently available is reasonably satisfactory in terms of current output. Notwithstanding the above, the issue remains is to whether the available land in Dublin is being used in the most effective way in terms of meeting housing needs. The relative importance of land hoarding and the adequacy of zoned and serviced land in explaining supply is considered in Chapter 3 of the main report.

5.5   Evolution of Housing Affordability

5.5.1   Introduction

The net effect of the interaction of supply and demand factors has been a very substantial increase in house prices. There are a number of ways to measure levels and changes in affordability for the individual. These include:

◆ The user cost of housing, which gives an indication of the relative price of holding housing and other assets. While the user cost is an important variable in explaining demand it is not very useful when considering affordability as it takes no account of the individual's ability to pay for the asset;

◆ Measures of entry cost or the costs of accessing the market (the deposit on a house plus transactions costs), relative to income. These allow us to assess the hurdle to home ownership and the degree to which wealth transfers (such as parental gifts) allow some to overcome that hurdle;

◆ Mortgage repayments on an average new house as a percentage of average post-tax income (for a single earner or dual earners), which gives an indication of overall effects of changes in house prices, earnings, taxes and interest rates;

◆ The purchasing power of income remaining after housing costs have been taken into account. This reflects the level of goods and services which can be consumed after housing has been paid for and can vary across time and across income. In particular, while two households might expend the same percentage of income on housing an individual household on a higher level of income can afford to expend a greater percentage of that income on housing and still be left with sufficient income for the consumption of other goods and services;

◆ Survey evidence of expenditure on housing as a percentage of total household expenditure, which gives an indication of the burden of housing costs in a range of actual households;

◆ A categorical definition of affordability and non-affordability, an example of which is the government's definition of affordability based on the percentage of net income required to service a given mortgage or pay rent.

One distinction evident in this list of measures is between the affordability of *access to* the market and the affordability of *repaying mortgage debt*. It is widely acknowledged that in examining trends in the affordability of mortgage repayments one must take into account changing real incomes, changes in direct taxation, changes in the tax treatment of mortgages and changes in both real and nominal interest rates.

There are a number of dimensions which make a discussion of trends in affordability complex. Depending on the exact timeframe chosen, affordability can be shown to have improved, disimproved or stayed the same. Depending on the income of the household used for calculation, affordability can be seen as unproblematic or a severe problem. Very different messages may also be drawn by looking at the state of the overall market as opposed to the position of various households within it.

To assess affordability we look not only at house prices, rents and incomes but also changes in the cost of borrowing and changes in the tax regime as they affect net income but also changes in tax relief available for both home purchase and rental relief over time. Our account attempts to answer two questions:

◆ Is housing in Ireland today less affordable than it was in the past?; and

◆ Are there categories or sub-categories of households that are facing an affordability crisis in housing?

In examining these questions we distinguish where possible between different groups:

◆ those households that have recently entered the housing market and those that have been in the market for some considerable time;

◆ between tenures;

◆ between those who reside in and around Dublin and elsewhere;

◆ between single earner and two earner households; and

◆ the different experiences of those in different income deciles.

The following sections examine the impact of recent changes in market price on the affordability of housing for individuals taking into account the individual's budget constraint which combines current income and access to wealth. They seek to examine the level of affordability given prices today and to see how this has evolved over time. There are a number of different measures of affordability which seek to reflect different conditions faced by different categories of household. None of them are entirely without their drawbacks and limitations. These limitations reflect the partial aspect of housing cost that each measure captures and the degree to which each is based on different averages. In the following sections we examine briefly changes in the user cost of housing, changes in the relative level of resources required to enter the housing market (point of entry costs), changes in the on-going cost of housing for people entering the housing market over time (on-going costs) and changes in the level of actual expenditure over time and across tenures shown by surveys of actual expenditure on housing (survey expenditures).

5.5.2   User Cost

The user cost of housing measures the cost of 'holding' housing relative to other assets. It reflects expected changes in the capital price and changes in the interest cost of financing the purchase. We have already seen that the user cost is a standard component of many housing demand equations. Given the high level of capital appreciation the user cost of housing in Ireland has been low in recent years. This low user cost has conveyed a substantial benefit to many of those in home ownership. However, while user cost provides a useful measure of the demand for housing it does not take into account individual's incomes or the ability to pay. It is not therefore a good measure of the affordability of housing. One can imagine situations where the user cost of housing was low – as was the case in Ireland in recent years – but that the actual monetary resources required to acquire housing – either at point of entry or on an on-going basis relative to incomes were high. Therefore even with low user cost housing might be deemed to be unaffordable either in general or for certain categories of people. The evolution of a form of User Cost in Ireland is presented in the third paper in the Background Analysis.

5.5.3   The Official Definition of Affordability

The Planning and Development Act, 2000, defines a person eligible for housing assistance from the State as "a person who is in need of accommodation and whose income would not be adequate to meet the payments on a mortgage for the purchase of a house to meet his or her accommodation needs because the payments calculated over the course of a year would exceed 35 per cent of that person's annual income net of income tax and pay related social insurance." In determining eligibility, the local authority should also take into account "half the annual income net of income tax and pay related social insurance of any other person who might reasonably be expected to reside with the eligible person and contribute to the mortgage payments" (Section 93: Planning and Development Act, 2000).

5.5.4   House Price Levels

Table 5.1 documents the substantial increases in house prices in Ireland during the 1990s and relates these to changes in average industrial earnings. House prices nationally rose from 4.10 times average industrial earnings in 1989 to 8.4 times average industrial earnings in the 2003. Given that provision of loan finance was traditionally based upon a multiple of gross earnings, housing has clearly become more expensive under this simple criterion.

Table 5.1 Ratio of Average New House Prices to Average Industrial Earnings (€)

	Nationwide	Dublin	Average Industrial Earnings (Gross)	Ratio (Nationwide)	Ratio (Dublin)
1989	58,178	68,393	14,174	4.10	4.83
1990	65,541	80,749	14,720	4.45	5.49
1991	66,914	78,715	15,365	4.35	5.12
1992	69,264	79,200	15,983	4.33	4.96
1993	69,883	75,539	16,842	4.15	4.49
1994	72,732	81,993	17,335	4.20	4.73
1995	77,994	86,671	17,719	4.40	4.89
1996	87,202	97,058	18,165	4.80	5.34
1997	102,222	122,036	18,772	5.45	6.50
1998	125,302	160,699	19,545	6.41	8.22
1999	148,521	193,526	20,677	7.18	9.36
2000	169,191	221,724	22,069	7.67	10.05
2001	182,863	243,095	23,835	7.67	10.20
2002	198,087	256,109	25,187	7.86	10.17
2003	224,567	291,646	26,845	8.37	10.86

In assessing changes in affordability we also need to take account of the changing tax take out of gross earnings. The 1990s have seen significant reform of the income tax system which has lowered the proportion of gross income taken in tax. Table 5.2 below compares house prices and net average industrial earnings. Thus while the ratio of house prices to average earnings before tax has risen by 104 per cent nationwide and 125 per cent in Dublin, the respective figures net of tax are 62 per cent and 79 per cent.

Table 5.2 Ratio of Average New House Prices to Net Average
Industrial Earnings (€)

	Nationwide	Dublin	Average Industrial Earnings (Net)	Ratio (Nationwide)	Ratio (Dublin)
1989	58,178	68,393	9,422	6.17	7.26
1990	65,541	80,749	9,910	6.61	8.15
1991	66,914	78,715	10,357	6.46	7.60
1992	69,264	79,200	11,008	6.29	7.20
1993	69,883	75,539	11,318	6.17	6.67
1994	72,732	81,993	11,951	6.09	6.86
1995	77,994	86,671	12,492	6.24	6.94
1996	87,202	97,058	12,938	6.74	7.50
1997	102,222	122,036	13,753	7.43	8.87
1998	125,302	160,699	14,632	8.56	10.98
1999	148,521	193,526	15,614	9.51	12.39
2000	169,191	221,724	17,562	9.63	12.62
2001	182,863	243,095	19,806	9.23	12.27
2002	198,087	256,109	21,082	9.40	12.15
2003	224,567	291,646	22,450	10.00	12.99

A recent paper from McQuinn, an economist working with the Central Bank, argues that two of the more generic measurements for affordability are the price to income ratio, as detailed above, and price to rent ratio, or the percentage yield from renting out housing, and that both these indices have diverged considerably from their long run average position (McQuinn, 2004). The price to income ratio is now 34 per cent above its long-term average and the price to rental ratio is 64 per cent above its long term average.

As these indices are both related to prices neither takes into account changes in interest rates and therefore access to cheaper finance. When McQuinn examines average house prices and average monthly mortgage repayments he finds that while house prices have grown by 150 per cent between 1996 and 2002, average mortgage payments have grown by just over 107 per cent. McQuinn shows that neither the ratio of mortgage repayments to disposable income nor mortgage repayments relative to rental yield is currently at an historically high level. While

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mortgage repayments relative to rental income is 15 per cent above its historical average, mortgage repayments to disposable income are actually 9 per cent lower than their average rate since 1980. The trend in nominal rents as monitored by the CSO as part of the consumer price index is presented in the table below.

Figure 5.1   Private Housing Rents Index
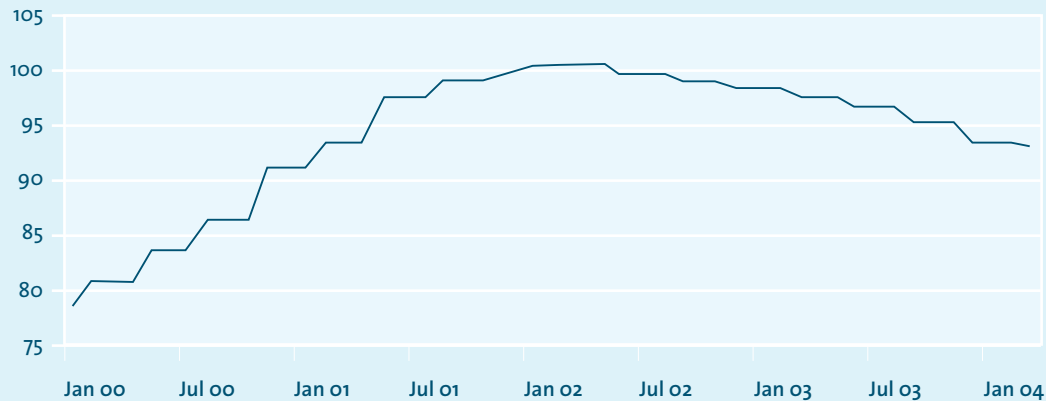
Source *CSO: from AIB ERU: The Irish Housing Market*

In the case of mortgage repayments relative to rental yield, while rents have been falling in real and nominal terms, we must also be aware that, in a low interest rate environment a larger proportion of the mortgage repayment is principal rather than interest. This will legitimately alter the investor's investment decision as rents may now contribute a higher level of principal repayment, thus helping the investor to not only service the debt but also acquire the asset, than at some times when interest rates were higher in the past (AIB, 2004: 26).

5.5.5 Access to Home Ownership

A considerable amount of capital is required in order to access housing particularly for those seeking to access owner occupation. These costs include the fixed cost of a deposit and additional transaction charges and taxes. One reason why such costs are high is that housing is a lumpy good and does not come in indivisibly small packages and therefore the distribution of house prices does not match income distribution. House prices have risen as interest rates have fallen coinciding with Ireland's entry into EMU. This reduction in interest rates has reduced the cost of financing loans for house purchase. However, the capitalisation of the reduced cost of finance into higher house prices has actually increased the point of entry costs relative to post tax income. To accumulate a 10 per cent deposit on an average new house today, an individual on average industrial earnings in manufacturing industries must save 100 per cent of one year's net pay as opposed to only 62 per cent of same in 1989. In the case of the

average Dublin house, a person on the national average industrial wage must acquire 130 per cent of annual net income to accumulate 10 per cent of the purchase price. In this sense the entry costs for housing for owner occupiers have become distinctly less affordable than in the past. The increase in point of entry costs has greatly increased the necessity for, and desirability of, obtaining wealth from other sources, often in the form of parental gifts. Therefore, those with access to parental or other support have been both less affected by this reduction in affordability and have been able to move swiftly to profit from changes in market conditions and expectations of rising prices relative to those who were wealth constrained.

5.5.6   Mortgage Payments as a Percentage of Post Tax Earnings

During the 1990s Ireland experienced:

◆ Rising real incomes;

◆ Reductions in the level of direct taxation;

◆ Falling interest rates in both real and nominal terms;

◆ Reduction in the real value of mortgage interest tax relief.

We have already noted that a combination of these factors combined with strong demographic pressures contributed to overall demand. We can also analyse the combination of these factors on changes in housing affordability, and in particular the on-going costs of servicing a mortgage on a property. Taking account of house prices, earnings, taxation, mortgage interest rates and mortgage interest relief we calculate the trend in housing in affordability for an individual on average industrial earnings purchasing an average new house on a 20 year mortgage, where the loan to value ratio is 90 per cent in the first year. The numbers are shown in the Table 5.3 and the trend is displayed graphically in Figure 5.2.

A 20 year mortgage is used throughout the sample period for consistency. To the extent that longer mortgages are prevalent this will over–estimate the percentage of income actually required to be expended. It is widely recognised that many young people are now taking out significantly longer mortgages which will lower the burden of repayments in initial years but which have in themselves been capitalised into higher house prices. The ability to take out a longer mortgage in part reflects an expectation in society that one will enter into home ownership at an early age. However, a longer mortgage also implies that a greater proportion of the monthly repayment is made up of interest and a lesser proportion from the repayment of principal. This implies a greater degree of vulnerability to any increases in the interest rate.

Table 5.3 Percentage of Net Average Industrial Earnings in Manufacturing Industry required for a single individual (with first time buyer status) to service a 90 per cent loan to value mortgage over 20 years on an average dwelling in the first year

	Nationwide	Dublin
1989	50.56%	61.25%
1990	65.15%	82.55%
1991	61.74%	74.29%
1992	62.96%	73.26%
1993	49.21%	54.13%
1994	42.15%	48.61%
1995	46.53%	52.51%
1996	48.67%	54.86%
1997	57.00%	68.31%
1998	67.07%	87.14%
1999	63.08%	83.32%
2000	66.91%	88.67%
2001	66.28%	88.95%
2002	62.54%	81.75%
2003	59.16%	77.90%

Source NESC Calculations

It can be seen from Figure 5.2 that the percentage of net income required fell in the early 1980s, rising again in the late 1980s and peaking in 1990. It subsequently fell to a trough in 1994 before rising rapidly once again. Another peak occurred in 2000. Calculations would suggest that affordability improved somewhat between 2000 and 2002 but has remained relatively static during 2003 with 59 per cent of net income being required.[1,2] Figure 5.2 also shows the trend for Dublin[3]. It can clearly be seen from the figure that any judgement about affordability at present or in the recent past depends on the time period chosen for comparison.

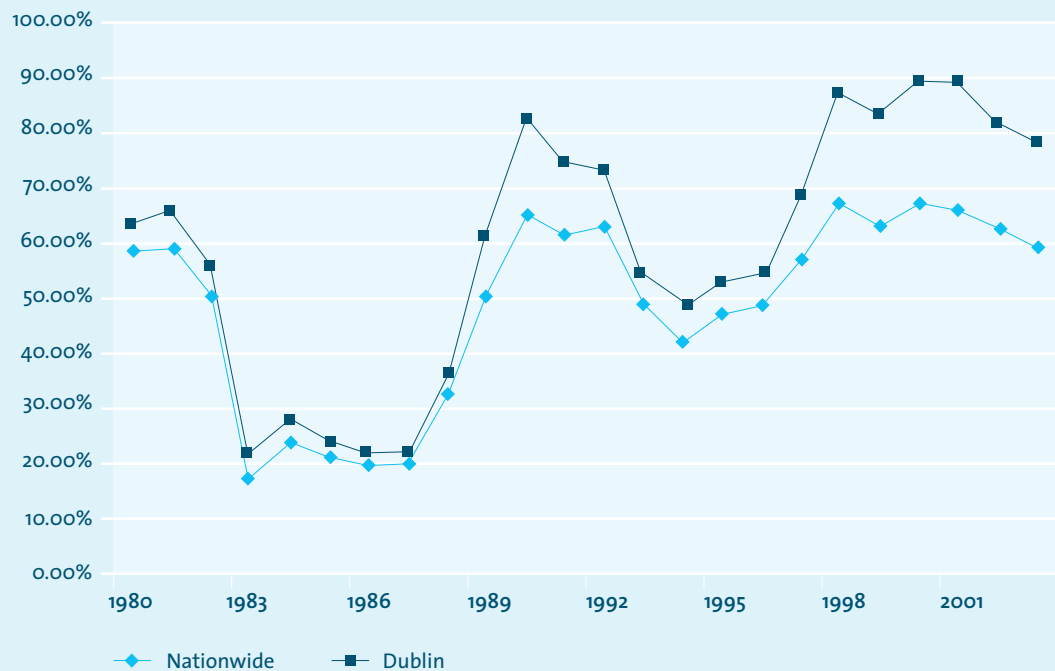1. to service an average mortgage on an average house for a single person on average income

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2. A single person on average industrial earnings could, in 2002, afford to purchase a house costing €87,300 over 20 years or €108,700 over 30 years under the government's affordability criteria assuming he/she could acquire the assumed 10 per cent deposit required. This is clearly well below the average level of house prices across the country.

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3. The data take account of the higher level of average new house prices in Dublin but use national earnings figures and therefore make no allowance for the possibility of higher earnings in Dublin.

These calculations of mortgage repayments from post tax earnings can be compared to the government's official affordability criterion. The percentage of net income required to meet the mortgage repayment for an average house today would exceed the government's affordability threshold of 35 per cent. Indeed, this has been the case for every year since 1988, although the margin by which cost exceeded the affordability threshold varies considerably over time.

Figure 5.2 Percentage of Net average industrial earnings required to service 20 year mortgage on average house 1980 – 2003

Nationwide   Dublin

Source *NESC Calculations*

It should be mentioned that in calculating the percentage of net income required to service an average mortgage in Dublin that average income on a national basis has been used. We noted earlier the stronger pattern of demand in Dublin driven, in part, by higher economic growth and higher incomes. While the price premium in Dublin is currently running at about 30 per cent to the national average, income is in the region of 15 per cent higher than the national average in Dublin. This would imply that affordability problems are greater in Dublin than nationally. The payment required to meet this ongoing cost for an average house today would fail to meet the government's affordability threshold of 35 per cent of net income for a single purchaser today. Indeed, this is true for every year recorded in the table, although the margin by which cost exceeded the affordability threshold varies considerably over time. However, it may legitimately be questioned whether a single person would require an 'average' sized dwelling.
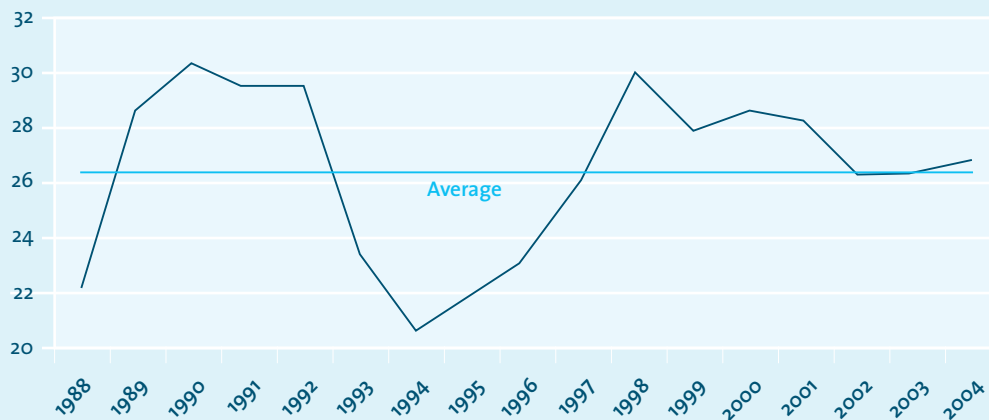
Dual Earning Households

Figure 5.2 is constructed for a single earner. Where the household is dual earning, and the incomes are equal, and where full individualisation applies, the percentage of net income required to service a mortgage will be halved[4]. These dual earning households would always have always fallen under the affordability threshold at a national level and would have met it in Dublin every year except for 2000 and 2001, when it would have been marginally exceeded.

A recent paper by AIB carried out a similar exercise, based on a dual earning family in which the first earner was earning the average managerial wage and the other the average industrial wage (AIB, 2004). This is shown in Figure 5.3. The pattern is similar to that for average industrial earnings. However, the figures in AIB's case are substantially lower because substantially higher earnings—average managerial wage plus average industrial wage—are used. They found that, based on a 20 year mortgage, that current levels of affordability are close to the long term average (between 1988 and 2004) and that aproxpimately 26 per cent of this household's net disposable income would be required.

Figure 5.3 New House Affordability

% of disposable income required for mortgage repayments * 1988 - 2004

Average

Source AIB ERU (2004).

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4. For such households, the government's affordability threshold rises to 42.5 per cent of net household income This is the case because the government's affordability threshold for a dual earning household takes into account half the net income of the second earner (Section 93, Planning and Development Act, 2000).

Mortgage Payments out of below Average Earnings

The discussion so far has been based on average house prices and average industrial or managerial earnings. We have also calculated the percentage of income which a person on two-thirds of average industrial earnings would require to purchase an average new house. Since the tax liability of such an earner would be lower, the required percentage of net income is slightly less than 1.5 times the amount required on average earnings. The calculations show that the purchase of an average house by a single earner on 2/3rds of average industrial earnings would always have exceeded the government's affordability threshold. However, a dual earning couple, each on 2/3rds of average earnings, would have met that criterion in the mid 1990s, but would have been unable to meet it in the recent past, or indeed at present. Interestingly, a dual earning couple each on 2/3rds of average earnings would just about have met the criteria during the previous peak in 1990.

5.5.7   Survey Evidence of Actual Housing Costs

Additional information on affordability is available from a number of periodic surveys: the Household Budget Survey (HBS) (the most recent of which was 1999/2000), the Irish National Survey of Housing Quality (last conducted in 2001/02), specific special modules of the Quarterly National Household Survey (QNHS) on housing and households (the latest of which was conducted in 2003 and published in 2004) and the Census (last carried out in April 2002)[5].
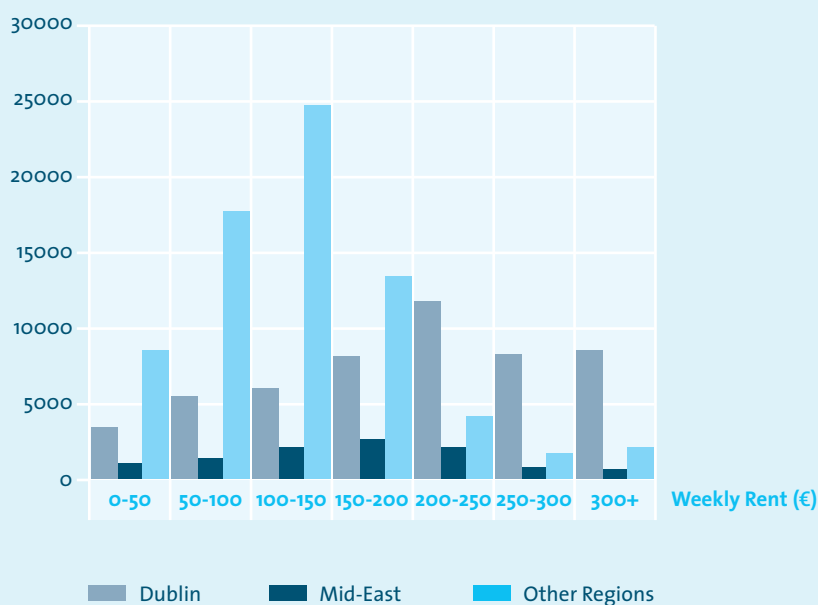
Survey Evidence on Rents

Rented properties can be divided into three categories—those rented from Local Authorities, those rented privately but unfurnished and privately rented properties inclusive of furnishings. The distribution of private rents—calculated as a weighted combination of those properties that are furnished and unfurnished—is shown in Figure 5.4. This is broken down into three regional variations—Dublin, the Mid East Region and all Other Regions. We can discern differences both in the average level of rents in each region and in the distribution. The modal rent (that is the weekly rent that is most commonly paid) is between €100-150 outside of the Greater Dublin Area, between €150 and €200 in the Mid East and between €200-€250 in Dublin[6]. In addition a significant difference can be seen for the pattern of rents in Dublin whereby a significant proportion of people pay well in excess of the average rent with the second most common level of weekly rental payment being in excess of €300 per week equivalent to in excess of €1,300 per month.

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5. *The Household Budget Survey is the only survey which contains data linking the payment for housing to household income. This allows one to look at actual individual household affordability rather than averages across an entire sample. However, the most recent HBS was carried out in 1999/2000. The other surveys are more recent. While the QNHS examines mortgage repayments and levels of rent paid, the Census only provides information on the level of rental payment.*

6. *These figures were further confirmed in the 2003 QNHS where it was found that the average weekly rental payments were €224 in Dublin, €184 in the Mid East and ranged from €110 to €165 per week in other regions.*

In order to translate these levels of rents into a measure of affordability it is necessary to be able to relate them to household income. The HBS is the only survey which allows us to do this, however it is more dated, the last survey being carried out in 1999/2000. In 1999/2000 some 20 per cent of all private renters spent more than 35 per cent of total household expenditure on rent. The figures in from Census 2002 and the QNHS in 2003 continue to show that weekly rental payments are significant despite the fact that there is some evidence that rents in the private sector have been falling in the past couple of years.

**Figure 5.4** Distribution of Private Rents on a Regional Basis – 2002

Source *CSO Census of Population 2002 – Volume 13 - Housing*

Survey Evidence on Mortgage Payments

The CSO has recently published figures on the level of actual expenditures on housing from its Quarterly National Household Survey carried out in the third quarter of 2003. This survey asks households a range of questions concerning housing including questions of affordability.

Figure 5.5 shows the average distribution of mortgage repayments on a national basis. This distribution excludes the almost 62 per cent of owner occupiers who own their property outright and do not make a monthly mortgage repayment. The figure shows that the vast majority of households spend between €201 and €400 or €401 and €600 on monthly mortgage repayments. The percentage of households whose monthly mortgage repayment exceeds €600 is 23.1 per cent, while just over 10 per cent of households making a monthly mortgage payment currently pay in excess of €800 per month.

Figure 5.5 National Distribution of
Monthly Mortgage Payments – 2003
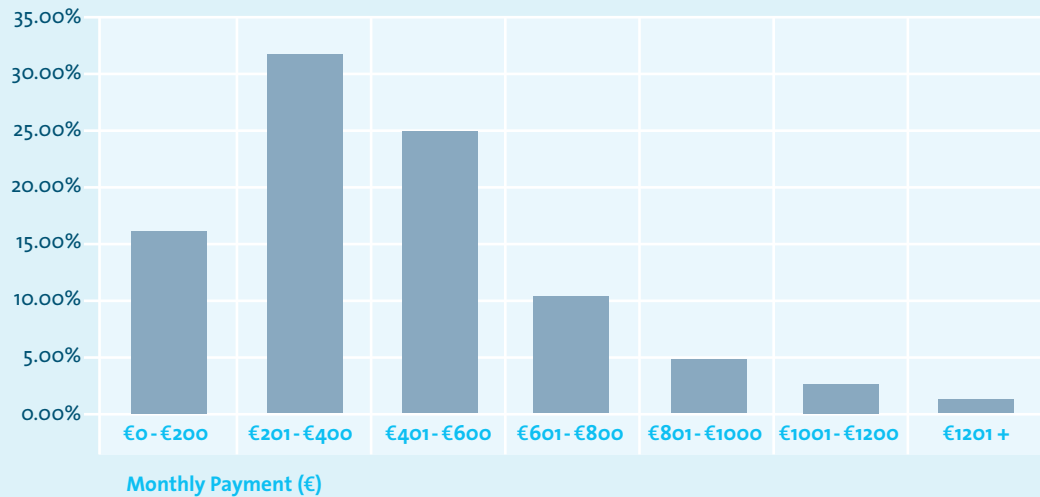
Source *CSO Quarterly National Household Survey, 2003: module on Housing and Households*

Regional Mortgage Payments – Survey Evidence

Table 5.4 shows mortgage repayments broken down on a regional basis. We can
see significant regional differentiation in the level of mortgage repayment with
almost 20 per cent of mortgagors paying more than €800 per month in Dublin
compared to less than 4 per cent in regions outside the Greater Dublin Area.

Table 5.4 Regional Distribution of Actual Monthly Mortgage Repayments - 2003

	€0-€200	€201-€400	€401-€600	€601-€800	€801-€1000	€1001-€1200	€1201+
Dublin	15.30%	22.75%	19.60%	14.17%	8.66%	6.40%	3.24%
Mid-East	14.49%	26.33%	25.92%	12.65%	6.73%	2.86%	1.02%
Other Regions	17.16%	35.74%	24.88%	8.95%	3.00%	0.74%	0.00%

Source *CSO : Quarterly National Household Survey, 2003: Module on Housing and Households*

Survey Evidence from First Time Buyers (FTBs) and Recent Purchasers (RPs)

Two particular categories of owner occupier who might be thought to face greatest affordability pressures are First Time Buyers (FTBs) and Recent Purchasers (RPs). Data is available from the QNHS on the distribution of mortgage payments for FTBs (those who have purchased their first house or apartment since 1996) and RPs (those who have purchased since 2001). Some 32 per cent of FTBs had a monthly mortgage payment of over €600 per month (as opposed to 23 per cent of all those paying a mortgage) and 13.5 per cent had a payment exceeding €800 (as compared to about 10 per cent of all those paying a mortgage). Separately the CSO identified those who had purchased property since 2001 (RPs) – both First Time Buyers and those moving from a previously owned property. Looking at these figures allows us to examine the repayments of those who have not benefited from significant maturation in their mortgage repayment. Of those who had purchased since 2001 47.2 per cent had a monthly mortgage repayment exceeding €600 and 25.3 per cent exceeding €800 per month. It is not possible to draw any inference about affordability for either First Time Buyers or recent purchasers from this data as we do not have details on the household incomes of these households.

However, Table 5.5 shows how First Time Buyers self-assess the difficulty of meeting their monthly mortgage payments. Over 3/4 of all first time buyers perceive their mortgage repayments to be very affordable or manageable, with less than 10 per cent stating that they are difficult or 'very difficult' to manage. There is little regional variation in the perceived affordability, although Dublin is the only region which registers a statistically significant reading for those who find it very difficult to manage their mortgage repayments.

Table 5.5 Perceived Affordability for 'First Time Buyers since 1996'

	Very Affordable	Manageable	Difficult to Manage	Very Difficult	Not Stated
Border	12.88%	58.33%	13.64%	0.00%	14.39%
Midlands	17.57%	63.51%	8.11%	0.00%	10.81%
West	16.67%	51.75%	8.77%	0.00%	21.05%
Dublin	21.82%	56.03%	9.45%	3.26%	9.45%
Mid-East	19.53%	60.94%	9.38%	0.00%	9.38%
Mid West	25.69%	55.96%	9.17%	0.00%	10.09%
South East	27.01%	48.91%	3.65%	0.00%	19.71%
South West	21.39%	50.27%	6.95%	0.00%	20.86%
Total	**20.79%**	**55.13%**	**8.59%**	**1.35%**	**14.14%**

Source *CSO (2004), Quarterly National Household Survey – Special Module on Housing and Households*

Comparison of Survey data on Rents and Mortgages

These surveys consistently show that average levels of expenditure on housing are low reflecting high levels of outright home ownership. However, as we have discussed, average figures across the entire population are not always that revealing. It is clear that the average monthly mortgage payment is significantly less than the average rental payment and lies close to €400 per month, while average monthly rental varies from €600 to €1,000 with a significant proportion of households in Dublin paying in excess of €1,300 per month. However, the levels of mortgage payment is significantly higher both for Recent Purchasers (since 2001) and First Time Buyers (since 1996) the percentage who are paying €1,000 per month or more are 4.9 per cent and 13.2 per cent respectively.

Further interpretation of the data on affordability is provided in Chapter 3 of the main report.

5.5.8 Reasons why Housing may be less affordable than it was in the past

A number of the factors noted may mean that housing is less affordable today than was previously the case

◆ Firstly, there are increased entry costs in the housing market as the cost of a deposit and associated transaction costs have risen as a percentage of net income. This is so because a substantial proportion of the increase in house prices is as a capitalisation of lower interest rates into higher house prices. Lower interest rates have not aided in any way the acquisition of the

necessary capital to pay these entry costs. As a result, to raise a 10 per cent deposit on today's average new dwelling requires an individual to save 94 per cent of net annual earnings as opposed to 62 per cent in 1989. Transactions taxes have also risen over time as the percentage of an average house.

◆ Secondly, the level of social housing provision by local authorities in the state is lower than at times of high prices in the past. In 1980 social housing represented 12.5 per cent of the stock, in 1991 9.7 per cent and by 1999/2000 only 8 per cent. Thus consequently, those seeking to enter the private market today represent a different reference set and a longer share of the income distribution than in previous periods.[7]

◆ Thirdly, the housing provided may be of a lower quality or in less desirable locations than was available in the past. New housing today is often only available in sprawling suburban estates involving significant commuting to the workplace and may be smaller than was previously the case.   In this sense, when comparing affordability of new property over time we are not comparing like with like.

◆ Fourthly, the need to expend a high proportion of income on housing will probably be more sustained than in the past as it is less likely that inflation will significantly erode the value of outstanding debt, leaving today's new house purchasers to carry a more substantive real debt burden over the lifetime of their mortgage than was the case in earlier decades.[8]

Finally, today's house purchasers may be subject to greater vulnerabilities than was the case in times past. Previous periods of affordability problems were associated with high points, and sometimes unexpected, spikes in the interest rate cycle; today it is associated with a low point. Whereas in the past it was likely that interest rates would fall, so easing the burden, today the likelihood is that they will rise. Given that reductions in interest rates have been capitalised into high house prices, and correspondingly high loan values, a given increase in interest rates will result in greater pain in today's low interest rate environment than in one where high interest rates pertain. A 2 percentage point increase in interest rates today would raise the costs of loan repayment (under the assumptions used in table 5.3 above) by 19 per cent, raising the percentage of net average industrial earnings for manufacturing industry required from 59 per cent to 70 per cent based on a national average. In 1990 it would have increased payments by 13 per cent, raising net income required from 65 per cent to 74 per cent. In the case of mortgages over a longer term the increase in payments from a 2 percentage point increase would be even greater as a greater proportion of the monthly repayment comprises repayment of interest on the amount outstanding.

A number of vulnerabilities are cited in the recent Central Bank paper by McQuinn which reinforces the Council's own analysis of current market conditions. While McQuinn, like the Council, feels that a sudden macroeconomic

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7. *However, alternative means of providing social housing such as through Supplementary Welfare Allowance have risen.*

8. *This is increasingly so with the increased uptake of mortgages with longer life-spans.*

shock such as an increase in unemployment or interest rate shock would weaken purchasing power it is unlikely to occur. This does not mean that the housing market is immune to a serious correction in the future. While historically low interest rates have enabled house purchasers to afford historically high house prices any persistent increase in interest rates will affect affordability and place pressure on price levels. In McQuinn's view 'with interest rates at or near the low end of the cycle, further strong increases in house prices (double digit) would almost certainly result in overvaluation in the property market. (McQuinn, 2004: 14).

McQuinn also notes a number of other possible risks to overall housing market stability such as the potential for reductions in scrutiny by financial institutions in their lending criteria. He also believes that there is the possibility that Irish investors are purchasing investment property on the premise of capital appreci-ation and that if this fails to materialise then they may seek to exit the market thereby creating market instability and the possibility of a self-reinforcing downward price spiral.

However, an important point is made by AIB that mortgage repayments now comprise a considerable portion of principal as well as interest repayment (AIB, 2004). This needs to be taken into account when looking at the overall level of return to investors and comparing it to the situation in previous periods when interest rates were much higher and a much greater proportion of any monthly repayment comprised the interest, or opportunity cost on the capital employed.

With the substantial increase in housing supply and demographic pressures from those of household formation age a substantial number of households have been formed the past few years. Were nominal house prices to fall this implies a substantial number of households who had recently entered the market, and who are heavily leveraged, would be affected. Moreover, nominal falls in Irish house prices are unusual. While real house prices fell throughout much of the 1980s, nominal house prices continued to rise due to higher underlying inflation. The effect of any nominal downward movement in prices may be substantially different. There is likely to be greater resistance, or at least more serious macroeconomic consequences, including negative equity, were nominal house prices as opposed to real house price levels decline. Further discussion of the possible vulnerabilities as a result of the macroeconomic instability as well the Council's interpretation of the data on affordability is presented in Chapter 3 of the main report.

5.6 Summary

House Prices

The period from the mid-1990s saw a sharp increase in the demand for housing arising from increases in per capita income, the rising population at the household formation stage and lower interest rates. Several studies have examined whether the rise in house prices can be explained in terms of changes in demand variables.

A number of these studies found that prices in the late 1990s were higher than would be expected on the basis of underlying demand pressures. One possible explanation of this is that a bubble was beginning to form in the late 1990s. A bubble in house prices (or other assets) can be defined as a situation in which prices increase in such a way that can only be explained on the basis of previous increases and become divorced from the underlying real value of the asset. However, the rise in prices above their fundamentals value can also be under-stood as an adjustment process. With the sharp rise in demand it is not possible for the stock to rise immediately to reflect the higher demand. Higher prices are used to allocate the stock in the short run and in the short term prices rise above their underlying value. As the stock increases the price premium falls away.

Of the three studies that extend in their coverage of data up to 2001 or 2002, only one found (inconclusive) evidence of prices continuing to be significantly above their fundamental value. The apparent elimination of a significant price premium has occurred on the basis of some slowdown in nominal price growth, continued growth of disposable income and further reductions in interest rates. If house prices are not characterised by a significant premium to underlying value, this would imply the rapid price increases are best interpreted as an adjustment rather than evidence of a speculative bubble. The evidence on the models of housing supply presented above would seem to be consistent with the gradual adjustment thesis. Some studies found evidence that housing completions in the late 1990s were less than would be expected on the basis of fundamentals while there is evidence that suggests that house completions are now in line with or possibly ahead of fundamentals.

The Housing Market in the Dublin Area

It is in the Dublin area where the housing market has been under the greatest pressure. The price premium for Dublin fluctuates over time, tending to fall when economic growth is weak and rising at times of buoyant growth. The price premium fell in the early 1990s from 23 per cent in 1990 to 8 per cent in 1993. It then increased sharply over the period of buoyant growth from the mid-1990s, rising to 33 per cent in 2000. It has fallen slightly since then. The increase in the price premium for Dublin over the period of buoyant growth would seem to arise from both demand and supply factors. The pressures driving demand have been strongest in Dublin. As regards supply, the increase in housing output in Dublin and the East region has been slower than the national average. Although this regional difference has not been the subject of much analysis, those statistical studies that have examined it confirm that there was a lower supply elasticity in Dublin. The picture is complicated by the fact that most of the new second homes are outside Dublin, so that effective new supply in other regions is somewhat lower than total construction figures suggest.

Affordability

Housing is now less affordable than previously under a number of measures but to differing degrees:

◆ Firstly, point of entry costs – the cost of a deposit and associated transaction costs – have risen as a percentage of net income. This has occurred because a substantial proportion of the increase in house prices has resulted from a capitalisation of lower interest rates into higher house prices. Lower interest rates have not aided in any way the acquisition of the necessary capital to pay these entry costs. As a result, to raise a 10 per cent deposit on today's average new dwelling requires an individual to save 94 per cent of net annual earnings as opposed to 62 per cent in 1989.

◆ Secondly, the level of social housing provision by local authorities in the state is lower than at times of high prices in the past. In 1980 social housing represented 12.5 per cent of the stock, in 1991 9.7 per cent and by 1999/2000 only 8 per cent. Thus consequently, those seeking to obtain their housing in the private market today represent a larger share of the income distribution than at times in the past.

◆ Thirdly, the need to expend a high proportion of income on housing will probably be more sustained than in the past as it is less likely that inflation will significantly erode the value of outstanding debt, leaving today's new house purchasers to carry a more substantive real debt burden over the lifetime of their mortgage than was the case in earlier decades.

◆ Fourthly, today's house purchasers may be subject to greater vulnerabilities than was the case in times past. Previous periods of affordability problems were associated with high, and sometimes unexpected, points in the interest rate cycle; today is it associated with a low point. Whereas in the past it was likely that interest rates would fall, so easing the burden, today the likelihood is that they will rise. Given that reductions in interest rates have been capitalised into high house prices, and correspondingly high loan values, a given increase in interest rates will result in greater pain in today's low interest rate environment than in one where high interest rates pertain. A 2 per cent increase in interest rates today would significantly raise the costs of loan repayment.

Yet affordability is not a problem for the vast majority of households who have substantial property equity, or for households with high earning power, or in many cases, for those with two or more earners. This would suggest that any policies introduced to address affordability might be targeted to those households which experience the greatest difficulties and require the greatest level of assistance. This would minimise the deadweight loss from their introduction yet must avoid the pitfall of being capitalised into higher prices as has befallen a number of such policies in the past. The Council's interpretation of the data on affordability and its policy recommendations are contained in the main report.