Boom In, Bust Out:

Young Households and the

Housing Price Cycle

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BOOM IN, BUST OUT: YOUNG HOUSEHOLDS AND THE HOUSING PRICE CYCLE*

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Abstract

The UK experienced a major residential real estate boom-bust cycle from the mid-Eighties to the mid-Nineties, accompanied by unprecedented shifts in the owner occupancy rate of young households. Previous empirical analyses have pointed toward income changes and financial deregulation as the likely causes of this episode, with little to say about the differential effects on various age groups. We show that, in a life-cycle model with income heterogeneity and credit constraints, the observed co-movements of housing prices and owner occupancy rates can be explained as an equilibrium response to income and credit market shocks. Our findings suggest that the financial liberalisation of the early Eighties was crucial for the unparalleled increase in the owner occupancy rate of young households during the boom.

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1 Introduction

The UK housing market experienced a large boom between 1982 and 1989, followed by a bust from 1990 to 1993. The housing boom occurred during a period of rapid GDP growth, and followed the deregulation of the mortgage market. The bust coincided with a general recession. This paper assesses the relative contributions of income and credit market changes to this housing cycle. We find that income growth alone cannot explain the unprecedented increase in the owner occupancy rate of young households observed during the boom. Understanding whether this increase and its implied rise in mortgage demand was due to income or credit market shocks is important: income shocks are likely to be repeated, whereas the institutional change on the mortgage market of the early Eighties was a unique event. Our conclusion is that the Eighties experience was exceptional, due largely to the deregulation of the mortgage market.

Figure 1 presents real housing price data for the UK from 1983 to 1997. Housing prices increased by 88 percent between 1982 and 1989, then dropped by 25 percent. The price fluctuations of repeat buyer properties were larger than those of first-time buyer properties (Figure 2). The housing boom was accompanied by a period of high GDP growth, the housing bust by a recession (Figure 3).

The early Eighties also witnessed the liberalisation of the mortgage market in the UK. In 1981, banks were allowed to compete on that market, and rapidly gained market share. Starting in 1983, building societies, the main mortgage providers, saw restrictions on their activities lifted (Davies and Weber, 1991). A direct effect of this institutional change was increased competition on the mortgage market, which coincided with a rise in advances to first-time buyers as a proportion of property price (Figure 4). While this data does not provide direct evidence on lenders' behaviour, it demonstrates that young households were allowed to borrow a higher proportion of the price of their property than prior to credit market liberalisation.

Previous investigations of this episode include the work of Muellbauer and Murphy (1990, 1997), King (1990), Simons (1996) and Holmans (1995). Relying on regression analyses, Muellbauer and Murphy conclude that current income and short run demographics were the most important factors behind the boom, but that the increase in home ownership was due to the credit market liberalisation and extrapolative price expectations. King, on the other hand, argued that the increase in demand for home ownership could be explained by an increase in real permanent income.

Simons furthered the debate with a descriptive analysis of various age groups. She reports that the 20-29 year old households experienced the largest income fluctuations

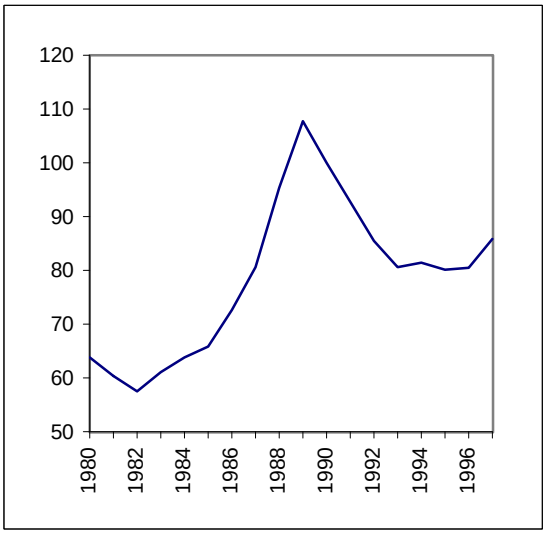

Fig. 1: UK real house price index (1990=100),
adjusted for changes in the mix of properties mortgaged
(Source: Housing Finance, Council of Mortage Lenders, London)

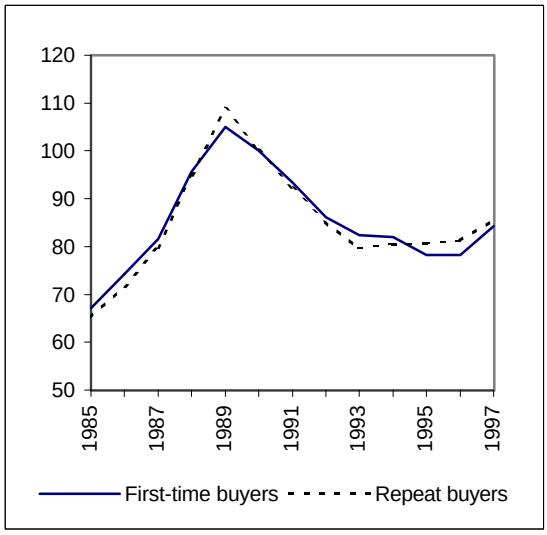

Fig.2: UK real house price indices (1990=100),
adjusted for changes in the mix of properties mortgaged
(Source: Housing Finance, Council of Mortage Lenders, London)

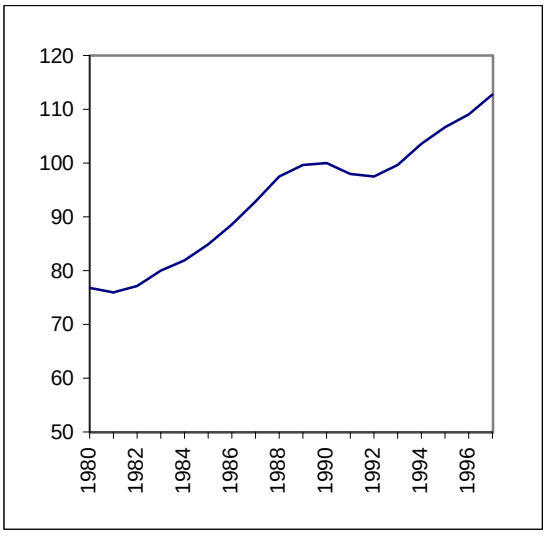

Fig. 3: UK real GDP (1990=100)
(Source: Economic Account)

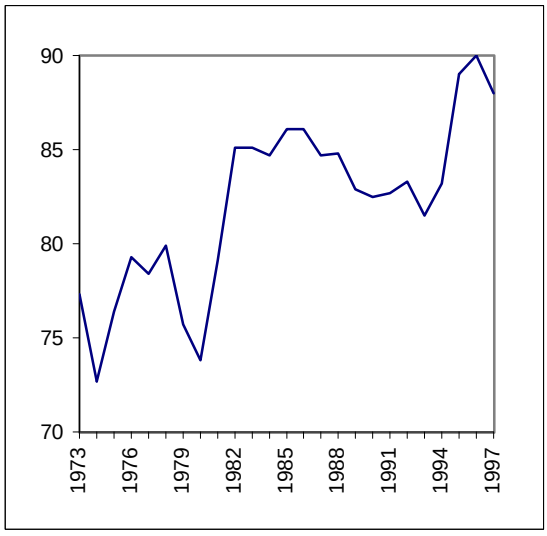

Fig. 4: Average advances to first-time buyers
as % of dwelling price
(Source: Housing Finance, Council of Mortage Lenders, London)

Table 1: Average household income and GDP

Year	Age group 20-29	Age group 30-39	Real GDP
1983-88	+27.5%	+18.9%	+21.9%
1988-93	-11.9%	-6.7%	+2.3%

Table 2: Owner occupation ratios

Year	Age group 20-29	Age group 30-39
1983	46.1%	71.8%
1988	60.5%	71.9%
1993	50.1%	68.8%

during the boom-bust episode (Table 1). She also finds that the owner occupancy fluctuations were more dramatic for the 20-29 year old (Table 2).

Holmans provides further evidence of an unparalleled increase in first-time purchases during the boom and a disappearance of first-time buyers during the bust.[1] He shows that demographic changes fall short of fully explaining the increase in first-time purchases during the boom or the decrease during the bust.

The present paper develops an equilibrium model of the housing market that yields specific predictions for the behaviour of different age cohorts. Confronting these predictions with the data on young households, we gain new insights into the relative contributions of income and credit market shocks to the UK housing cycle of the Eighties and early Nineties. We build on the theory proposed in Ortalo-Magné and Rady (1998), which explains various aspects of housing market fluctuations by relating them to observed credit market constraints, life-cycle patterns of housing consumption, and income and preference heterogeneity. The theory highlights the primary role of young households' income and credit market conditions for housing market fluctuations. In Section 2 below, we extend a version of our earlier model in a way that preserves its tractability and allows a detailed analysis of fluctuations in owner occupancy.

King (1990), Attanasio and Weber (1994) and others have provided evidence that households' expectations of future income changed in the mid-Eighties, reacting to steady productivity gains since the start of that decade. To the extent that households felt permanently richer, we can treat the income increase concurrent with the housing boom

[1] Holmans' study (as well as the data reported in Figures 1 and 2) excludes sitting tenant purchasers from local authorities as they represent a separate market owing to the large institutional price discount they enjoyed following legislative changes in the ighties.

as a permanent income shock. Our model's reaction to such a shock is analysed in Section 3. It predicts a rise in housing prices but, contrary to the UK evidence, a temporary *decrease* in the owner occupancy rate of young households.

In Section 4, we consider the response of our model to a relaxation of the credit constraint. We find that such a relaxation boosts housing prices and raises the owner occupancy rates of young households, with the strongest effect on the cohort of first-time buyers, as reported in the data. This suggests that financial liberalisation was crucial to the UK experience in the second half of the Eighties.

During the recession of the early Nineties, UK productivity continued to rise. In view of this, households may have perceived the income decrease at that time as temporary. The reaction of our model to such a shock is examined in Section 5. The model predicts a temporary fall in housing prices and owner occupancy rates of young households, which is again consistent with the empirical evidence.

2 The Model

We consider a life-cycle economy with three commodities: a numeraire good, flats and houses. Both types of dwelling are available in fixed quantities, S^F and S^H, respectively. Flats may be rented or owner occupied, houses can only be owner occupied. Rented flats are held by private landlords or banks. In addition to living in a flat or house, agents may also choose to remain with a parent at no cost to the parent. This is the only case where a dwelling can accommodate more than one agent.

Each period, a measure one of agents is born with no assets. Each agent is identified by an index (or "name") $i \in [0, 1]$. This index determines the size of the endowment of the numeraire good that each agent receives: the endowment at date t for agent i of age j is $(1 + \alpha\, i)\, w_t(j) > 0$, where the constant $\alpha > 0$ provides a measure of the dispersion of incomes. We assume that there are no bequests or, equivalently for our results, that no bequest is received until agents have advanced a few steps along the property ladder.[2] Agents live five periods.

Each agent maximizes a time-separable utility function over bundles of the numeraire good and the type of housing, $h \in \{P, R, F, H\}$, where P, R, F, and H stand for parents, rented flat, owned flat and house, respectively. The instantaneous utility is assumed

[2]The crucial assumption for our results is that the housing consumption path of at least some agents in the economy is constrained by their lack of liquidity during the early stages of life. This is widely supported by the empirical evidence; cf. the references in Ortalo-Magné and Rady (1998).

additively separable in the numeraire and housing, and linear in the numeraire. Utility from future consumption of the numeraire and housing is discounted by a factor exceeding $1/(1+r_t)$ for all t, where r_t is the exogenously given interest rate. This assumption, combined with linear utility and a non-negativity constraint, yields a convenient optimal plan for consumption of the numeraire good: agents postpone all such consumption until the end of their lives.

The utility derived from housing consumption is specified such that living with their parents is the least preferred option for all agents. Owner occupation of a flat provides zero utility and is always preferred to rental of flat. Until age 4, living in a house is the most preferred option for all agents. At age 5, by contrast, an agent's utility premium for owning a house rather than a flat depends on her name; this premium is $\underline{u}^H + \eta\, i$ with $\underline{u}^H < 0$ and $\eta > 0$. In particular, agents with names close to zero prefer to live in a flat at age 5. The parameter η measures the dispersion of agents' housing preferences.[3] Overall, each agent prefers to live in a house from age 1 to 4. The utility premium of the house declines for all agents at age 5, with some of them preferring a flat for this last period of their life.

Lenders do not allow borrowers to hold a debt higher than a fixed proportion of the value of the dwelling purchased, the only collateralizable asset. So net savings s_t are constrained to satisfy $s_t \geq -\gamma q_t^h$, where q_t^h denotes the time t price of a dwelling of type $h \in \{F, H\}$, and $\gamma \in (0,1)$.

The timing of the model is such that at the end of each period, agents decide which type of dwelling to occupy in the following period, execute the corresponding transactions on the housing and credit markets, and consume the numeraire good. We assume that rent must be paid in advance. This means in particular that during the first period of their lives, all agents share the dwelling of a parent.

Given an initial distribution of dwellings and net savings across agents, and an exogenous sequence of interest rates $\{r_t\}_t$, a perfect foresight equilibrium in this economy is a sequence of flat and house prices $\{q_t^F, q_t^H\}_t$, a sequence of rents $\{R_t\}_t$, and a sequence of allocations $\{c_t(i,j), h_t(i,j), s_t(i,j)\}_t$ for all names and all ages, such that for all t, the allocation solves each agent's constrained utility maximisation problem, the flat and house markets clear and landlords are indifferent between renting a flat and

[3] In the equilibrium constructed below, all agents of a given cohort own a house at age 4. We can think of the housing preferences of older agents as being determined by a random draw at that age. Since incomes no longer influence housing choices after age 4, it is convenient and without loss of generality to use one and the same index to describe agents' incomes while young, and their preferences while old.

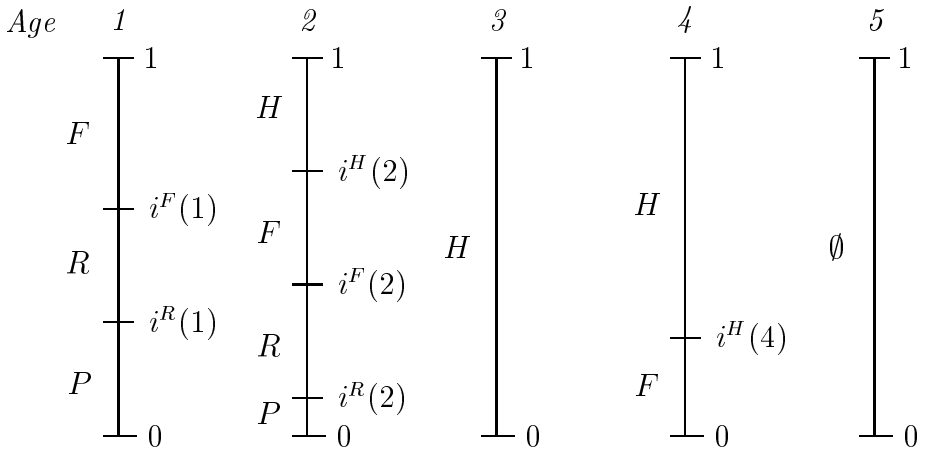

Figure 5: End of period steady state housing choices by age groups

holding bank deposits. The equilibrium rent, R_t, is thus determined by the no-arbitrage condition $R_t = q_t^F - q_{t+1}^F/(1 + r_t)$.

To highlight the differential effects of income shocks and credit liberalisation on owner occupancy of young households, we focus on a configuration of our model such that the pattern of housing choices in steady state equilibrium is as in Figure 5. This figure displays the results of the end-of-period trade in dwellings.[4] We assume preference parameters and income profiles such that, in equilibrium, young agents move out of their parents' home as soon as they can afford to rent a flat. Similarly, young agents buy a flat or house as soon as they can afford the respective downpayments. Some agents can afford to rent a flat at the end of their first period of life, while others must stay with their parents for two periods due to lack of resources. At age 3, everyone has accumulated enough wealth to purchase a house. At the end of their age 4 period, some agents sell the house and move into a flat because their utility premium for a house has decreased. At the end of their lives, all agents sell their dwellings, consume their wealth and die. With such parameters, the relationship between an agent's name and type of dwelling is monotonic within each cohort. We can therefore introduce age-dependent cutoff indices for rental of a flat ($i_t^R(1)$ and $i_t^R(2)$), owner occupation of a flat ($i_t^F(1)$ and $i_t^F(2)$), and owner occupation of a house ($i_t^H(2)$ and $i_t^H(4)$).

Two features of this model configuration are noteworthy. First, the marginal house buyer in the second period is a flat owner. This is necessary if capital gains on flats are to influence housing demand in equilibrium. Second, some people stay with their parents

[4]For example, $i^F(1)$ is the name of the poorest agent of age 1 who buys a flat at the end of the current period and moves into it at the beginning of the next. All agents live with a parent at age 1.

for more than one period. This allows us to study fluctuations in the rate of entry of young households into the housing market.

Solving for equilibrium prices is straightforward. It first requires characterising the relevant cutoff indices. By definition, agent $i_t^R(1)$ has an endowment at age 1 just sufficient to pay the rent on a flat; i.e.,

$$(1 + \alpha\, i_t^R(1))\, w_t(1) = R_t. \tag{1}$$

The total wealth of agent $i_t^R(2)$ at age 2 also equals the rent; i.e.,

$$(1 + \alpha\, i_t^R(2))\, W_t(2) = R_t \tag{2}$$

with $W_t(2) = (1+r_{t-1})\, w_{t-1}(1)+w_t(2)$. Market clearing implies that the number of agents living with a parent $(1 + i_t^R(1) + i_t^R(2))$ be equal to the total number of agents minus the number of dwellings $(5 - S^F - S^H)$. This condition, combined with the definitions of $i_t^R(1)$ and $i_t^R(2)$, yields the equilibrium rent, which in turn determines the law of motion of the flat price by the no-arbitrage condition stated above:

$$R_t = [(4 - S^F - S^H)\, \alpha + 2]/[w_t(1)^{-1} + W_t(2)^{-1}]. \tag{3}$$

Having bought a flat at $t-1$ and earned income for two periods, agent $i_t^H(2)$ has just enough net worth at time t to afford the downpayment on a house after selling her flat:

$$(1 + \alpha\, i_t^H(2))\, W_t(2) - (1 + r_{t-1}) q_{t-1}^F + q_t^F = (1 - \gamma) q_t^H. \tag{4}$$

While all the cutoff indices considered so far are backward looking, i.e., depend on previous and current incomes, rents and prices, the cutoff index $i_t^H(4)$ is forward looking. This index depends on preferences and anticipated user costs. It is the name of the age 4 individual at time t for whom the utility premium of living in a house at time $t+1$ is equal to the difference between the house and flat user costs, expressed in time $t+1$ terms. So the equation for $i_t^H(4)$ becomes

$$\underline{u}^H + \eta\, i_t^H(4) = \left[(1 + r_t) q_t^H - q_{t+1}^H\right] - \left[(1 + r_t) q_t^F - q_{t+1}^F\right]. \tag{5}$$

Solving for $i_t^H(2)$ and $i_t^H(4)$ and inserting them in the market clearing condition for houses yields the law of motion of the house price.

The characterisation of the rental price of flats and the index $i_t^H(4)$, equations (3) and (5), provides a simple intuition for the fundamental determinants of housing prices in this framework: the income of age 1 and 2 agents determines the rent and hence the price of flats, while the price of houses is the price of flats plus the marginal old agent's utility premium.

3 A Permanent Increase in Income

In this section, we investigate the effect of a permanent income shock on housing prices and owner occupancy rates in order to capture a first element of the experience of the Eighties. We first compare steady states and then analyse transition dynamics during successive periods of income growth toward a new steady state. We indicate steady state variables by omitting the time subscript.

First, we consider an equiproportional rise in income for all cohorts. Since

$$(1+\alpha i^R(1))w(1) = (1+\alpha i^R(2))W(2) = R \tag{6}$$

by definition, this income rise leaves both $i^R(1)$ and $i^R(2)$ unchanged while the steady state rent R increases in proportion with income. The steady state flat price, $q^F = (1+r)R/r$, increases by the same factor.

The marginal agents $i^F(1)$ and $i^F(2)$ have accumulated just enough wealth to afford the downpayment on a flat, with the agent $i^F(2)$ having rented in the previous period; i.e.,

$$(1+\alpha\, i^F(1))w(1) = (1-\gamma)q^F, \tag{7}$$

$$(1+\alpha\, i^F(2))W(2) - (1+r)R = (1-\gamma)q^F. \tag{8}$$

The rent and the flat price increase by the same proportion as income, so both $i^F(1)$ and $i^F(2)$ are unchanged. Disregarding agents who have not yet entered the housing market, the owner occupancy rates of the age 2 and 3 cohorts are

$$\frac{1-i^F(1)}{1-i^R(1)} \quad \text{and} \quad \frac{1-i^F(2)}{1-i^R(2)}, \tag{9}$$

respectively.[5] These also remain constant across steady states since none of the relevant cutoff indices change.

The steady state price of houses is such that the difference between the cost of holding a house for one period and the cost of holding a flat for one period equals the utility premium of the marginal age 4 flat buyer; i.e.,

$$\underline{u}^H + \eta\, i^H(4) = r\,(q^H - q^F) \tag{10}$$

by equation (5). Age 4 agents interact with age 2 agents on the market for houses. In steady state again, the poorest age 2 agent who can afford to buy a house is $i^H(2)$, determined from equation (4) by

$$(1+\alpha\, i^H(2))\, W(2) - rq^F = (1-\gamma)q^H. \tag{11}$$

[5]Recall that households complete property transactions at the end of a period, before actually occupying their property during the following period.

A new steady state house price at or below its initial level would imply both a lower $i^H(4)$ (since the flat price is higher) and a lower $i^H(2)$ (since the rise in income is only partly offset by the rise in the user cost of a flat). This is incompatible with clearing of the market for houses, so the new steady state house price must be above its initial level.

In the following, we consider the transition to the new steady state. Starting from an initial steady state at $t = 0$, suppose that income for both youngest cohorts increases by a fraction $\sigma > 0$ per period for $T - 1$ periods and then remains constant. Assume that the first increase is not anticipated, while subsequent increases are perfectly foreseen. At $t = 1$, the net worth of age 1 agents is $1 + \sigma$ times that of their predecessors one period earlier. Age 2 agents have enjoyed an income increase at $t = 1$, but not at $t = 0$. In particular, the net worth of age 2 agents who did not move out of their parents' home at age 1 is less than $1 + \sigma$ times that of their predecessors. Hence, the rent increases by a factor less than $1 + \sigma$ over the first period of the transition.

At $t = 2$, the initial steady state income no longer enters the net worth of age 2 agents, so both groups of potential first-time buyers enjoy the same rise in net worth relative to their predecessors. Therefore, the rent increases by the factor $1 + \sigma$ between $t = 1$ and $t = 2$. This increase repeats itself in all periods up to $t = T - 1$.

At $t = T$, the income of age 1 agents is the same as that of their predecessors, while the net worth of age 2 agents who did not enter the housing market at age 1 is higher than that of their predecessors. This implies that, although incomes have not risen, the rent on flats continues to increase from $T - 1$ to T, so that the overall increase in the steady state rent is in line with the total increase in income. Since the flat price is the present value of current and future rents, the ratio of flat price to rent is exactly the same in the new steady state as in the initial one, and above this steady state level during the transition ($t = 1, \ldots, T - 1$). This implies that the owner occupancy rates of age 2 and age 3 agents are below their steady state levels during the transition.

While the price of flats is on the rise, young flat owners enjoy capital gains, which increase their net worth and help them afford a higher downpayment. The resulting extra demand for houses may push the price of houses above its new steady state level, so that repeat buyer properties appreciate more than first-time buyer properties. This completes our characterisation of the effect of an equiproportional income change in our model economy.

The evidence presented in the introduction indicates that the income increase of 20-29 year old households was larger than that of the 30-39 year olds. This feature of the data can be modelled here by a higher rate of growth of $w(1)$ relative to $w(2)$. The only

difference with the effects of an equiproportional income increase is that age 1 agents now have an advantage over age 2 agents in the competition for both rented and owned flats. Hence, in the new steady state, the owner occupancy rate of age 2 agents is higher, and that of age 3 agents is lower. During the transition, both owner occupancy rates decrease but, compared to an equiproportional income rise, less so for age 2 agents and more for age 3 agents.

In summary, our model predicts that a progressive increase in income prompts an increase in housing prices with a decrease in owner occupancy for young households during the transition. While the prediction for prices is qualitatively consistent with the empirical evidence, the prediction for owner occupancy rates is at odds with the observed increase during the UK boom of the mid-Eighties. Quantitatively, our theory predicts housing prices to rise in line with the income of young households, hence by less than the observed 40%. This suggests that a rise in permanent income alone cannot have been responsible for the housing market dynamics during the boom.

4 Financial Liberalisation

We now turn to credit market liberalisation in order to investigate whether it can explain the rise in owner occupancy during the boom. We capture the relaxation of the downpayment constraint through an increase of the parameter γ, the maximal ratio of loan to property value.

The price of flats depends on the rent, which in turn depends on the income of young households, the interest rate and the supply of dwellings. Hence, the flat price is not affected by a change in γ. This is the result of our extreme assumption that there is frictionless conversion of flats from rental to owner occupation, hence perfect arbitrage between bank holdings and investment in flats. The introduction of some frictions here would make the flat price sensitive to changes in the borrowing constraint.[6]

However, relaxing the downpayment requirement affects both the houses price and the owner occupancy rate of young cohorts. Increasing γ increases the ability of age 2 households to pay for a house. As a consequence, the steady state house price increases with γ. A relaxation of the credit constraint also allows more agents of age 1 and 2 to acquire a flat, raising the owner occupancy rates of these cohorts in the subsequent period. As the relative income difference between any two agents of a given cohort is the same in each period, the relative *net wealth* difference between them increases over time.

[6]See Ortalo-Magné and Rady (1998).

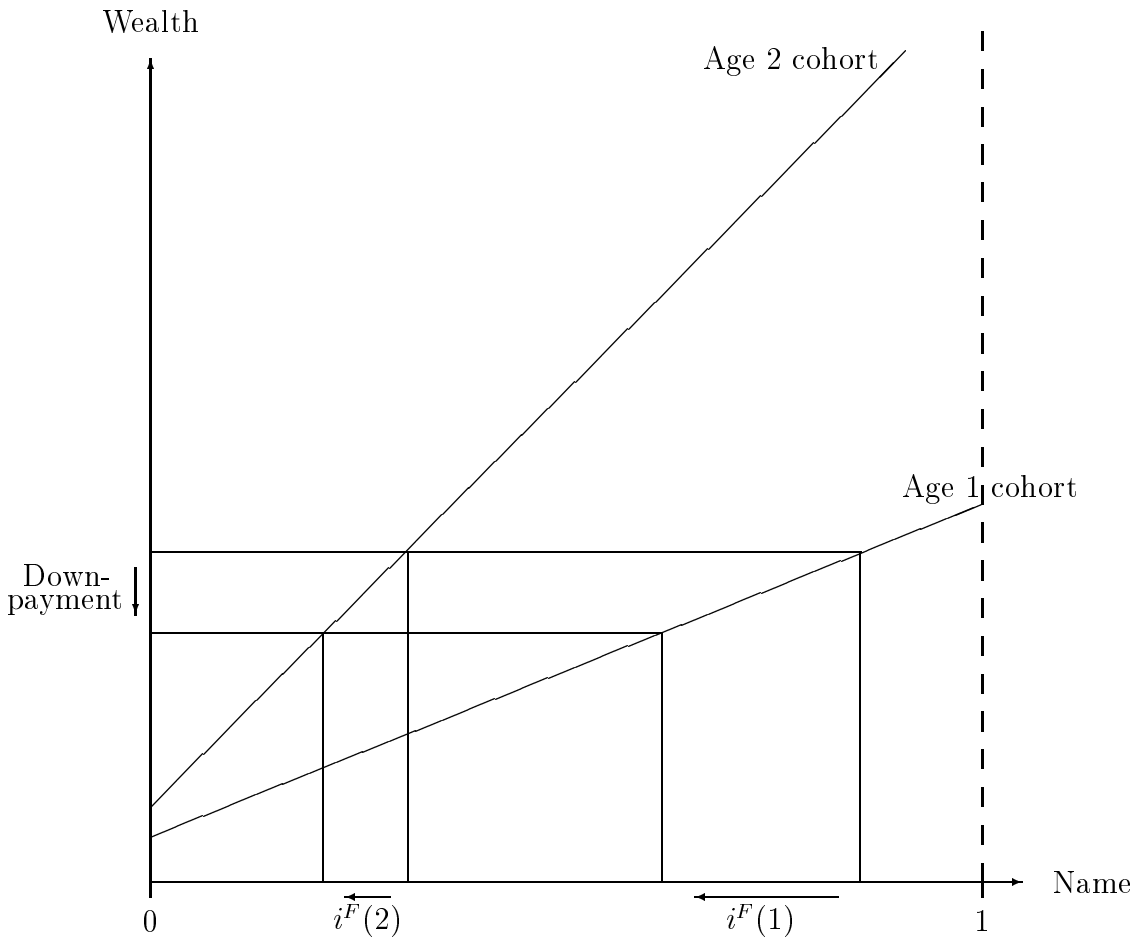

Figure 6: A decrease in the downpayment requirement

Consequently, the wealth distribution (wealth as a function of the name) at age 1 is less steep than that at age 2. This implies that a reduction in the required downpayment on a flat has a stronger effect on the younger of the two cohorts, as shown in Figure 6. An increase in γ by $\Delta\gamma$ (i.e., a decrease in the required downpayment by $\Delta\gamma\, q_t^F$) lowers $i_t^F(1)$ by $\Delta\gamma\, q_t^F/(\alpha w_t(1))$, and $i_t^F(2)$ by $\Delta\gamma\, q_t^F/(\alpha W_t(2))$, which is less since $w_t(1) < W_t(2)$. As a consequence, the owner occupation rate at age 2, $[1-i_t^F(1)]/[1-i_t^R(1)]$, increases more (in relative terms) than that at age 3, $[1-i_t^F(2)]/[1-i_t^R(2)]$.

In summary, credit liberalisation boosts the house price in the model, and raises the owner occupancy rates of young households. Any frictions in the conversion of rented to owned flats would induce a positive response of flat prices to credit market liberalisation.

5 A Transitory Fall in Income

In our model, we could explain a temporary decrease in young households' owner occupancy rates during a housing bust by reversing the direction of the shocks considered in the previous two sections. In other words, we could assume that the bust was the consequence of a permanent decrease in expected income together with a tightening of the access to mortgage credit. However, such an approach does not seem adequate with regards to the UK experience from 1990 to 1993. While banks most likely tightened their lending requirements at the margin during the downturn, the financial liberalisation of the Eighties was certainly not reversed in the early Nineties. Moreover, given the generally observed upward trend of income, a temporary income decrease seems a more realistic modelling of households' income expectations at the beginning of the Nineties.

In response to such a transitory negative shock to income, both the rent and the price of flats in our model fall below their initial steady state levels, before eventually reaching them again. As the flat price is the present value of current and future rents, the ratio of flat price to rent is above its steady state level during the transition. This causes a temporary fall in owner occupancy rates of age 2 and 3 households.

6 Concluding Remarks

We have shown that an extension of the life-cycle model proposed in Ortalo-Magné and Rady (1998) can explain observed co-movements of housing prices and owner occupancy rates of young households as an equilibrium response to income and credit market shocks. Assuming that the positive income shock during the UK housing boom of the Eighties was perceived as permanent, we find that easing the access to mortgage credit was crucial to the observed increase in the owner occupancy rate of young households during that boom. The evidence from the subsequent housing bust, by contrast, is in agreement with our model's prediction for a temporary downturn in income.

To the extent that the credit market liberalisation of the early Eighties was a one-off event, we do not expect forthcoming housing booms to involve similarly large increases in the owner occupancy rate of young households. The crucial role of financial liberalisation may also explain why significant fluctuations in owner occupancy appear to be a unique feature of the boom in the Eighties (Holmans, 1995).

We have not addressed other factors that may have amplified the housing boom, such as demographic changes or changes in interest rates. It should be obvious that an increase in the size of the entering cohorts, as witnessed in the Eighties, could have large effects on

housing markets in our framework. Our theory suggests that the essential determinant of such effects would be the wealth of these entering households. As to interest rates, young households' owner occupancy is unaffected by the borrowing rate in our model, and positively related to the savings rate. Hence, a decrease in interest rates on its own would not produce the observed increase in owner occupancy rates.

References

Attanasio, Orazio P., and Guglielmo Weber (1994): "The UK consumption boom of the late 1980s: Aggregate implications of microeconomic evidence," *conomic Journal*, 104:1269-1302.

Davies, Jonathan A., and Guglielmo Weber (1991): "Credit and British consumers: Some micro evidence," *Fiscal Studies*, 12:63-84.

Holmans, Alan (1995): "Where have all the first-time buyers gone? Estimating the first-time buyer population in the United Kingdom," *Housing Finance*, 25:7-13.

King, M. (1990): "The UK current account deficit: discussion," *conomic Policy*, 5:383-387.

Muellbauer, John, and Anthony Murphy (1990): "Is the UK balance of payments sustainable?," *conomic Policy*, 5:347-382.

Muellbauer, John, and Anthony Murphy (1997): "Booms and busts in the UK housing market," *conomic Journal*, 107:1701-27.

Ortalo-Magné, François, and Sven Rady (1998): "Housing market fluctuations in a life-cycle economy," Discussion Paper No. 296, Financial Markets Group, London School of Economics, and Research Paper No. 1501, Graduate School of Business, Stanford University.

Simons, Joanna (1996): "The disappearance of the first-time buyer: An empirical examination of the role of the 20-29 year olds in the housing market boom and bust," MSc Economics Dissertation, University College London, London.