

POLICY CHANGE AND THE UK HOUSING MARKET

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ABSTRACT. This paper provides an econometric evaluation of the impact on national house prices of policy changes that have occurred since the 1980s. Principal among these was the partial removal of rent controls and the gradual removal of mortgage interest tax relief (MITR). The paper builds on a simple user-cost model of housing and introduces two new explanatory variables which measure changing policy.

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1. INTRODUCTION

This paper provides an econometric evaluation of the impact on national house prices of policy changes that have occurred since the 1980s. Principal among these was the partial removal of rent controls and the gradual removal of mortgage interest tax relief (MITR). The paper builds on a simple user-cost model of housing and introduces two new explanatory variables which measure changing policy.

2. THE UK HOUSING MARKET AND POLICY CHANGES IN THE 1980S

There are four main types of tenure in the UK housing market:

- (1) owner-occupation
- (2) Rented from the state, i.e. local authorities and new towns
- (3) Rented from housing associations (quasi-state)
- (4) Rented from private landlords

Between 1900 and the present there have been quite radical changes in the allocation of the housing stock between these different tenure types as Table 1 shows.

2.1. The UK Rental Market until the 1980s. Beginning in 1914 all the rental sectors, including the private, were regulated, with increasing severity, both as regards the nature of the tenancies that could be provided and in the level of rent that could be charged. The Rent Act 1977, which consolidated previous legislation and marked the high point of rent regulation, demonstrates how regulation was imposed on the market. This Act protected the tenant by:

- (1) limiting amount of rent a landlord could charge (the fair rent scheme)
- (2) providing security of tenure to tenants by requiring landlords to obtain a court order to regain possession and limiting the grounds on which they could regain possession (for example: non-payment of rent, wilful damage, allowing the property to be used for immoral purposes).
- (3) prohibiting payments of premiums in addition to rent as a condition for a grant of tenancy
- (4) conferring succession rights

This regulation of the private market, combined with the rise of state provision of housing, had the predictable effect of massively reducing the private rented market (see Table 1). This occurred both through a lack of investment of private landlords in new stock and as a result of the sale of rented dwellings to their tenants (usually on very favourable terms due to the reduced value of a rental property that had a ‘sitting’ tenant).

2.2. Policy Changes in the 1980s.

2.2.1. Mortgage Interest Tax Relief. Promotion of owner occupation had been encouraged by previous governments, both Conservative and Labour, primarily through tax devices of various kinds and the sale of government owned dwellings to their occupants at discounted prices¹. Most prominent among the fiscal encouragements

¹With few exceptions, public tenants with secure tenancies of at least two years’ standing are entitled to buy their own house or flat at a discount under the right to buy scheme. This scheme was introduced across Great Britain in 1980 (introduced in Scotland in 1979). The Northern Ireland Housing Executive is responsible for public sector housing in Northern Ireland and operates a voluntary house sales scheme which is comparable to

was mortgage interest tax relief (MITR). MITR allowed payments on mortgage interest to be set off against tax. Before 1974-5 this was available on the full amount of a housing loan. In 1974-5 this relief was limited to interest on up to a maximum of a 25,000 pounds advance. This was not a strongly binding constraint as it would not be until 1985 that the average advance would exceed this amount and by then the ceiling had been raised (in 1984) to 30,000. This amount was not indexed and so from 1987 the average advance began to exceed this ceiling. At the same time the rate of relief available was steadily reduced:

- (1) up to 1993-4: deducted at the standard rate of tax (and higher levels for higher earners)
- (2) 1994-5: reduced to 20%
- (3) 1995-6: 15%
- (4) 1996-7: 10%
- (5) 2000 (6 April): abolished

([?] p.7)

2.2.2. *Deregulation of the private rental market.* From early 1980s the Conservative government attempted to restore some of the freedom of the private rental market. This was done via:

- (1) Creation of protected shorthold tenancies and assured tenancies (Housing Act 1980). Protected shorthold tenancies were granted for between 1 and 5 years. During that time the tenant enjoyed the same security as a regulated tenant but at the end of the tenancy had no special right to renew but instead had a right to a new lease at a *quasi-market* rent.
- (2) Removal of rent restrictions. Lettings can be made at market rents (Housing Act 1988).
- (3) Alteration of law on succession (Housing Act 1988)
- (4) Reduction in security of tenure by i) extending grounds on which landlord can regain possession ii) extending the protected and assured shorthold tenancies (Housing Act 1988 and Housing Act 1996)
- (5) Promotion of investment in private rental housing (creation of Housing Investment Trusts by 1996 Act).

([?] 14ff)

3. MODEL

Real Return to housing = $R/PH = CC = \text{Cost of Capital}$

We may decompose CC as:

$$CC = ((1 - \theta)r - \pi + \delta - \dot{P}H^e(1 - \tau^p))$$

Notes:

- (1) R = Real Actual Rent (buy to rent) or Real Imputed Rent i.e. the value of housing services (buy to live). See discussion below. Summarize as: the value of housing services.

the right to buy scheme in Great Britain. Another type of scheme which aims to increase low-cost home-ownership across the United Kingdom is shared ownership, in which home-owners buy a share of their property from an RSL and pay rent for the remainder. source: <http://www.statistics.gov.uk/StatBase/ssdataset.asp?vlnk=3630&Pos=1&ColRank=2&Rank=256>

- (2) PH = Real House Price
- (3) θ = tax rate
- (4) δ = depreciation rate of property
- (5) r = nominal interest rate

Next we decompose R :

$$R = f(Y, Pop, HH)$$

- (1) Y = real gdp per capita
- (2) Pop = the population
- (3) HH = stock of dwellings (adjusted or unadjusted for quality)

We could further specify:

$$HH_t = g(PH, Construction, HH_{t-1})$$

Where Construction = construction costs. This provides a feedback link between prices and new supply.

3.1. Comments.

3.1.1. *Credit Constraints.* Major issues with an arbitrage model in the case of housing demand is its assumption that agents are not credit constrained. See [?] for an extension of the user cost model to cope with credit constraints.

3.1.2. *Owner Occupation vs. Private Rental.* In the model laid out above no distinction is made between the owner-occupied and the private rental housing market. However there are some important differences which one might wish to consider in a more detailed study:

- (1) R . R^{mr} = Market Rental. R^{oo} = Imputed value of rental services for owner occupation. Usually in the literature it is assumed $R^{oo} = R^{mr}$. But there are several reasons for this to be a dubious assumption:
 - (a) participants in the rental market have different characteristics from those buying for owner occupation ([?] p.20). For example rental market participants are more likely to be credit-constrained (that often being the reason for participating in the rental market in the first place) or to move location. These differences in characteristics are likely to lead to differences in value placed on housing services. Thus attempting to extrapolate from rents in the private rental sector to the entire housing stock will suffer from a form of selection bias.
 - (b) In a similar manner problems arise due to differences in the type of property in the owner-occupied and private rental market. For example in the private rental market converted flats make up 26% of the stock while forming only 6% of the total housing stock ([?] 21ff)
 - (c) The ‘option value’ of rental. Following modern investment theory we should attach an option value both to ownership and rental. The option value for ownership is the option to continue in the property. A home to most people is much more than another asset. It possesses significant emotional and cultural importance and receives major investment in personalization and improvement. With ownership one can be certain that one’s tenure will be long enough to justify such investment. One has the *option to continue*. This may also be true with long-term rental but much of the rental market in the UK is short

term. At the same time renting on a short term basis provides *the option to exit* in that notice periods are often only of a few months even on quite long tenancies.

- (d) Due to imperfect (asymmetric) information maintenance costs as well as transaction costs will be significantly different for owner occupiers as opposed to renters.
- (2) Cost of Capital. Through schemes such as MITR (see previous sections) θ would vary depending on owner type of the property (both by size and if this was the only property they possessed). This would normally mean that owner-occupier would face lower value of θ than private rental types as their cost of borrowing would be less.

4. ESTIMATION

We having the following basic specification²:

$$ph_t = \beta_0 + \beta_1gdp_t + \beta_2pop_t + \beta_3h_t + \beta_4cc_t$$

to which we can add the two variables of interest:

$$ph_t = \beta_0 + \beta_1gdp_t + \beta_2pop_t + \beta_3h_t + \beta_4cc_t + \beta_5RENT_t + \beta_6TAX_t$$

- (1) Lower case variables indicate logs.
- (2) for more information on variables and data please see Appendix
- (3) The use of gdp as total gdp rather than gdp per capita allows us to exclude population from the set of independent variables.

Given the nature of the UK housing market we would expect autocorrelation problems to arise with OLS. This is indeed the case. Running OLS on the above yields the results found in Table 1.2 (??). On all three measures of autocorrelation (Breusch-Godfrey, Durbin-Watson and Box-Pierce) the hypothesis of no autocorrelation is rejected at high significance levels³. With autocorrelation present while OLS is consistent it will not be efficient and the SE are likely to be too small. Thus the significance levels displayed in Table 1.2 cannot be taken at face value.

At this point we could either correct for the SE (e.g. use Newey-West autocorrelation robust covariance matrix to estimate S.E.) or turn to a different specification. We choose to turn to an alternative ADL specification of the above equation⁴

$$ph_t = \beta_0 + \beta_1gdp_t + \beta_2pop_t + \beta_3h_t + \beta_4cc_t + \beta_5RENT_t + \beta_6TAX_t + \beta_7ph_{t-1}$$

Having added lagged values of the dependent variable we must now be aware of the issues surrounding OLS. First standard Durbin-Watson will not be suitable for testing for autocorrelation as the value of the test statistic will be biased upwards. Breusch-Godfrey, Box-Pierce or Durbin's modified h-test will all still be suitable.

²It should be noted that although the user cost model set out above is starting point for most investigations many authors take a rather more eclectic approach to the inclusion of independent variables.

³Running with an autocorrelation specification, i.e. Prais-Whinston or Cochrane-Orcutt, confirms this. The estimated autocorrelation parameter ρ that is very significantly different from zero

⁴This is a natural approach to take in this circumstance. A brief examination of ph and gdp and experience of the literature suggest that these variables are unlikely to be stationary. However cointegration is possible (in fact intuitively likely) and the ADL set up can be seen as a reformulation of the cointegration specification. This is a common approach see e.g. Meen 2001.

Second, and more important, if autocorrelation still remains then OLS will be inconsistent and will generally give upwards-biased estimates for the parameters⁵. Running this new specification yields the results found in Table 1.3. As can be seen from the value of R^2 , the fit has improved significantly and there does not appear to be autocorrelation in the residuals (Breusch-Godfrey gives a p-value of 0.8641, Box-Pierce 0.8711 - both insignificant). However the only variables that (remain) significant are the lagged values of the dependent variable and the real interest rate. *RENT* had a p-value 0.104 and so was not significant even at the 10% level. However at the same time there

4.1. Conclusions. The statistical results presented above do not permit us to draw very strong conclusions. It is surprising that variables normally found to be highly significant, such as the level of the housing stock and real GDP, are not found to be so. This may indicate something amiss with the data used here, or the sensitivity of the results to the explanatory variables included.

The main innovation of this project is to introduce explicitly the two new explanatory variables: *RENT* and *TAX*. The *RENT* variable is a measure of the level of deregulation of the private rental market, while *TAX* measures the effect of tax policy on the mortgage interest rates.

4.1.1. *TAX*. *TAX* is not significant in the last regression. *TAX* measures the spread between pre and post-tax mortgage rates and as such one would expect that higher values of *TAX* would lead to higher house prices. One issue may be that the reductions that occurred in the 1990s (leading to the elimination of this spread entirely in 2000) were gradual and well anticipated even in the early 1980s (when the first reductions in MITR began).

4.1.2. *RENT*. *RENT* while not significant performs better than either GDP or the stock of housing. The sign is negative indicating that increases in rent deregulation had a downwards impact on house prices. This is perhaps surprising. Deregulation of the rental market one would expect to lead to higher rental values as regulated rentals had often been explicitly set at below market rates. However by the early 1980s most of private landlords had exited the rental market precisely for this reason. In this case the distortion in the rental market may well have led to higher house prices through the upwards effect on the value of owner occupied housing of the alternative private rental market having disappeared. With the growth of the private rental market in the 1980s and 1990s renting has re-emerged as a possible substitute for owner-occupied housing (though see previous discussion of the differences between the two). At the same time we should be cautious of excessive interpretation without better data. The private rental market remained (and remains) small in relation to the total housing market and the results obtained may be a spurious result of the coincidence of deregulation (starting fully in 1988) and the housing crash that began in 1989-1990. This is an area that would repay further study, especially in the form of an explicitly specified model of the linkage between the private rental and owner occupied housing market.

⁵See Greene 12.5.1 p. 266 and ff.

5. APPENDIX: DATA

For regressions the following data was used

- (1) PH = House Prices. Source: ODPM
- (2) CC = Cost of Capital. This was computed as the nominal interest rate minus expected house price appreciation (taken to be house price inflation in the previous time period).
- (3) GDP is real GDP per capita
- (4) POP is population (values interpolated between census dates)
- (5) $RENT$ is the percentage of the rental market that operates with market rather than regulated rents

All the data, *in the form actually used for the calculations*, is available from the author upon request. It was constructed from the following sources:

- (1) Garratt 2003 (pre and post-tax mortgage interest spread)
- (2) ONS (Population, GDP and RPI)
- (3) BOE (Interest Rates)
- (4) ODPM (House Prices, Stock of Dwellings, Rental Market Information)

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