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**Ten New Propositions in UK Housing Macroeconomics:
An Overview of the First Years of the Century**

By

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1. Introduction

Meen (1996) set out a series of ten propositions concerning housing macroeconomics in the UK. These propositions concerned some of the central policy issues of the eighties and early nineties, for example, the effects of mortgage market liberalisation, explanations of house price dynamics and the role of the housing market in Britain's exit from the Exchange Rate Mechanism. In this paper, ten further propositions are considered, which reflect the new policy agenda and advances in economic knowledge since the earlier paper. Arguably, three of the current central issues in housing economics in the UK are; (i) the growth in real house prices and their volatility – a continuing theme; (ii) the objective of extending home ownership; (iii) the promotion of integrated or mixed income neighbourhoods. The third is considered in Meen *et al* (2005), whereas the first two are the subject of this paper, which include issues of risk (both for housing markets and the macro economy) and the sustainability of home ownership.

Section 2 states the ten propositions; sections 3-4, then, discuss the evidence in support of each proposition. The discussion is drawn together in Section 5.

2. The Propositions

As in the earlier paper, the section simply states the propositions for subsequent discussion.

2.1 The Growth in House Prices, Volatility and Risk

- (1) The strength of house prices since 1996 is explainable in terms of fundamentals
- (2) There is no simple relationship between house prices and rents
- (3) There is asymmetric adjustment between upswings and downswings
- (4) The coefficients of house price models are stable over time
- (5) In general, increases in house prices do not counterbalance falls in stock market prices

2.2 The Sustainability of Home-Ownership

- (6) Natural rates of housing repossessions are higher than in the seventies and early eighties
- (7) Sustainable levels of home-ownership depend primarily on the expansion of housing supply rather than on demand.
- (8) The Buy-to-Let market will not continue to expand at the same rate as in the last ten years.,
- (9) Wealth redistribution by extending ownership can be risky.
- (10) New households are not the main beneficiaries of affordability targets.

3. The Growth in House Prices, Volatility and Risk

In its decision not to join the Economic and Monetary Union (EMU) in 2003, HM Treasury (2003) identified differences in relative real house prices between the UK and the European average as an important factor. Since the early seventies, real house price growth in the UK averaged 2.4% per annum compared with 1.1% in Europe. However price growth and volatility are not purely phenomena of the UK and since 1986, the UK lies only fourth in the European league table of house price inflation behind Spain, Ireland and the Netherlands (Ball 2005). Furthermore house price inflation is not necessarily “bad” since it can provide support for the economy at a time of falling financial asset prices, an issue to which we return. Despite this, there is a general view in macroeconomic terms that differences in relative international house prices and associated volatility add to risk and hinder the convergence of the European economies. Furthermore, within national economies, strong real house price growth widens the wealth distribution.

The volatility of house prices is often ascribed to (i) the existence of speculative bubbles; (ii) “instability” in the coefficients of the relationships that attempt to explain house prices. But neither of these are necessary conditions for volatility to occur. For example, even the simplest demand and supply models of the housing market will generate overshooting and strong fluctuations if housing supply is unresponsive to a change in demand in the short run. Supply inelasticity generates high elasticities of prices with respect to income and interest rate changes, for example. Since both incomes and interest rates fluctuate over the economic cycle, we expect to observe even stronger fluctuations in prices. These may occur even in the absence of bubbles or coefficient variation over time and are, therefore, potentially consistent with movements in fundamentals. Arguably, improving the responsiveness of housing supply to changes in housing market conditions is a pre-requisite to dampening price fluctuations. Improving the supply responsiveness was the central concern of the Barker Review (2004); again this is an issue to which we return below.

These general questions give rise to the first four propositions. Each of these can be tested in a common framework.

Proposition 1. The Strength of House Prices since 1996 is Explainable in Terms of Fundamentals

The view that house prices have experienced a bubble rests on three observations: (i) house prices internationally are out-of-line with rents (proposition 2); (ii) house prices are out-line with incomes; (iii) conventional structural and reduced form house price models underestimate the increase in house prices in recent years. In fact, if we consider the main countries that have experienced rapid rates of house price inflation, it is not clear that models do underestimate house price inflation. In a survey of OECD countries, Girouard *et al* (2006) suggest that overvaluation is limited to a small number of countries, although they suggest that the evidence uniformly points to overvaluation in the UK, Ireland and Spain, a conclusion that could be considered controversial. In econometric models of the UK (Cameron *et al* 2006), the Netherlands (Boelhower 2005), Australia (Abelson *et al* 2005) and Spain (Tultavull 2005) – indeed some of the countries that have experienced the strongest house price inflation in recent years – none of the authors find strong evidence of speculative bubbles. However Stevenson (2005) finds that prices are in excess of fundamentals in Ireland. Authors place particular emphasis on the low levels of nominal interest rates and expectations of their continuation in a low inflation world. Van den Nord (2006), for example, suggests that significant increases in interest rates could generate large falls in real house prices. The paper returns later to the question of whether real or nominal interest rates determine house prices.

One possible cause of underprediction is model misspecification. Models that explain house prices entirely in terms of rents or incomes may simply be misspecified, omitting relevant variables. Therefore, the underlying theory is important. The determination of house prices in a life-cycle framework is well-known in the literature (see Meen 1990, Meen and Andrew 1998) and, therefore, we concentrate on the key results. From the first-order conditions, the marginal rate of substitution between housing and a composite consumption good, μ_h / μ_c , is given by equation (1):

$$\mu_h / \mu_c = g(t)[(1-\theta)i(t) - \pi + \delta - \dot{g}^e / g(t)] \quad (1)$$

$$\mu_h / \mu_c = g(t)[(1-\theta)i(t) - \pi + \delta - \dot{g}^e / g(t) + \lambda(t) / \mu_c] \quad (2)$$

where:

$g(t)$ = real purchase price of dwellings
 θ = household marginal tax rate
 $i(t)$ = market interest rate
 δ = depreciation rate on housing
 π = general inflation rate
 $(.)$ = time derivative
 δ, π, θ are assumed to be time invariant

The right hand side of (1) is the real per period price of owner-occupier housing services or the housing user cost of capital. If households are credit constrained, then equation (2) holds, where the expression takes into account the shadow price of the rationing constraint, $\lambda(t)$. The first-order conditions also imply that equation (3) holds. Under arbitrage in perfect capital markets, house prices are the discounted present value of market rents. If credit constraints exist, in effect, the discount rate rises, lowering real house prices.

$$g(t) = R(t) / [(1 - \theta)i(t) - \pi + \delta - \dot{g}^e / g(t) + \lambda(t) / \mu_c] \quad (3)$$

$R(t)$ represents the real imputed rental price of housing services.

Equation (3) forms the basis of the view that there is a fixed relationship between prices and rents. But note that this view assumes that the discount rate is constant, even in the simplest version of the model where there is no time-varying risk premium. Again this theme is explored further under the next proposition.

In practice, most models do not test (3) directly; nor is it expected to hold without modification. The presence of transactions costs and down payment requirements imply that households can be out of equilibrium for long periods of time, since they face hurdles (see Andrew 2005) so that, as a minimum, lags are introduced into the specification – frequently modelled as error correction processes. More fundamentally, until recently, free market private tenancies in the UK were a small part of the market. Therefore, there is a shortage of data in the UK on market rents to test (3) directly. Usually, the expected determinants of rents are substituted. Equation (4) represents the final equation estimated in Meen and Andrew (1998), which is not untypical of the literature (see also Muellbauer and Murphy 1997). Results are presented in Table 1.

$$\Delta \ln(g) = \gamma_1 \Delta \ln(g)_{-1} + \gamma_2 \Delta \ln(X) + \gamma_3 [\ln(g) - \gamma_4 \ln(X)]_{-1} + \mu \quad (4)$$

$$X' = [RY, W, HH, H, M, i, ph^e] \quad (5)$$

RY = real personal disposable income
 W = real wealth
 HH = number of households
 H = housing stock
 M = measure of mortgage rationing
 PH = nominal house price

$ph^e = \pi + \dot{g}^e / g$ = the expected nominal capital gain on housing.

The first column sets out the results over the period 1969Q3-1996Q1, taken directly from Meen and Andrew (1998)¹. The second column gives estimates to 2002Q4 and is an updated version of the results given in the Miles Review of the mortgage market. The final column extends the results to 2005. Although there are some changes to the coefficients, the addition of extra years of data produces only modest differences. Note that the difference in sample periods between the first and third columns approximates the latest boom, i.e. the period over which some commentators have pointed to a bubble. Equations (6)-(8) set out the long-run solutions to the three columns. Again the sets of estimates remain similar, although generally slightly higher in the final equation, due to the lower error correction coefficient.

Table 1. House Price Equations: Dependent Variable $\Delta \ln(g)$.

	(1) 1969Q3-1996Q1	(2) 1969Q3-2002Q4	(3) 1969Q3-2005Q2
Constant	-2.190 (5.1)	-1.329 (3.1)	-1.035 (2.5)
$\ln(g)_{-1}$	-0.162 (8.8)	-0.147 (7.7)	-0.131 (7.3)
$MRAT_{-3}$	-0.011 (3.1)	-0.010 (2.4)	-0.012 (2.9)
$\ln(RGW)_{-1}$	0.054 (6.5)	0.048 (5.1)	0.048 (5.1)
$\ln(HS)_{-1}$	-0.282 (3.4)	-0.245 (2.3)	-0.308 (2.9)
$\ln(RY)$	0.388 (5.3)	0.314 (4.0)	0.335 (4.2)
$\Delta \ln(RY)_{-1}$	0.250 (3.1)	0.236 (2.7)	0.233 (2.6)
UCC	-0.006 (10.5)	-0.006 (10.6)	-0.005 (10.0)
$\ln(WSH)_{-1}$	0.426 (3.6)	0.361 (3.3)	0.337 (3.1)
R^2	0.85	0.79	0.77
SEE	0.0148	0.0163	0.0166
DW	1.94	1.71	1.65

t-values in brackets. Equations also include seasonal dummy variables and dummies for the abolition of double mortgage tax relief in 1988.

where:

g = real house price
 $MRAT$ = measure of mortgage rationing
 RGW = real household wealth
 HS = owner-occupier housing stock

¹ The equation includes a newly-introduced variable WSH , which is discussed under Proposition 4.

RY = real household income
 UCC = housing user cost of capital (expectation of capital gains are measured as the actual annual change in the previous year).
 WSH = share of wages in household income

$$\ln(g) = -13.55 - 0.068(MRAT) + 0.336\ln(RGW) - 1.74\ln(HS) + 2.40\ln(RY) - 0.037(UCC) + 2.64\ln(WSH) \quad (6)$$

$$\ln(g) = -9.041 - 0.068(MRAT) + 0.33\ln(RGW) - 1.67\ln(HS) + 2.14\ln(RY) - 0.041(UCC) + 2.45\ln(WSH) \quad (7)$$

$$\ln(g) = -7.901 - 0.092(MRAT) + 0.366\ln(RGW) - 2.35\ln(HS) + 2.56\ln(RY) - 0.041(UCC) + 2.57\ln(WSH) \quad (8)$$

The similarity of the coefficients between the three equations suggests that there is little evidence of speculative bubbles. Furthermore (and additional results are presented below), there is little evidence of systematic overprediction – fundamentals, notably strong income growth and low nominal interest rates, coupled with weak housing supply - adequately explain most of the boom.

It might also be noted that, on one measure, the housing market has become less volatile over time. In Table 2, the mean, standard deviation and coefficient of variation of annual real house price growth is shown over a set of sub-periods (each six years in duration), starting in 1970. Perhaps unsurprisingly, the coefficient of variation falls in the upswing and declines in the downswing, but the reduction in both the coefficient and the standard deviation since 1994 is noticeable. In terms of the model, this is attributable to the decrease in the fluctuations in the key regressors, notably incomes and interest rates.

Table 2 Real House Price Volatility.

	Mean	Standard Deviation	Coefficient of Variation
1970(1)-1975(4)	6.02	18.14	3.01
1976(1)-1981(4)	1.27	8.86	6.98
1982(1)-1987(4)	4.97	6.21	1.25
1988(1)-1993(4)	0.71	13.03	18.40
1994(1)-1999(4)	3.68	5.01	1.36
2000(1)-2005(2)	11.35	5.27	0.46

Three further points should be noted, since they are relevant to the remaining propositions:

- (i) The equations find a positive relationship between house prices and financial wealth (RGW).
- (ii) There is no necessary constant long-run relationship between house prices and incomes. The other factors in equations (6)-(8) may shift the relationship.
- (iii) There is no necessary constant relationship between rents and house prices, particularly if the discount rate is time-varying or if nominal interest rates affect prices as well as real rates.

Proposition 2. There is no Simple Relationship between House Prices and Rents

At the simplest level, equation (3) implies a relationship between house prices and rents. But commentators have pointed to the fact that, in many countries, prices have consistently risen faster than rents in recent years (e.g. Girouard *et al* (2006); Figure 1 plots the relationship for the US. This is given as evidence of speculative bubbles, adding to market volatility and risk.

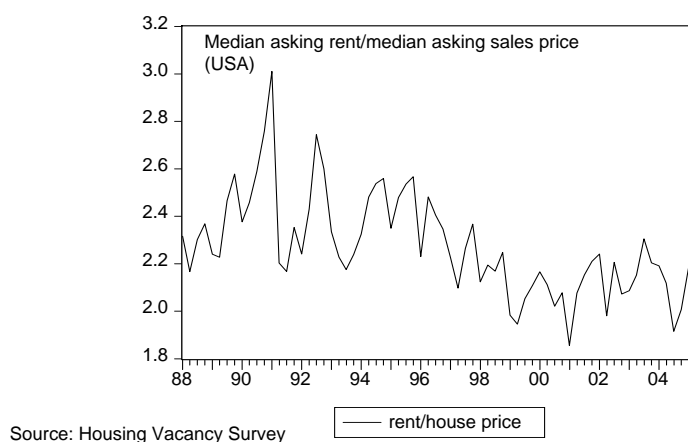


Figure 1. Rent to House Price Ratio - USA

But the constancy of the hypothesised relationship depends on the constancy of the discount rate, i.e. the denominator in (3). One measure might be real implied forward rate on government securities. As Figure 2 shows this has been extremely low since the late nineties and, hence, high house prices would be expected.

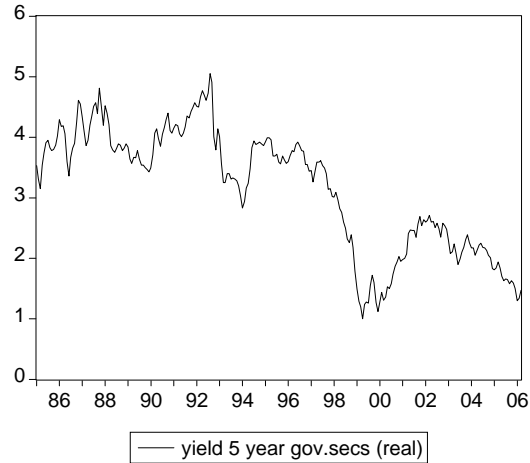


Figure 2. Monthly average yield for 5 year UK government securities (real implied forward rate)

However, the discount rate is more complex than in standard financial asset models, where Figure 2 might be relevant: In particular (3) implies:

- (i) expectations of *house prices* rather than general prices determine the discount rate
- (ii) credit market constraints have to be taken into account
- (iii) changes in the tax provisions related to housing have an effect
- (iv) transactions costs, e.g. stamp duty, affect the rate

It is difficult, *a priori*, to know the overall effect of the changes in (i)-(iv). But the relaxation of credit market constraints is arguably one of the most important long-run changes. From (3), liberalisation reduced the discount rate and raises prices relative to rents.

There is a further important difference between housing and financial models. Equation (3) implies that real interest rates are the key determinant and there is no role for nominal rates. As we have already hinted, empirically, nominal rates are significant and are consistent with the importance of front-end loading – a further form of credit market constraint. This issue is explored further under Proposition 3, but the point here is that if nominal rates matter, then there is no fixed relationship between prices and rents.

It is also sometimes argued that there is a long-run relationship between house prices and incomes. Indeed, the UK government’s new affordability targets are to be measured in terms of the ratio of house prices to earnings². But neither equation (3) nor the empirical results in Table 1 necessarily imply the existence of such a relationship. Indeed, Figure 3 shows that,

² Measured at the lowest quartile.

internationally, the trends may be different. The US shows a fall in the ratio of house prices to *household incomes* until the beginning of the decade, although the ratio of prices to earnings has shown no downward path. In the UK the ratio of prices to both incomes and earnings has been more stable in the long run. Meen (2002) argues that the long-run relationship between house prices and incomes or earnings depends on the price elasticity of housing supply. Since the elasticity of supply is higher in the US, a downward trend in the price/income ratio is more likely. It also follows that if supply in the UK increases, following the Barker proposals, a lower price to income ratio would be expected.

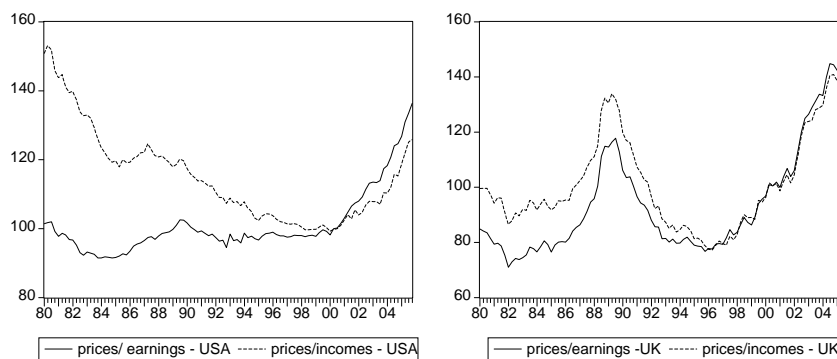


Figure 3. Rent House Price/Incomes or Earnings - USA & UK

A final related point concerns the relationship between prices (or rents) and construction costs. If the supply of housing is perfectly elastic in the long run, then (allowing for productivity differences) the real price of housing should be constant or prices should increase in line with construction costs. Meen (2001) argues that no such cointegrating relationship has held in the UK since the seventies and, probably, since the passing of the Town and Country Planning Act after the Second World War. The controls introduced in the Act, in effect, reduced the supply elasticity. But data on rents and building workers' wages are available from the sixteenth century (see Clark 2002, 2005). Figure 4 plots rents against skilled and unskilled building wages between 1550 and 1900 (measured at ten year intervals). The simple econometric results, given in equation (9), emphasise the strength of the relationship, although an ADF test of the residuals strictly implies marginal non-stationarity ($ADF(1)=-2.34$)³. Therefore, at least for most of history, the suggestion is that supply elasticities have been high - certainly much higher than in the last fifty years.

³ Note that since the variables are measured over 10-year periods, we expect lags to be less important than in conventional time-series econometrics.

$$\ln(\text{rent}) = 0.959 + 0.910 \ln(\text{wcraft}) \quad (9)$$

$$(8.7) \quad (26.2)$$

$$R^2 = 0.953$$

$$DW = 1.45$$

t-values in parenthesis

rent = rental cost of constant quality dwellings (index); *wcraft* = craftsmen's daily wage (pence)

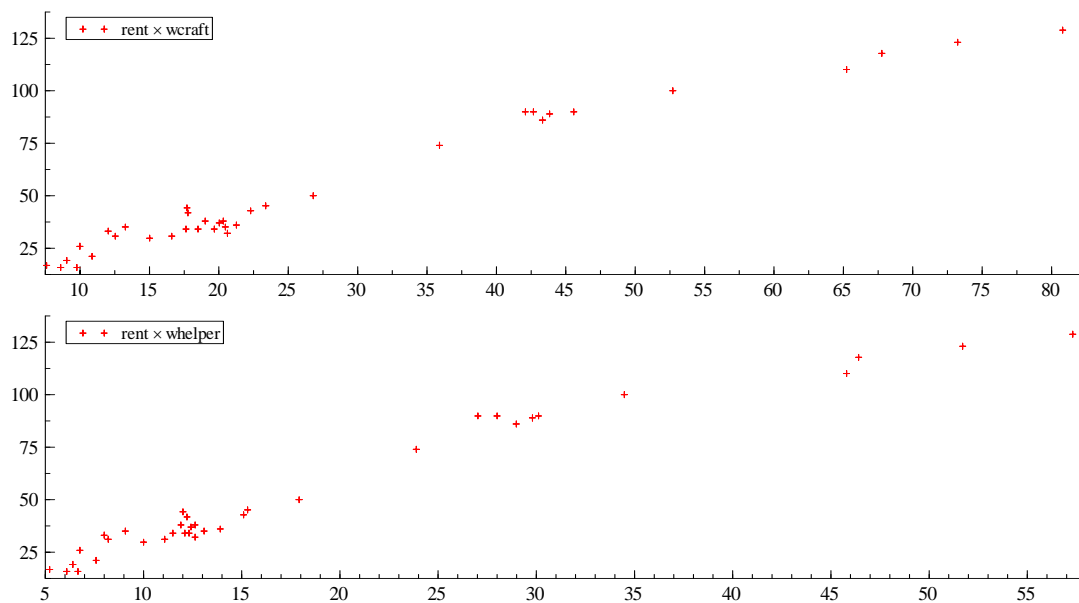


Figure 4. Housing Rents and Building Wages (1550/59 to 1900/09)

Proposition 3. There is Asymmetric Adjustment between Upswings and Downswings

House prices may adjust at different speeds between the upswing of the cycle and the downswing. Theoretical explanations can be put forward to explain why this may occur. For example, sellers are reluctant to reduce nominal prices in the downturn, which leads initially to an extension to the period that properties remain on the market (see Berkovic and Goodman 1996). However sellers are willing to raise prices quickly in the upturn. Such models are generally set in a search framework. However, the data suggest a further possible explanation.

Recently, the econometrics literature has applied more formal tests of asymmetric adjustment to both UK and US house prices. These are usually set in a univariate context, allowing different coefficients on past price inflation when prices are rising compared with periods in which prices are falling. Although univariate price models are common in the house price literature more generally as forms of market efficiency tests, a problem of testing for asymmetry in this approach is that the asymmetries may again be capturing omitted variables from the full reduced form model. This is easily seen if it is noted that the empirical implementation of our model in Table 1 defines the user cost of capital as:

$$UCC(t) = [(1 - \theta)i(t) + \delta - \gamma(\pi + \dot{g}^e / g(t)) + \lambda(t) / \mu_c] \quad (10)$$

$\gamma(\pi + \dot{g}^e / g(t)) = \dot{p}^e$ represents the *nominal* expected capital gain on housing and γ may take a value between zero and unity. Market efficiency and equation (3) require $\gamma = 1.0$. A value of less than unity implies that *nominal* as well as real interest rates are a determinant of prices. We noted the front-end loading issue earlier, which justifies the use of nominal rates. In order to estimate γ freely, (i) – the nominal mortgage interest rate and the nominal capital gain could be included as separate regressors. But since price expectations are measured by the lagged actual percentage change, the model includes an autoregressive element. Furthermore, we can test whether γ varies between the upswing and downswing, giving a more general test of asymmetry than the univariate model. Table 3 presents the results. Column 1 reproduces the results from column 3 of Table 1 for comparison. Column 2 disaggregates the user cost term into separate nominal interest rate and expectations terms, but also tests asymmetric adjustment in terms of capital gains. Periods in the upswing are defined as those in which the annual rate of change of real house prices is positive.

The table suggests strongly that asymmetry matters and the overall fit of the equation improves slightly⁴. Column 2 shows that expectations have a bigger (positive) effect in the upturn and that negative price expectations have no significant effect on current prices, i.e. sellers are unwilling to reduce prices. Therefore, there is no autoregressive element to prices in the downturn. This is reasonable in terms of the model since, at least

⁴ Formal tests show little evidence of misspecification. ARCH and RESET tests are insignificant, although LM tests show some evidence of remaining fourth-order autocorrelation.

at the start of the downturn, nominal interest rates are typically high and front-end loading issues are particularly important. They become less important at a time of low nominal interest rates. This is consistent with the behaviour of prices since 1990; notice also that once asymmetry is taken into account, the income distribution proxy, (*WSH*), becomes less significant statistically (see Proposition 4 for an explanation of the term). Finally, note that as a test of coefficient plausibility, the implicit price and income elasticities of housing demand are -0.496 and 1.27 respectively (see Meen and Andrew (1998)). These are in line with other estimates from the literature.

Table 3. House Price Equations: Dependent Variable $\Delta \ln(g)$ – Testing Asymmetric Adjustment.

	(1) 1969Q3-2005Q4	(2) 1969Q3-2005Q2
Constant	-1.035 (2.5)	-1.225 (2.8)
$\ln(g)_{-1}$	-0.131 (7.3)	-0.124 (7.2)
$MRAT_{-3}$	-0.012 (2.9)	-0.013 (3.1)
$\ln(RGW)_{-1}$	0.048 (5.1)	0.038 (4.0)
$\ln(HS)_{-1}$	-0.308 (2.9)	-0.250 (2.3)
$\ln(RY)$	0.335 (4.2)	0.318 (4.0)
$\Delta \ln(RY)_{-1}$	0.233 (2.6)	0.182 (2.1)
UCC	-0.005 (10.0)	-
$\ln(WSH)_{-1}$	0.337 (3.1)	0.206 (1.9)
RM	-	-0.0097 (6.8)
$\dot{ph}_{upswing}$	-	0.0014 (8.3)
$\dot{ph}_{downswing}$	-	-0.0005 (0.8)
R^2	0.77	0.80
SEE	0.0166	0.0158
DW	1.65	1.82

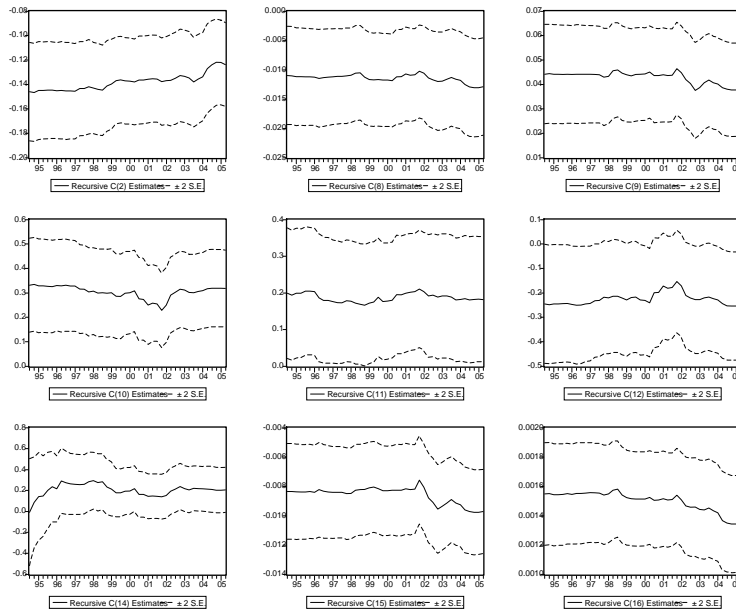
t-values in brackets. Equations also include seasonal dummy variables and dummies for the abolition of double mortgage tax relief in 1988.

Proposition 4. The Coefficients of House Price Models are Stable over Time

This follows directly from the results of the last three propositions. But since time variation in the coefficients of house price models is sometimes considered an additional source of housing market risk, further analysis is necessary. The coefficients across the three time periods in Table 1 suggest stability. But, as noted earlier, time-varying coefficients may arise from model misspecification, which, in turn, arises from attempting to apply financial market models to housing without any allowances for the structural differences in the markets. As shown under Proposition 2, there are good reasons why a long-run relationship between prices and rents does not hold.

However coefficient stability is conditional on two major structural changes - liberalisation of financial markets in the early eighties and reform of labour markets, which Meen and Andrew (1998) found to be particularly important in the early nineties. These reforms contributed to changes in the income distribution, which worked against younger households, who were potential first-time buyers. The changes in the income distribution have still not been fully reversed (Andrew 2005) and owner-occupancy rates amongst the 25-29 age group remain well below those in the eighties. From a modelling perspective, it is important that these structural changes are captured since variations in the income distribution mean that the standard aggregation conditions will be violated (Theil 1954). In more modern parlance, the common stochastic trend driving incomes changes. In turn, the coefficients appear unstable because of omitted variable biases. For example, failure to allow for change in the early nineties biases downwards the interest rate elasticity and gives the impression that monetary policy has become less effective in influencing prices. In fact, equations (6)-(8) suggest that the sensitivity has been constant over time. In Tables 1 and 2, financial market liberalisation is proxied by the variable (*MRAT*) (see Meen 1990), whereas changes in the income distribution are (imperfectly) captured by (*WSH*) – the share of wages in household incomes. The idea is that younger households receive less from investment income since they have fewer financial assets.

But even if these are imperfect proxies, their inclusion still leads to the remaining coefficients showing little change over time. A Chow Test predicting the period 1997Q1-2005Q2, i.e. the period of the price boom, yields $F_{x,y} = 1.65$ (p-value=0.018). Further evidence of coefficient stability is presented in Figure 5 from the recursive coefficient estimates of the equation in column 2 of Table 2. Therefore, contrary to the general view, it could be argued that the coefficients of house price equations are amongst the more stable in macro econometrics.



The graphs relate to the coefficients on the following variables respectively:

- $\ln(g)_{-1}$
- $MRAT_{-3}$
- $\ln(RGW)_{-1}$
- $\ln(RY)$
- $\Delta \ln(RY)_{-1}$
- $\ln(HSA)_{-1}$
- $\ln(WSH)_{-1}$
- RM
- PH_{upswing}

Figure 5.. Recursive Coefficient Estimates.

Proposition 5. In General, Increases in House Prices do not Counterbalance Falls in Stock Market Prices

The importance of housing wealth as a determinant of consumers’ expenditure, first, became an issue in the UK in the late eighties as an explanation of the strong boom which was not predicted by conventional consumption functions (Maclennan *et al* 1998). However the issue has received greater international exposure recently with the observation that increases in house prices supported consumption at a time of falling stock market prices in the US. Whereas the original issue in the UK was that house prices added to the volatility in the economy, in the US the question was one of support for the macro economy.

Consequently, a significant number of empirical studies of the relationship between consumption and house prices have recently been conducted, commonly in a VAR or VECM framework, for both the US and Europe (see Case *et al* 2001, Iacoviello 2000, 2003. Giuliadori 2004, Chen 2005). The studies generally find a significant relationship between consumption and the housing market, although of considerably varying strengths.

However, the value of housing wealth as a risk diversification strategy requires that house and stock market prices are not correlated or are negatively correlated. Casual observation of the period since the late nineties would suggest that this is the case. Englund *et al* (2002) find no correlation between a housing index and stock prices in Sweden between 1990 and 2002 and a negative correlation with bonds and Treasury bills. Over a broader range of countries, Quigley (2006) reaches similar conclusions. But, by contrast, Table 2 implies that real financial wealth (*RGW*) is a *positive* determinant of house prices.

Table 4 sets out the simple correlation coefficients between the growth rates in real house prices and real stock market prices for the UK over sub-periods since 1981. The table, indeed, shows a strong negative relationship since 1998, but between 1981 and the end of 1997, the relationship was positive. Unsurprisingly, over the full sample period, there is no relationship.

Table 4. The Correlation Between the Growth in Real House Prices and Real Stock Market Prices.

Time Period	Correlation Coefficient
1981Q1-2005Q4	-0.042
1981Q1-1997Q4	0.240
1998Q1-2005Q4	-0.439

The moral is that we cannot always rely on the housing market to offset falls in other asset prices. There is no guarantee that the housing market will act as a stabiliser; equally housing may add to the volatility of the economy.

4. The Sustainability of Home-Ownership

4.1 Different Concepts of Affordability

The previous section implies volatility will occur even in the absence of bubbles or time-varying parameters. Given the structure of the UK housing market – weak supply elasticities (which lead to strong responsiveness of house prices to incomes and interest rates), high indebtedness and variable mortgage interest rates – volatility would be expected to continue in the future. Therefore, this section considers the future sustainability of home-ownership in a world of continuing risk arising from price volatility. It is also concerned with the feasibility and desirability of extending home ownership further down the income distribution.

Sustainability is a commonly used buzzword in policy debate. However, the term is not always precisely defined⁵. In the *Sustainable Communities Plan* (ODPM 2003), for example, “key requirements for sustainable communities” are listed, but these do not constitute a definition. The Egan Review, (Egan 2004), recommends a working definition of sustainability, derived from the requirements of the *Plan* as “sustainable communities meet the diverse needs of existing and future residents, their children and other users, contribute to a high quality of life and provide opportunity and choice. They achieve this in ways that make effective use of natural resources, enhance the environment, promote social cohesion and inclusion and strengthen economic prosperity”. A similar definition is used in the Government’s Five-Year Plan, (ODPM 2005): “Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all”. These concepts of sustainability refer primarily to communities rather than home ownership.

Other government sources provide alternative approaches to sustainability, particularly in relation to owner-occupancy. During the 1980s, an objective of government homeownership policy was to *increase* the rate of ownership. This objective appears in successive annual reports of the, then, Department of the Environment. In the 1994 Annual Report, for example,

⁵ The environmental economics literature provides an important exception.

the first departmental objective was stated to be “to promote the growth of owner occupation”. But, by 1995, this had subtly changed “to promote the growth of sustainable owner-occupation”. The additional word tells us something about the state of the market at the time (housing was still in recession) and the growing awareness that the promotion of ownership, regardless of underlying economic conditions, was bound to cause problems, notably arrears, repossessions and negative equity in the first half of the nineties. However the 1996 Annual Report “sets out policies for the next ten years based on: continued growth in sustainable home ownership, with low interest rates and sustained economic growth to help make homes affordable; ... an effective land use planning system that allows enough homes to be built or converted to meet demand” (p. 19). But there is no reason to believe that these objectives are consistent. Low interest rates are not necessarily consistent with either sustainable ownership or sustainable growth. However the objective does at least recognise the requirement for a flexible planning system (Meen 1998). Furthermore, there was a growing recognition that sustainability cannot be considered in isolation from underlying economic and social conditions.

Nevertheless, current government plans to extend homeownership to a further million households appear to return to a situation where the constraints on sustainable homeownership are not fully recognised. This theme is explored below.

There are, however, other concepts that should be considered. First, sustainable increases in ownership could be equated with increases in demand determined by *demographic trends*. Indeed, demographic projections coupled with trended future estimates of owner-occupation rates form the basic methodology underlying most estimates of housing need. The problem, however, is that future owner-occupation rates cannot simply be considered as a simple extrapolation of past trends – they are subject to structural changes over time. Both the number of households and the proportion who are owner-occupiers respond to market conditions, notably changes in affordability. If the Barker reforms for improving affordability are successful, then increases in the number of households and the proportion who are owners are likely to increase compared with past trends (see ODPM 2005a). But note that the improvements arise from increases in housing *supply*.

Second, sustainability may be based on *environmental* concepts⁶. Here two elements are central; first, a concern for the well being of future generations in the face of growing pressure on the natural environment. In this sense, sustainable consumption is the level that can be maintained indefinitely without depleting the stock of natural resources. Second, the ability of the economic system to substitute other forms of wealth for any diminution of the natural capital stock - if natural resources are used up now, this may not matter if other resources can be substituted in the future. Both of these aspects place emphasis on the long-term future as opposed to today or the short term.

There is a question, however, whether environmental concepts are directly applicable to housing. At one level, housing is clearly closely bound up with environmental considerations through its use of land. Housing inevitably generates externalities through pollution and congestion. But its use of land cannot be analysed in quite the same way that oil, for example, might be considered. As a finite resource, for oil, models of optimal depletion policy can be developed. But, although land changes its characteristics through development⁷ it is not permanently destroyed or used up. If a building becomes economically obsolete, it will be demolished and an alternative put in its place. Therefore, the physical quantity of land (as opposed to planning regulations) does not necessarily impose a constraint on sustainable development. Indeed current proposed developments imply relatively modest increases in land in Britain devoted to housing. According to the Barker Review (page 126), in the South East, over 60% of land is protected (either green belt or designated conservation areas) and 11.4% is urbanised. Of the remaining land 1.5% is required for future planned house building before 2016. But higher densities or greater use of previously developed land could reduce this requirement. However, spatial constraints may arise. The location of demand is not necessarily consistent with where government would like the homes to be built and planning (as it stands) contains no mechanism whereby the two may be reconciled.

Third, although sustainable home-ownership typically concentrates on the financing costs of house purchase, Leather (1997) points to the lack of emphasis on the on-going costs of repair and maintenance. These are set, however, to become a problem in future years because of the

⁶ Kearns and Turok (2004) provide an excellent review of the sustainable development and sustainable communities literatures, from global to local levels, identifying the key characteristics. This provided a major input into the definitions used by the Egan Review. In principle, this approach also needs to consider the effects of global warming on property damage due to flooding.

high average age of homes. In England, 21% of the housing stock was built before 1920 compared with 8.3% in the US (ODPM 2005a, page 48). Leather argues that households, lenders and government should be paying more attention in terms of sustainability to coping with the future costs of physical deterioration.

Fourth, sustainability may be associated with *affordability* for households and *profitability* for builders. Indeed, a long-term equilibrium for a system has to be one in which homes are affordable for households, but provides a sufficient return to builders to enable them to bring forward the required level of dwellings. Note, that in this case, attempts to force builders to provide a proportion of affordable homes in any development through Section 106 agreements, particularly on brownfield sites, are not necessarily consistent with this definition of sustainability, because the implicit reductions in profitability may not produce an equilibrium - the required supply of new homes may not be forthcoming.

These two conditions can also be considered in the context of the wider definition of sustainability used in Maclellan *et al* (1997), i.e. “an overall level or rate of home-ownership which is not subject to significant short-term attrition (or growth) in the cyclical downswing (or upswing) and which is consistent with economic fundamentals in the long term” (p. 4). Implicit in this definition is the avoidance of sharp variations in prices, construction volumes and arrears and repossessions. On this definition, despite the greater attention paid to sustainability in government objectives over the last ten years, it is hard to believe that the market has become more sustainable as we saw in the last section. The definition also clarifies a further important point. Market processes determine owner-occupation rates. Therefore, sustainability is concerned with underlying economic trends.

In thinking about sustainability in this way, concepts of *natural rates* are useful. The natural rate of unemployment⁸ - the rate of unemployment towards which the economy tends in the long run - is the best-known example; natural vacancy rates provide a further example in the property literature. Carrying the analogy over to homeownership, we might think of *natural rates of arrears and repossession*. Arrears change in the short run over the economic cycle according to variations in demand, but long-run changes are associated more with long-run

⁷ Notably from greenfield to brownfield status.

⁸ and the associated concept of the non-accelerating inflation rate of unemployment (NAIRU).

structural developments – changes in the mortgage industry, labour market reform (including the income distribution), the nature of the safety net and changes in family structures over time. Importantly, attempts by to hold repossessions below the natural rate, by expanding demand, add to house price inflation pressures. Reductions in the natural rate require *supply* side reforms.

Proposition 6. Natural Rates of Housing Repossessions are Higher than in the Seventies and Early Eighties

During the seventies homeownership repossessions were steady at less than 5,000 per annum. They rose sharply during the eighties, peaking at approximately 75,000 in the early nineties (Figure 6). Since then, they have fallen continuously, except for a modest increase over the last year. Arguably, current annual levels of repossessions of approximately 10,000 are below the equilibrium or natural rate and reflect high levels of demand in recent years. Figure 7 graphs the ratio of mortgage debt to household incomes and provides one indicator of why home-ownership is intrinsically more risky than in the seventies. Although high levels of indebtedness today continue to be highlighted by commentators, the main period of growth was the eighties as mortgage market liberalisation took place. The recession in the early nineties failed to make a dent in the debt stock. But high indebtedness implies that households are more vulnerable to changes in interest rates or other economic conditions. Therefore, the rise in repossessions when mortgage rates reached more than 15% in 1990 was unsurprising. But this was cyclical and the natural rate is considerably lower, although higher than in the seventies.

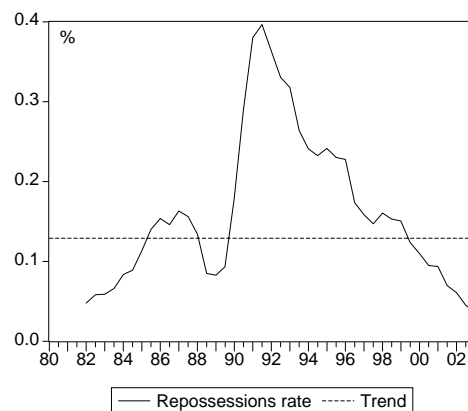


Figure 6. The Rate of Possessions (% of the Housing Stock)

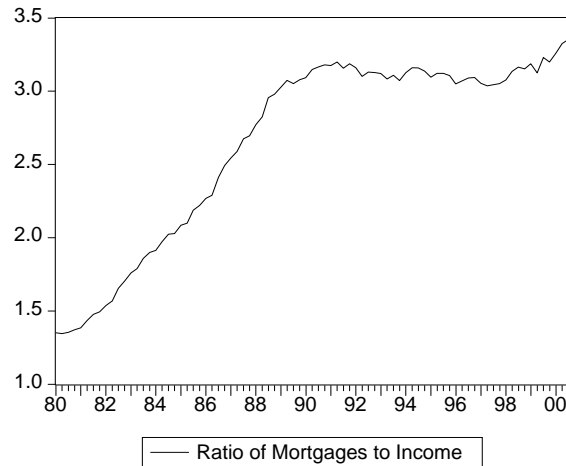


Figure 7. Mortgage Debt/Household Incomes

As noted above, natural rates concentrate on (i) the long run and (ii) the impact of the supply side and structural institutional changes. Generally, natural rates are independent of demand shocks. Remembering the definition of sustainable homeownership above, taken from Maclennan *et al* (1997), this requires the avoidance of sharp variations in repossessions. By analogy to the NAIRU and the natural vacancy rate, if the actual rate of repossessions is not equal to the natural rate, then, the housing market and notably house prices are likely to be fluctuating strongly, violating this definition of sustainability.

But this leaves the problem of making the natural rate operational. The micro economic literature on default rates provides guidance to the large number of factors – individual, loan and locational, which have an influence. Amongst the list of likely influences, the presence of mortgage payment protection appears. Policy has concentrated on support mechanisms of this form as a way of reducing default, but questions arise whether this can act as a permanent means of raising ownership or if its role is more limited as a form of short-run support in periods of cyclical downturn.

Natural rates are primarily used in macroeconomic analysis. Therefore, it is necessary to move from micro influences to an aggregate framework. But it is not sufficient simply to use economy-wide income, for example, as an aggregate indicator of individual or household income. This is because, as noted in Section 4, aggregation conditions are typically not met by this procedure. Instead, aggregation requires the inclusion of the *distribution* of income as well as the aggregate level (see Meen and Andrew 1998). For example, if the economy

permanently grows faster, the effect on sustainable homeownership is different if the income growth is concentrated on younger cohorts than if the growth is in the incomes of older cohorts. Therefore, we have to consider the distribution of each over both households and space. Table 5 sets out a potential list of variables that might affect aggregate default rates and, hence, the sustainable level of owner-occupation.

In principle, if each of these variables were set equal to their long-run growth rates, it would be possible to obtain estimates of the long-run equilibrium level of possessions and the rate of sustainable home-ownership. But it should be clear that the rate depends on a wide range of different factors. In practice, it is not possible to measure all the variables in the table. In particular, time-series analysis is not good at capturing the impact of demographic changes e.g. changes in marriage and divorce rates, or the age/gender distribution. These factors change only gradually over time. Nevertheless, this does not mean that they are unimportant, but they are best captured by micro analysis. Furthermore, although we have argued earlier that the nature of mortgage payment protection may have a role, again, time-series analysis is not the best way to measure its effect. This is partly a problem of absence of data – time-series information on the proportion of households with mortgage insurance appears only part way through our estimation period. But, in addition, aggregate statistics are of only limited value. We need to know whether it is those households at greatest risk who take out insurance.

Table 5. Potential Variables Affecting the Sustainable Owner-Occupation Rate

Individual	Loan	Property/Location
% of the population who are married	Current loan to value ratio	House prices and their spatial distribution
Aggregate household income	Distribution of loan to value ratios	Spatial income distribution
Distribution of household income	% of first-time buyers	Spatial unemployment distribution
% of households with dependents	Debt to income ratio	% of properties held for investment purposes
Aggregate liquid assets	Distribution of debt to income ratios	Housing user cost of capital relative to private rents.
Distribution of liquid assets	Interest rate	Number of Right to Buy sales
Age distribution	% of owners with MPPI	
Gender distribution		
% of household income that is non-wage		
Divorce rates		
Unemployment rate		

In a simple statistical model, Horsewood and Doling (2004) suggest that, across Europe, repayment difficulties can be explained by: the home ownership rate, the mortgage interest rate, the standard deviation of the interest rate, average (and the standard deviation of) income growth, the proportion of part-time workers, the average (and the standard deviation of the) unemployment rate and social security spending. This list is loosely related to the variables in Table 4, but importantly stresses the dispersion as well as the average levels of key variables.

This can be taken further since we are not limited to using variables only available across Europe. We attempt to explain possessions (relative to the number of mortgages) in the UK over the period 1983 (second half) to 2003 (first half)⁹. The series is graphed in Figure 6. It reaches a maximum of 0.4 percent in the second half of 1991 and a minimum of 0.036 percent in the first half of 2003. The mean value is 0.17 percent.

From the list in Table 5, the following were found to be significant determinants of possessions:

- (i) the Gini Coefficient
- (ii) the cumulative nominal capital gain in house prices over the last three years
- (iii) the nominal mortgage interest rate
- (iv) the change in the household debt to income ratio
- (v) the proportion of first-time buyers
- (vi) the unemployment rate
- (vii) repossessions in earlier time periods

The list bears a considerable similarity to the set of variables tracked in the CML's *Repossessions Risk Review*, which places emphasis on labour market conditions, interest rates, house prices, mortgage lending and household indebtedness.

Table 6 sets out the detailed econometric results and nearly all the variation in the series over time can be explained by this limited set of variables. However, the results require further comment. First, the Gini Coefficient captures changes in the distribution of income. As argued earlier, increasing income dispersion is likely to raise the risk of default and possession. Second, the literature on option models suggests the central role of the loan to

⁹ Some earlier observations are lost through the need to incorporate lags in the model.

value ratio in influencing default, *but measured at the current time rather than at the mortgage origination*. Therefore, we should *not* expect the loan to value ratio for new mortgages to be the key variable and is not the appropriate variable to include. But for existing borrowers, the ratio changes according to variations in house prices and the mortgage stock. The former varies much more rapidly than the latter, which can effectively be ignored here¹⁰. The point is that if home-owners are cumulating equity quickly in their homes (because of rising prices) they are much less likely to default for fear of equity loss. Therefore, the model includes the cumulative growth in house prices¹¹. Third, a rise in income, in fact, *reduces* repossessions, despite the positive coefficient on DLY. This is because income is also the denominator in the debt/income ratio. Therefore the total coefficient on income is $(-0.605+0.386) = -0.219$.

Table 6. Explaining Repossessions

Dependent Variable: REPORATE
Method: Least Squares
Sample(adjusted): 1983:2 2003:1
Included observations: 40 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.371817	0.071592	-5.193571	0.0000
REPORATE(-1)	0.550377	0.067738	8.125083	0.0000
DREPO(-1)	0.310426	0.078431	3.957946	0.0004
GINI	0.009201	0.002144	4.290572	0.0002
CUMPH	-0.155098	0.017351	-8.939086	0.0000
DLY(-1)	0.386282	0.241838	1.597280	0.1207
RM(-1)	0.019303	0.001653	11.67583	0.0000
UP	-0.012519	0.002562	-4.886233	0.0000
DLDEBT(-1)	0.605430	0.177215	3.416353	0.0018
FTB(-2)	0.002006	0.000581	3.454121	0.0017
R-squared	0.990896	Mean dependent var	0.169399	
Adjusted R-squared	0.988165	S.D. dependent var	0.094892	
S.E. of regression	0.010323	Arch	1.7 [0.20]	
Sum squared resid	0.003197	LM	1.5 [0.24]	
Log likelihood	131.9300	RESET	0.5 [0.47]	
Durbin-Watson stat	2.447385			

- GINI* = the Gini Coefficient
CUMPH = the cumulative nominal capital gain in house prices over the last three years
RM = the nominal mortgage interest rate
DLY = the percentage change in real household income
DLDEBT = the percentage change in the household debt to income ratio
FTB = the proportion of first-time buyers
UP = the unemployment rate

¹⁰ although this is captured by including the debt to income ratio as an additional influence in the model.

¹¹ At a 2004 ENHR keynote address, Van Order stressed the close relationship between cumulative price change and default in the US.

REPORATE = repossessions as a percentage of the number of outstanding mortgages
DREPO = the change in the rate of possessions.

Fourth, the nominal interest rate rather than the real rate is included, because front-end loading issues are likely to be particularly important in default. Fifth, and most controversially, a rise in unemployment is found to *reduce* repossessions. This could be because the unemployed are entitled to support under ISMI after a nine-month waiting period. Furthermore since the reductions in entitlement were only introduced in 1995, most of the estimation period includes more generous provision. Also, if (as is likely) unemployment leads to a loss in income, repossessions will rise. Therefore, the result should not be taken at face value. Sixth, it appears to be the case that repossession takes place fairly quickly in response to a change in economic conditions. But, in fact, the full effects take some time to occur because the lagged value of the repossession rate appears in the relationship.

The results can be used to demonstrate the responsiveness of repossessions to changes in each of the variables. If each of the variables is set equal to its long-run average since the early eighties, the relationship suggests that the long-run rate of possessions would be 0.13%. Converting this to the *number* of possessions¹², the long-run figure is 29,500. This is remarkably close to the CML “target” of 30,000. But in our analysis of natural rates, we stressed the fact that these can change over time. Long-run changes in any of the determining variables affect the natural rate of possessions. Table 7 shows how the long-run rate varies according to changes in selected variables i.e. the mortgage interest rate, the Gini Coefficient, house prices and the proportion of first time buyers.

In each case, the determining variables are changed by one standard deviation relative to their mean values. In the cases of interest rates and house prices, the variables are reduced, whereas the FTB percentage and the Gini coefficient are increased. The final column converts the rates into numbers of properties, using 2003 figures for the numbers of outstanding mortgages.

¹² Using the number of mortgages in 2003 of 11,436,000.

Table 7. Effect of a One Standard Deviation Change in the Determinants of Repossessions

Variable	Mean of each variable	Standard Deviation (SD)	Repossession Rate (%)	Repossessions (Nos)
Base Scenario	-	-	0.129	29,500
Interest Rate	9.98	3.19	0.0 (-1 SD.)	0 (approx)
Gini Coefficient	32.68	2.83	0.187 (+1 SD)	42,800
House Prices	0.469	0.369	0.256 (-1 SD)	58,550
FTBs	48.3	4.85	0.150 (+1 SD)	34,300

Note: The final column is calculated at the 2003 mortgage stock of 11,436,000

Perhaps the most striking result is that the fall in interest rates by one standard deviation (3.19 percentage points¹³), holding the remaining variables at their means, reduces possessions to approximately zero. Therefore, the low levels of interest rates of recent years by historical standards have been a key factor in explaining the current low levels of possessions. A second feature is that high rates of increase of house prices reduce possessions significantly – the equity cost of default is greater.

However, the key conclusion of the section is that the natural rate of repossession is currently approximately 30,000 units per annum, well above the current level. But the natural rate can be shifted, for example through changes in the income distribution.

Proposition 7. Sustainable Levels of Home-ownership Depend Primarily on the Expansion of Housing Supply rather than on Demand

If sustainability of home-ownership implies the need to avoid sharp fluctuations in house prices, construction and repossessions, supply flexibility is particularly important. Maclennan *et al* predicted that by the end of 2005, the owner-occupation rate in Britain would stand at 69.6% compared with a baseline of 66.7% in 1995. The outturn figure for 2004 was 70.3%. In other words, the prediction was fairly accurate¹⁴. Some other estimates published at the time were much larger. But the projections predicted an average growth rate of house prices of 5.3% between 1996 and 2000 and 7.4% between 2001 and 2005. By contrast, the outturn between 1996 and 2005 was more than 11% per annum. Therefore, despite the fact that demand (through prices) was much stronger than expected, owner-occupancy rose more modestly in line with expectations. This, again, highlights the importance of housing supply in determining owner-occupation, with excess demand being

¹³ This is, of course, a large change reflecting the volatility of interest rates over the sample period.

choked off through an increase in prices and a worsening of affordability. Consequently, the recommendations of the Barker Review, designed to raise the rate of construction, are central to determining the sustainable level of homeownership. Following on from this, Maclennan *et al* identify a number of key constraints that determine the sustainable level of owner-occupation:

- (i) the capacity of the construction industry. This is affected not only by land availability but by the supply of skilled labour, management capabilities and technological improvements. One of the worries of the Barker proposals is that the industry will not have the capacity to increase its output sufficiently.
- (ii) The long-run growth rate of the economy. Although short-run, temporary increases in GDP have little effect on sustainable ownership, permanent increases in the economy's long-run growth rate through productivity gains raise the sustainable rate of ownership. The raising of the Treasury's estimate of the long-run growth rate from 2.5% to 2.75% implicitly raises the sustainable rate of owner-occupation.
- (iii) Labour market flexibility, which influences the distribution of incomes. The distribution of income is just as important as the average level since different groups have different housing demands.
- (iv) Lender behaviour and provision of mortgage support either through the government or the private sector.
- (v) EMU membership may impose further constraints, were the UK to reconsider membership.

An alternative representation of the issue is in terms of the equations in Table 3 (house prices) and Table 6 (repossessions) – is it feasible to minimise both volatility in house prices and to maintain repossessions below the natural rate by demand management? In fact, the interaction between house prices and repossessions may generate housing market instability. To demonstrate, suppose, for example, that low levels of repossessions reduce the user cost of capital, by reducing risk and, therefore, raise house prices. In this case, a reduction in nominal interest rates cuts repossessions and there are both direct and indirect positive effects back on prices. But the rise in prices reduces repossessions even further, unless there is some other stabiliser in the system. In our model, this can only occur through an increase in the supply of housing. Once again, the supply side ties down the natural rate of repossessions and the equilibrium growth rate of house prices.

Moreover, as argued above, the most important factor keeping repossessions low in recent years has been nominal interest rates. But the equations imply that this objective has been met

¹⁴ The under-prediction arises from understating Right to Buy sales.

at the cost of the other objective – high and volatile house prices - and, from Proposition 5, there are costs for the macro economy. The problem is that, with the weakness of housing supply, there are insufficient instruments to meet both targets. Furthermore, as Meen (2000) argues, since nominal interest rates are set with a further objective in mind – the general rate of inflation – the stance of monetary policy can add to both house price volatility *and* repossessions in some circumstances. Objectives of low levels of repossessions and stable prices are only consistent if housing supply is more price responsive, providing an additional instrument. Therefore, the Barker affordability proposals are particularly pertinent.

However, the required changes in housing supply to meet both targets are likely to be large, since house prices are determined by the housing *stock* and new construction is only a small part of the housing stock. This is a controversial view (see Meen 2005 for the arguments), but the Barker Review suggested that a reduction in real house price growth to the average European rate would require almost a doubling of construction output.¹⁵

In fact, government proposals for extra construction are modest and require an increase in private construction from 150,000 units to 200,000 per annum over the medium term. But, at the same time, a further government objective is to extend home ownership by 1 million over the next five years, aided by the promotion of shared ownership initiatives. There are, however, questions whether these objectives are consistent. If the increase in supply is insufficient, the expansion of ownership demand looks likely to add to house price inflation rather than raising ownership. This is a return to the position outlined at the start of this section. Decisions on the two government programmes cannot be taken independently.

Proposition 8. The Buy-to-Let Market will not Continue to Expand at the Same Rate as in the Last Ten Years

The expansion of private rentals since the mid nineties is one of the most important features of the current UK housing market. It needs to be seen against a background where private renting has undergone an almost continuous process of decline since the First World War. Furthermore, a variety of government initiatives over the years failed to reverse the trend. The current expansion in private renting is different in nature from previous attempts to

revive the sector. The difference is in the type and quality of accommodation available from the so-called Buy-to-Let market. This emerging segment provides a realistic alternative to owner-occupation for a significant proportion of households – notably younger, mobile households – despite the longer-term objectives of most households for owning as the preferred tenure.

But it is still easy to overstate the recent improvement in the size of the private rental market. In 1991 in England, 9.8% of the dwelling stock was private rentals (including dwellings tied to employment). This had risen to 10.8% in 2004 (the last year for which data are currently available). In London the increase is more noticeable, from 13.4% to 16.6%. In the South East the respective figures are 10.6% and 11.5%. Future prospects for private renting depend on (a) the expansion in the number of households; (b) the proportion who choose (or are able) to own.

The recently-released 2003-based household projections indicate that the number of households in England will increase from 20.9 million in 2003 to 25.7 million by 2026, an annual increase of 209,000 per annum. Although these are higher than earlier estimates, the figures are misleading as an indicator of the underlying demand for renting in the Buy-to-Let market. Most of the increase is amongst households less likely to be attracted to this sector, i.e. older households.

One-person households account for the majority of household growth (150,000 of the 209,000), whereas married and co-habiting couples are expected to increase by only 31,000 per annum. But 137,000 of the 150,000 rise in one-person households are over the age of 35 and 52,000 over the age of 65. Households with a head aged under 35 are expected to grow by a very modest 12,000 per annum between 2003 and 2026. Demographically, this is the group most likely to be attracted to the Buy-to-Let sector.

Nevertheless, the prospects also depend on the relative costs of renting as opposed to owning. Indeed, since the private rental market has become a closer substitute in terms of housing quality, relative cost considerations have become even more important. Owner-occupier costs include expected capital gains, and one of the reasons for the popularity of renting in the last

¹⁵ This was the headline figure, but the report also conducted sensitivity analysis under different parameter

two years may have been expectations of capital losses from owning (expectations that, in fact, have generally not come to fruition).

In fact, the expansion in demand for private renting, and the accompanying fall in demand for ownership amongst young households, predated the rise in the Buy-to-Let market, (Table 8). The initial change towards private renting was due to (a) shifts in the income distribution; (b) rises in owner-occupier housing costs; and (c) credit constraints faced by households (see Andrew and Meen 2003, Andrew 2005). All these factors could change in the future; therefore a long-run decline in ownership amongst young households is by no means certain. Government policy aimed at expanding ownership will also support the sector.

Table 8. Trends in Tenure Amongst Young Households

% of age group	England								
	Age 20-24			Age 25-29			Age 30-34		
	Owner occupied	Social renting	Private renting	Owner occupied	Social renting	Private renting	Owner occupied	Social renting	Private renting
1984	35	33	33	60	24	16	66	24	10
1988	41	28	30	64	23	13	72	21	7
1991	38	27	35	63	21	16	72	20	8
1993/94	34	31	35	59	21	19	68	20	12
1995/96	n.a.	n.a.	n.a.	56	23	22	70	18	13
1996/97	28	28	44	54	23	23	65	19	16
1998/99	25	32	43	52	23	24	66	19	15
1999/00	27	28	45	54	20	26	66	18	15
2000/01	26	30	44	53	20	27	67	19	14
2001/02	23	32	45	52	19	29	65	19	16
2002/03	24	27	49	51	19	30	66	17	17
2003/04	20	29	51	50	19	31	64	18	18

n.a. means not available.

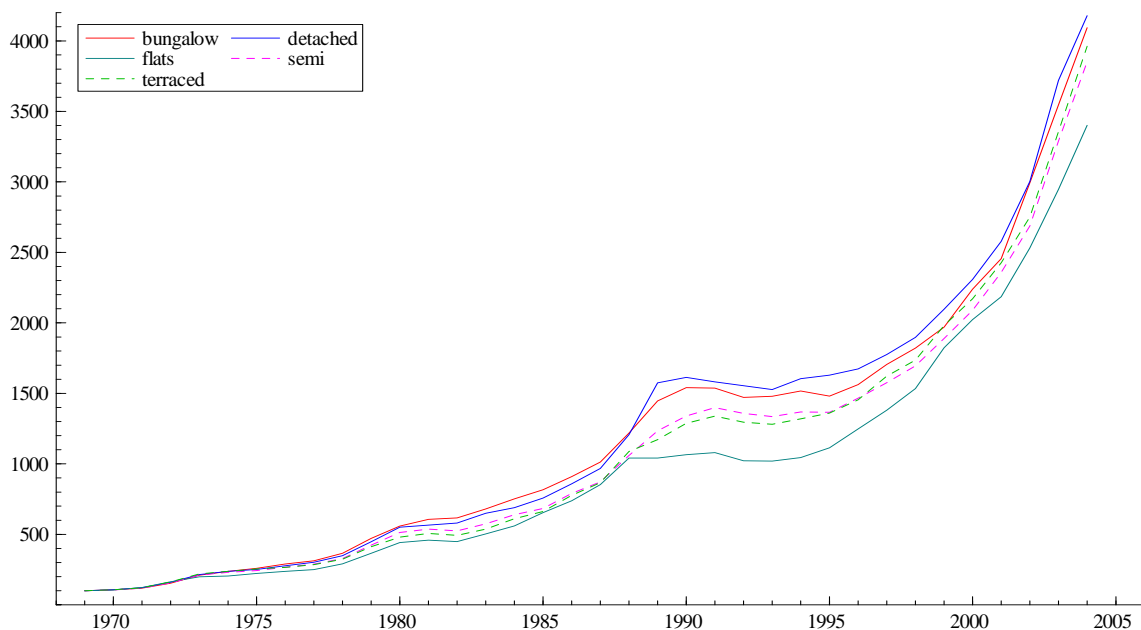
Source: Survey of English Housing.

Proposition 9. Wealth Redistribution by Extending Ownership can be Risky

Current government policy aims to extend homeownership to a further million households. Arguably, this pays insufficient attention to the labour market implications, notably in terms of mobility since owners are less mobile than private renters. But a possible justification for the extension lies in narrowing the wealth distribution and improving social capital. The argument is made in the US literature that owners have a greater stake in the local community since levels of crime, for example, are capitalised into property prices. However, this view

values, giving lower required rates of construction.

remains controversial. The arguments in favour of extending homeownership may be diminished if different locations or property types face different rates of capital gains or losses. Figure 8 graphs simple average levels of nominal house prices, based on 1969=100, for bungalows, detached houses, flats, semis and terraced properties. It extends the sample period of a graph originally appearing in Evans (1988). Table 9 summarises the annual percentage growth rates and the standard deviations for each. Since lower income households are more likely to be concentrated in lower priced properties, notably flats, differential capital gains have implications for the wealth distribution. The table suggests that, nationally, the prices of flats have, indeed, grown slightly slower than detached dwellings. Although the difference in the annual growth rate may not seem great, cumulated over 35 years, the price of detached houses have grown by 23% more than flats.



Source. Housing Statistics

Figure 8. Nominal House Prices – Property Types

Table 9. UK House Price Growth and Volatility - Five Property Types (1969-2004)

	Detached	Bungalow	Semi-Detached	Terraced	Flats
Annual average growth rate (%)	11.3	11.2	11.0	11.1	10.6
Standard deviation	9.7	9.0	9.0	9.0	8.5

Table 10 examines average house price growth¹⁶ across a selection of local authorities and counties. Data are only available for a shorter period, which corresponds to a market boom. The locations are not randomly chosen but compare districts, which experience relatively high levels of deprivation against those with low deprivation. In general, it is true that the more deprived areas experienced slightly slower growth rates, but they are still strongly positive¹⁷. Notice, however, that although the *percentage* gains are broadly similar, the *absolute* gains differ. In Surrey the absolute gain was £193,000, but in Tyneside a more modest £82,000. Therefore, the extent to which the wealth distribution can be narrowed by extending ownership is, again, limited.

Table 10. Local House Price Growth (October/December 1996 to October/December 2005)

Local authority/County	Annual average percentage change
Dorset	12.8
Hampshire	12.6
Surrey	11.3
Essex	13.1
Norfolk	12.9
York	12.0
Greater Manchester	11.3
Hartlepool	8.6
Hull	9.9
Merseyside	11.0
Middlesbrough	8.9
Stockton	10.6
Tyneside	11.2
England and Wales	11.4

Source. Land Registry

Nevertheless, over upswings, nominal growth is unsurprisingly, uniformly positive across both property types and locations, but a different picture emerges in periods of slump, which are, of course, of particular interest for risk. In the UK, the only prolonged period in which national house prices fell occurred in the early nineties. But, in fact, the differences in growth

¹⁶ These are based on Land Registry data, which are not quality adjusted.

¹⁷ It is likely that sub-local authority data would reveal areas where prices grow more slowly. Meen *et al* (2005) show that prices are non-linearly related to deprivation levels and some neighbourhoods experience very high levels of deprivation. However, reliable sub-local authority data over reasonable sample periods are not yet publicly available.

by property types were quite small. What is more striking is the price differences in properties purchased by repeat and first-time buyers. Over the period 1984Q1 to 2006Q1, the annual average house price growth for both groups is identical at 8.5%. The standard deviations are 8.1% and 8.9% for first-time buyers and repeat buyers respectively. However, comparing the downturn alone, taken to be 1990Q1 to 1996Q1, for first-time buyers and repeat buyers, the respective growth rates are -6.2% and -0.2%, although the results are sensitive to the precise choice of time period. Although the results are no more than indicative, three conclusions may tentatively be drawn:

- (i) In the upturn, extending ownership has a limited effect on narrowing the wealth distribution, because, in absolute terms, high value properties increase faster than low value properties. In addition, over the long term, high value properties rise faster in percentage terms as well.
- (ii) In the downturn, new entrants to the market are potentially at risk of greater capital loss if they need to sell quickly and younger households are generally more mobile and less able to wait for a market recovery.
- (iii) The differentials in property price changes may provide a justification for the introduction of derivatives that allow households to hedge. Quigley (2006), for example, shows that the prices of individual houses and a house price index are not perfectly correlated. He argues that if the option were available households could sell an index of house prices at the same time as they purchased a house. Over time they would buy back the index and the joint transaction would reduce aggregate risk since the two returns are not perfectly correlated.

Proposition 10. New Households are not the Main Beneficiaries of Affordability Targets

Under the Barker Review proposals, which have been accepted by the government, national and regional affordability targets are to be introduced, measured by the ratio of lower quartile house prices to incomes. Planning authorities will be encouraged to release extra land for housing whenever the ratio is expected to exceed the target. But the question arises, who are the main beneficiaries from targets – newly-forming households or existing households, who may or may not already be owners. If existing owners are the main beneficiaries, then what happens to the properties they vacate?

ODPM (2005a) shows that the effect of an increase in the supply of owner-occupied properties on affordability depends on four key elasticities:

- the elasticity of real house prices with respect to housing supply
- the elasticity of household formation with respect to real house prices
- the elasticities of earnings and employment with respect to real house prices
- the elasticities of gross inter-regional migration flows with respect to relative regional house prices.

Here, the second is the most important, but the research presented in the ODPM report found that the elasticity lies in the range -0.1 to -0.2. The elasticity differs across the English regions, but is low in all cases¹⁸. Therefore, unless the fall in prices (affordability), induced by the increase in supply, is large, the increase in new households will not be substantial. But, in fact, the first key elasticity – the elasticity of house prices with respect to housing supply – indicates that the induced fall in house prices is modest. This is consistent with the house price equations in Table 3, where the long-run elasticity of house prices with respect to the housing stock, over the period 1969-2005 is -2.0. But since new construction is only approximately 1% of the stock each year, modest increases in new supply have limited effects on prices¹⁹. Simulations in the ODPM report indicate that between a quarter and a third of the new homes would be taken up by new households.

But, if new households do not live in the extra homes, who does? First, migration - both interregional and international – may increase. Particularly if the increase in homes is targeted on a single area within a wider travel to work area, increases in migration may completely offset any improvement in affordability (see ODPM 2005a, where the effect of an increase in homes in Reading is simulated). If migration does not ensue, then the main gainers are likely to be exiting renting households, who are currently unable to enter the ownership market. Table 7 shows the decline in owning amongst younger households and the targets relax the affordability constraints that they face.

But pre-existing households, who move, release properties. Given the national adding-up constraint, the number of new homes net of the number of new households must equal the

¹⁸ Regions that have younger age distributions, notably London, have the higher elasticities.

¹⁹ This is a controversial view. Bramley and Leishman (2005) argue that new supply has an additional direct effect on prices, which may raise the response.

change in the number of second homes plus international migrants plus the change in vacancies minus demolitions. Therefore, it might be expected that higher level of vacancies and demolitions would be part of the adjustment process. But both are controversial from a policy perspective.

It is possible that a higher vacancy rate would be the norm in a less constrained market. At 3.4%, vacancy rates in Britain are low by international standards; this is to be expected, because at high property prices, the opportunity cost of leaving dwellings vacant is also high (Evans and Hartwich 2005). Indeed, Bramley and Leishman (2005) find that both house prices and new construction are highly significant determinants of vacancies. Therefore, in a world of higher levels of construction and fewer shortages, higher vacancy rates would be the norm. Evans and Hartwich (2005) estimate that Germany has a vacancy rate of 8.2% and France 6.8%. In Italy, the rate is almost 20%. In the US, the vacancy rate for rental units is approximately 10% (although less than 2% for owner-occupied homes), US Census Bureau (2005).

Similarly, it could be argued that demolitions have been held artificially low by housing shortages in the past and greater availability allows improvements in the overall quality of the stock, generating higher levels of housing services. Ball (1996, page 12) has shown that, at the replacement rates of the nineties, the average life of a dwelling would have to be approximately 4000 years and even in the period of much higher demolitions in the sixties, the expected life was still 250 years. Ball points out that since housing, in practice, will not last this long, the calculations highlight the problems being stored up for the future. Furthermore, even if dwellings are not physically worn out, large parts of the housing stock are inappropriate to modern forms of living and are potentially technologically obsolete (see Kintrea 2005). In the US, demolitions between 1980 and 1993 were 3.7% of the dwelling stock²⁰ (or 0.28% per annum), compared with 0.09% per annum in England. This is despite the fact that the age of the English housing stock is considerably older. In England, 21% of the stock was built before 1920 compared with 8.3% in the US (Williams 2004). Clearly there is scope for higher levels of demolitions and conversions and for improvements in the quality of the housing stock.

²⁰ This includes losses from natural disasters.

5. Conclusions

The issues raised in this paper are wide ranging, but are broadly concerned with homeownership risk. In summary, a number of key points may be highlighted. First, there is little if any evidence for speculative bubbles in the UK over the last ten years. The coefficients of conventional price models have been stable and it can be shown that there is no straightforward relationship between house prices and market (or imputed) rents. Therefore, analogies from financial asset pricing cannot be applied without modification. Empirical house price models are able to explain most of the trends and volatility since the late sixties. Key factors are:

- Weak housing supply, which increase the responsiveness of house prices to changes in incomes and interest rates
- Movements in incomes and interest rates
- Deregulation of mortgage markets in the eighties and labour market changes, which had their main effect in the nineties.

Second, changes in house prices are not reliable as a means for offsetting wealth effects, arising from changes in other asset prices. The negative correlation between house and stock market prices is recent and other time periods have experienced positive correlations. Housing markets, therefore, may increase macro economic volatility rather than reduce it.

Third, we should not expect to return to the levels of repossessions observed in the seventies, since households are much more highly debt geared than in the earlier era. Furthermore, attempts to reduce repossessions below the natural rate (estimated to be approximately 30,000 per annum under current conditions) lead to an increase in house price inflation. This has, indeed, been observed in recent years. Increases in the sustainable level of homeownership depend primarily on an expansion in housing *supply*.

Fourth, it is easy to over-estimate the importance of the buy-to-let market, which has taken off since the mid-nineties in the UK. So far, it has only added approximately one percentage point to the private rental stock. Demographics suggest only a modest further extension over the future, unless there are permanent relative cost advantages to renting.

Fifth, although periods of housing boom limit the risk of extending homeownership to lower income groups, there are possible greater risks at the bottom end of the market in periods of slump. However, the data are not ideal to test this formally and more analysis is required. Furthermore, prospects for narrowing the wealth distribution through wider homeownership are limited.

Sixth, the main beneficiaries of affordability targets are existing rather than new households. But the targets increase the possibility of improving the overall quality of the housing stock. Finally, the paper highlights the importance of housing supply as a factor in housing market volatility and home-ownership sustainability. The welfare costs of housing supply restrictions have been explored in the literature and this paper adds to the evidence. This does not, of course, mean that all controls should be abandoned, but emphasises the trade-offs involved.

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