Housing and Personal Wealth in a Global Context

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Abstract: Housing is the single most important component of personal wealth in most countries. The special characteristics of housing markets are therefore key to understanding personal portfolios, saving, the household distribution of wealth and the monetary transmission mechanism. This paper discusses how housing markets and institutions differ across countries, paying particular attention to the U.K. and the EU, but extending its reach as well to other OECD countries such as Japan and emerging market countries such as South Africa. It analyzes how those differences help to create contrasts in the role of housing as a component of personal wealth. The impacts of rates of home ownership, credit market characteristics, interest rates, and macroeconomic conditions will be studied. Implications for monetary, fiscal and other policies are discussed.

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1. Introduction

Housing markets are now internationally recognised to rival financial markets for understanding economic fluctuations in economies with developed financial systems. Real estate has emerged as an asset class central to both household and business portfolio decisions. Housing wealth accounted for 41 percent of net wealth of UK households, at the end of 2004, almost twice the percentage represented by pension wealth. The comparable figure for the US at the end of 2004 was 39 percent. International institutions such as the OECD, IMF, BIS (Bank for International Settlements) have recently raised concerns over the potential over-valuation of residential housing markets - by as much as 30 percent - and the potential implications for an increased risk of a serious down-turn in the world economy. The European Central Bank has also taken a great interest in the issues posed for monetary policy in the Eurozone. In commercial property, the deepening of cross-border markets and the search for investment opportunities by pension funds and other large investors is leading to increased professionalisation of commercial property portfolio management not just in Europe but in the major economies of Asia. Households, via their pension assets, are exposed to fluctuations in these markets as well as in equity and bond markets.

In the UK, housing market developments continue to be a major issue for the Bank of England, HMT (HM Treasury) and ODPM (the Office of the Deputy Prime Minister). The question of whether the UK’s different housing and credit market institutions posed too high a risk for the UK to adopt the Euro, emerged as the single most important factor in the negative outcome of the Five Economic Tests (report published by HMT in June, 2003). As a consequence, HMT commissioned the Miles Review of the Mortgage Market, which reported in March, 2004. Together with concerns over housing affordability and the UK’s unusually weak new building response to high house prices, the Barker Review of New Housing was simultaneously commissioned by HMT producing its final report in March, 2004. Since the Barker Review, both ODPM and HMT have launched major initiatives to reform planning, financing and housing delivery systems, to address the long-term housing affordability problems. Moreover, HMT have commissioned Kate Barker to undertake a further review of land use planning, focusing on the link between planning and economic growth. However, the balance between the private renting and owner-occupation, which could have implications for flexible labour markets and the exposure of households to risk, has received little explicit public analysis.

These UK policy concerns are reflected in a number of international controversies. In macroeconomics, these include the role of housing in monetary transmission and in financial stability, see for example, Rajan, R.G. (2005), as well as in debates about longer run national saving and pensions. A critical question about which there is much controversy is how
consumer spending is affected by a rise in housing wealth, particularly via its role as collateral for borrowing. In these controversies, the role played by institutional differences in housing and credit markets through time and across countries is often neglected, for example in the simplistic views espoused by The Economist.

The debate about housing supply policies, for example land use planning, construction of social housing, and policies on rent controls, reflects concern about housing affordability behind which lie serious distributional worries. In a number of countries, the real house price appreciation of the last decade marks one of the largest wealth redistributions from young to old in recorded history. Governments are subject to pressure both from the young who would like housing to be more affordable and the middle aged and old who are concerned with preserving the value of their wealth. The ‘social exclusion’ of the young without wealth-owning relatives to transfer a housing deposit or guarantee a mortgage is likely to have widened long-term economic inequality despite efforts by governments to use social benefits to help the poor. The changing spatial variation in house prices within a country, reflecting varying land prices, is another aspect of shifts in inequality between households at different locations.

In most poor countries and transition economies, housing finance systems are still developing, so that housing wealth plays a different, but evolving, macroeconomic role. In many poor countries, formal property titles are missing, particularly for urban squatters and many of the rural poor. Lack of access to shelter is often a major characteristic of poverty. Policies on land use, title registration, the legal framework, and how limited resources should be spent on providing housing outside the market system will then have important repercussions on inequality and the generational transmission of inequality.

Section 2 of this paper addresses the question of monetary transmission to household spending and of the link between housing wealth and consumption. Hence it discusses relevant institutional differences in housing and credit markets and their potential implications for monetary transmission and financial stability. Section 3 reviews the international empirical evidence on the housing to consumption link. It argues that most studies are flawed by the failure to include relevant ‘controls’. Section 4 concludes with discussion of some policy issues and macroeconomic and distributional implications.

2. Consumer Expenditure, Housing Wealth and Institutions.

2.1 Interest rates and consumption.
Consumption typically accounts for 55-75 percent of GDP and plays a key role in monetary transmission, i.e. the effect of changes in short-term interest rates on GDP. There are both direct and indirect effects of interest rates on consumer spending. One may distinguish three indirect effects of interest rates on consumer spending: on expected income growth, on income uncertainty or volatility, and on asset prices. Together, these appear to be quantitatively more important than the direct effects.

**Direct Effects**

The real interest rate is generally believed to act most strongly on the consumer durables component of consumer expenditure, via user cost.\(^1\) In general, for consumption, the economic theory of income and substitution effects, see for example Muellbauer and Lattimore (1995), suggests that, in the absence of credit rationing, the direct real interest rate effect depends on three factors: the greater is the degree of intertemporal substitutability of preferences, the lower are asset to income ratios and the greater is expected growth of future income, the more negative will be the direct effect of a rise in the real interest rate, holding asset values and income expectations constant. However, the empirical evidence suggests this effect is often quantitatively small. A positive effect is theoretically possible and there has been empirical controversy on the sign of the effect in different countries, see Deaton (1992, section 2.2). Where the interest rate on consumer credit is a floating rate linked to short-term rates, there can also be a negative effect on consumer spending from an interest rate rise, as cash flows of indebted consumers fall. Such effects will be weaker where additional finance is readily available. There are large cross-country differences in the proportion of consumer debt at floating rates. There are also cross-country differences in whether tax relief is given for interest on debt. This means that a given percentage point rise in the interest rate on debt has different after-tax effects in different countries.

**Indirect Effects Via Prices of Financial Assets**

Perhaps the most powerful effects of a rise in short-term interest rates on consumption operate via asset prices. For government bonds, the effect is to cause prices of bonds to fall,

\(^1\) “User cost” is defined as the rate of physical depreciation, plus the nominal interest rate, less the expected rate of price appreciation of the good, all multiplied by the price of the durable good.
operating via the term structure of interest rates.¹ For corporate bonds, there is an additional negative effect due to the reduction in expected growth, which increases corporate default probabilities. For equities, prospective returns fall via reduced expected growth, lower after-interest cash flows (depending on how sensitive corporate loan rates are to short-term interest rates and on debt to earnings ratios, both of which vary across countries), increased bankruptcy probabilities and the heavier discounting of future returns. Note that differences between countries in the sensitivity of growth to short-term interest rates will enhance the differences in asset price responses to interest rates. The consumption response to interest rates via asset prices depends both on asset to income ratios and the perceived liquidity or spendability of these assets (see below). There are variations in both these elements across countries. Countries with the most comprehensive pay-as-you-go pension systems will have the least developed pension funds and are likely to have lower asset to income ratios. Since pension funds are less liquid than directly-held securities the indirect consumption response to interest rates will also depend on the portfolio composition of securities between pension funds and directly held assets.

There is another aspect of this channel traditionally emphasized by monetary economists. The rise in interest rates should cause a portfolio switch by consumers into less liquid and so less spendable assets: away from non-interest bearing bank deposits to interest bearing deposits and out of liquid assets in general into cheaper bonds and equities. The shrinkage in bank deposits should cause a reduction in the credit advances of the banks. The magnitude and timing of these portfolio-switching effects is debatable. This is because the rise in interest rates may cause consumers to become more cautious, save more in liquid form, and, for a time, hold off from buying bonds and equities in case their prices should fall further.

**Indirect Effects via House Prices**

In principle, one might expect substantial interest rate effects on consumer expenditure via housing wealth. However, of all components of the monetary transmission process, institutional differences between countries are likely to bite most deeply here, implying large effects in some countries and tiny or even negative ones in others.

² For long bonds the effects on prices can sometimes be positive if long-term inflationary expectations are dampened sufficiently by a rise in the short-term rate. However, for countries with the highest government debt to income ratios, a rise in short-term rates could increase the perceived risk of default, or of an inflationary escape from debt repayment obligations, lowering bond prices.
Simple life-cycle consumer theory suggests that a rise in real house prices believed to be long-lasting has both a positive wealth effect on non-housing consumption, and negative income and substitution effects, see Appendix 2 for a simple exposition. Plausible estimates of the latter effects, in UK and other studies, e.g. Meen (2001), suggest elasticities in the region of -0.5. The positive wealth effect will therefore dominate for owner-occupiers. However, for tenants in the market rented sector, the effect is unambiguously negative. The intuition for this is that those continuing to rent can expect higher future rents when house prices rise, while those aiming to purchase a house have to save more for a deposit and can expect to have higher total costs. However, we also have to consider the wealth effect for landlords or the institutional investors owning rental housing. If these wealth effects are smaller per unit of wealth than for owner-occupiers, (e.g. because of liquidity considerations discussed below), then, other things being equal, the higher the proportion of owner-occupiers and the lower the proportion of households in the market rented sector, the larger will be the consumption response to a rise in house prices. As we shall see, there are considerable variations in these characteristics across Europe.

The simple life-cycle model does not capture the whole story. The other major cross-Europe variation concerns the perceived liquidity or spendability of housing assets. The key liquidity characteristics are defined by transactions costs and restrictions, asset price volatility and the collateral role of the asset. Transactions costs include costs of (real) estate agents and lawyers and taxes, such as stamp duty. If housing is particularly sheltered from inheritance taxes, this can, in effect, translate into a restriction on resale. Since consumers are particularly averse to capital loses and to the negative consequences of loan default, one might also expect an asymmetric response to house price volatility (i.e. a history of recent falls is likely to reduce the spendability of housing wealth).

The third aspect of liquidity, the collateral role of housing wealth, is of crucial importance and subject to enormous variations across Europe. Loan-to-value ratios available to first-time buyers range from around 40 percent to 95 percent. Behind these variations lie differences in credit market institutions, the legal system (how rapidly, if ever, can mortgage lenders possess the property in the case of loan default) and any taxes paid by sellers. Where housing is regarded as excellent collateral, housing is in effect more spendable and house prices will impact much more strongly on consumer spending.

Liquidity considerations also suggest that where pension funds and similar institutional investors own a large fraction of rental housing, the wealth effects on consumer expenditure of higher house prices on rental housing would be smaller per unit than for the owner-occupied sector. The reason is that pensions are a rather illiquid component of consumers’ portfolios and so are less spendable.
Finally, abstracting from the very important liquidity issues, we must address the issue of to what degree housing wealth is really part of a nation’s wealth, which frequently troubles economists, see Miles (1994), ch 4. The simple life-cycle model in Appendix 2 is a model of individual behaviour. In a closed economy\(^3\) with a constant population, if many households attempted to translate higher house prices into higher non-housing consumption by liquidating part of their housing wealth (e.g. moving to a smaller house), they would force down house prices in the process. At the individual level, housing wealth looks spendable. A super-rational representative household, aware of the difficulty all households would have in spending a major part of their housing wealth, would take a more jaundiced view. Indeed, it seems likely that if UK households had been collectively more rational in the late 1980s, the consumption boom and its repercussions for the balance of payments and inflation would have been less extreme.

So far, we have discussed only the house price-to-consumer spending linkage. But institutional and historical differences can also impact profoundly on the link between short-term interest rates and house prices, themselves. Cameron et al (2006) have studied UK house price determination with regional panel data for 1972-2003. In the UK, one can distinguish several components in the interest rate-to-house price transmission channel. The first is a negative real interest rate effect, strengthened by the financial deregulation of the 1980s. The second is a negative nominal interest rate effect, which has become somewhat weaker with the easing of credit conditions.\(^4\) The third effect is non-linear, and operates through a downside risk measure which is zero if the rate of return in recent years was positive, but equals the average lagged return if this return is negative. There are various indirect effects via income, uncertainty proxies and other asset prices.

Among policy implications is that in speculative markets such as the UK, the dynamics of the response of house prices to interest rates can be non-linear and non-constant over time. A standard VAR reduced-form specification could only ever be a poor approximation to this process. For example, the downside risk factor contributed to making the 1990s crisis in the housing market deeper and longer than standard models or most observers predicted at the time. A second implication is that history matters. If consumers’ experience is of house price changes which are heavily serially correlated, then this will be part of the expectational mechanism which tends to make history repeat itself. A third implication is to stress the importance of transaction costs: high transactions costs reduce the probability of speculative frenzies. Fourth, easy credit availability raises gearing levels, and

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\(^3\) The upper end of the housing market in London and the South East now has a very considerable element of foreign ownership. Therefore, one should not exaggerate the degree to which economies are ‘closed’ with respect to housing.

\(^4\) Controlling for the easing of credit conditions greatly improves the significance and robustness of these estimates, particularly of the real rate of interest.
makes expectations and intertemporal choices more relevant, and hence speculative behaviour more likely. Finally, and perhaps most obviously, the sensitivity of the mortgage interest rates which people actually pay to short-term interest rates is likely to prove a crucial issue. Where most mortgages are at fixed rates for long durations, the short-term interest rate effect on house prices and on to consumption will necessarily be small. As we shall see, in the relevant dimensions there are again large institutional differences across Europe.

Many of these factors help to explain why house prices are more volatile in some countries than others. Price volatility increases with more volatile demand and supply, and lower elasticities. Characteristics favouring high demand volatility are low transactions costs, easy credit availability as reflected in high loan-to-value ratios, thus permitting high levels of gearing, and a high proportion of floating rate mortgages. The market rented sector offers a potential safety-valve which can divert demand from the owner-occupied market when prices are very high. This suggests that countries with small market rented sectors are more likely to have volatile house prices, ceteris paribus.

Countries with bigger feedbacks from house price shocks are likely to experience greater house price volatility: a house price shock, which raises expenditure and therefore income, feeds back on itself, thus amplifying the initial shock. Countries with a less elastic supply of housing should also experience greater house price volatility.

Finally, ceteris paribus, one expects an economy with greater income and inflation volatility also to have more volatile house prices. However, it is possible that even though an economy has institutions which favour an above average degree of house price volatility, if the automatic stabilizers (such as the Danish property tax system) and the monetary and fiscal policy feedback rules were very efficient, income and inflation volatility could be below average, compensating for an innately more volatile housing market.

To summarize, countries with largely pay-as-you-go social security and pension systems, large market rented sector, high transactions costs for housing, restricted consumer credit availability and fixed-rate mortgage markets, are likely to have consumer expenditure largely driven by income and income uncertainty, with relatively weak asset effects and necessarily weak interest rate effects on consumer expenditure. The opposite will be true in countries such as the UK, where the institutional features lie on the opposite extreme of the spectrum.

We argued in the previous section that differences in housing tenure patterns, housing finance systems and transactions costs in housing have profound consequences for the interest rate transmission mechanism operating via housing. We examine some facts on European differences for these housing institutions in turn.
2.2 Housing Tenure

The overall tenure structure of the EU breaks down into 56 per cent home-ownership, 21 percent privately-owned renting and 18 percent not-for-profit or social housing. The cross-country differences in tenure are pronounced, see Table 1 of Maclennan et al (2000), with a North-South divide, and contrasts between the large welfare state system of the Netherlands, the UK and Sweden and other European states with a social democratic heritage, and the rest of the EU.

Simply on the basis of these figures, one might have predicted a large positive impact of housing wealth on consumption in the high owner-occupation and low private rental countries, Spain, Ireland, Italy, UK and Finland. However, the relative size of the private rented sector alone does not tell the whole story. Also relevant is the proportion of dwellings (still) subject to rent control. Sweden and Italy are among those with significant numbers of households still with controlled rents.

2.3 Housing Finance Systems

Housing finance lenders within Europe have evolved within national boundaries, and reflect the influence of localised origins and national policies. Thus, different basic systems of housing finance intermediation have evolved in the different countries, see Table 2 of Maclennan et al (2000). Mortgage bank systems raising wholesale funds by selling bonds to institutional investors, with fixed rate mortgages and no significant local branch networks, dominate in Denmark and Germany, but are also important in Sweden, the Netherlands, Austria and Italy. Elsewhere, deposit-taking systems, transforming the short and long-term savings of millions of households into long-term mortgages, evolved with variable rate mortgages and extensive local branch networks. These retail savings institutions dominate housing finance intermediation in the UK, Ireland, France and Spain, and may co-exist with mortgage banks in other countries, for example Germany and Austria. As a sub-set of deposit-taking systems, contractual savings systems for home loans still exist in Germany and Austria, while housing saving schemes exist in France, Spain and Finland.

Variety in basic systems across countries was reinforced, until at least the 1980s, by policy measures to favour housing finance within national capital markets, creating “special circuits” to channel tax advantaged funds into low cost housing finance, and by measures to prevent institutional failure. These actions have created a patchwork of deliberate market distortions which have gradually weakened, but of which substantial traces remain. Support
measures, for home-ownership, see Table 3 of Maclennan et al (2000), also differed across countries.

In the 1990's, these systems were subject to deregulation and technical change, which promoted internally-driven competition. The UK, Spain, the Netherlands, Finland and Sweden present examples of extensively deregulated housing finance systems, closely integrated with general capital markets, where mortgage systems are rationed by interest rates.

But extensive mortgage market deregulation did not occur everywhere with some countries more resistant to change. In France, deregulation allowed commercial banks to enter the mortgage market after 1987, but restrictions on interest rates remained, removing a vital mechanism for the large credit expansions that occurred elsewhere. French regulators continued to prevent financial intermediaries from paying interest on current accounts and savings accounts of up to three months liquidity. Attempts by foreign banks, notably the British bank, Barclays, to pay interest, were thwarted in the French courts. In consequence, the funding advantage enjoyed by the French deposit-taking institutions left the wholesale-funded mortgage credit companies at a competitive disadvantage.

In Germany, the mortgage banks continue to enjoy a monopoly right to issue mortgage bonds, which are still the predominant form of first mortgage. The contract-savings scheme, which can be operated only by Bausparkassen (see Table 2) remains attractive for some, despite the reduction in state support for the system. The market has adjusted to this regulatory regime by becoming vertically integrated, with commercial banks either purchasing or establishing their own Bausparkassen and mortgage banks, and themselves offering top-up loans. This and the regulation of financial advisers makes the market difficult to enter for outsiders, domestic or foreign.

Another barrier to entry which has still not faded is the presence of state owned mortgage lenders in Portugal and Greece, though the German Landesbanken backed by state government which provide long-term finance to the savings banks have had some of their funding advantage removed. Thus, the difference in economic histories before 1980 and the different propensities of countries to deregulate thereafter, have left EU countries with very diverse mortgage markets (see Table 2). For instance the maximum loan to value ratios available to borrowers vary from around 40 percent in Italy, though examples of higher ratios are to be found in recent years, to 95-100 percent in the UK.

Further, the extent to which borrowers are exposed to changes in market interest rates varies greatly between countries. Denmark presents one extreme, dominated by mortgages with interest rates fixed for their entire 20-30-year terms. In the UK, what are marketed as ‘fixed rate’ mortgages, and now represent almost one-third of mortgage debt, are more accurately categorised as ‘negotiable’ mortgages, since the interest rate is generally
fixed for no more than five years, while the repayment period is 25 years. Most mortgages in the UK, can be categorised as ‘reviewable’ since they can be changed at the discretion of lenders. Such borrowers can be exposed to sharp rises in interest rates, as occurred in the UK in 1988-89. In other countries, notably Finland and Spain, the mortgage rate commonly varies automatically in relation to an established index.

The institutional differences in terms of fixed vs. variable rate mortgage structures are partly explicable in terms of different inflation histories. A high and variable rate of inflation discourages fixed rate borrowing when inflation and nominal interest rates are high because if inflation (and interest rates) were to fall, the borrower would be exposed to higher real debt service costs. When inflation and nominal interest rates are low but fear of future rises remains, fixed-rate lenders are discouraged by the risk of low real loan returns. Therefore, as Spencer (1999) argues, the prevalence of floating rate mortgages in the UK, Ireland, Finland, Spain, Portugal and Greece are partly the result of their inflation histories, though regulation and the type of banking systems which grew up in the different economies play a part too.

These different national housing finance systems, housing policies and patterns of inflation and economic growth have resulted in two further outcomes. First, the ratio of mortgage debt to GDP differs substantially across the European nations, see Table 4 in Maclennan et al (2000).

Secondly, the variety of finance systems and regulatory regimes has resulted in differences in intermediation margins, see Lea et al (1997).

2.4 Transaction Costs

We turn now to the third element where important country differences affect the role of housing in the interest rate transmission process. Table 5 in Maclennan et al (2000) gathers some international evidence on transactions costs, and Table 3 contains information on Stamp Duty on housing for the full range of EU countries, which is one element of transactions costs.

On the basis of these institutional differences between countries, it is now possible to make some predictions both on the volatility of real house prices and on the connection between real house prices and consumption. We have argued that the countries with high transactions costs, low loan-to-value ratios, a small owner-occupied sector, a large tenure proportion in the private rented sector, and a large proportion of fixed interest mortgage loans,
should experience relatively low real house price volatility\textsuperscript{5}, small house price effects on consumption and a small role for housing in the interest rate transmission mechanism.


Two studies on UK micro data with diametrically opposed conclusions are Campbell and Cocco (2005) and Attanasio et al (2005). Bover (2005) and Bostic et al (2005) studied housing wealth effects on respectively Spanish and US cross-section data. Bover uses sophisticated instrumental variables to estimate a marginal propensity to spend out of housing wealth in Spain of between 1 and 2 percent. Gabriel et al use pooled cross-sections merging CEX and SCF data but their parameter estimates grossly violate the basic presumption that if permanent labor income and assets both double, consumption should roughly double.

Case, Quigley and Shiller (2005) claim that for, a panel of US states and a panel of 14 countries, the housing wealth effect is larger than the stock market wealth effect. However, the econometrics of this paper are questionable. Their equilibrium correction model (ECM) used on a panel of US states and 14 OECD countries takes the form

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\Delta \log c_i = \alpha \Delta \log c_{i-1} + \beta_1 \Delta \log y_i + \beta_2 \Delta \log stock_i + \beta_3 \Delta \log house_i + \gamma \left[ \log c_{i-1} - \log y_{i-1} \right] + \beta_4 \Delta \log stock_{i-1} + \text{fixed effects} + \varepsilon_i
\]  

(1.1)

where \( y \) is real income, \( stock \) is stock market wealth, \( house \) is owner-occupied housing wealth. A 1986 dummy interacted with \( \Delta \log house \) checks for shifts.

Among the omitted controls are long-run housing asset and stock market wealth, interest rates, the unemployment rate, and income growth expectations effects. It can also be

\textsuperscript{5} The relative volatility prediction assumes similar income and population growth, and similar changes in demographic structure and housing supply. Potentially, differences in the flexibility of housing supply due to the land-use planning system could account for a considerable part of volatility differences between countries.
argued that for US states, stock market wealth is imputed to the state levels with crude methods, while the housing wealth data are measured better. Changes in housing market wealth at the state level are likely to be strongly correlated with missing unemployment data, mis-measured income growth and omitted income growth expectations. The wealth data are end of period which increases their endogeneity, though the authors claim changes in timing have little effect on the estimates.

For the OECD part of their study, pooling 14 countries denies heterogeneity between countries implied by institutional differences as discussed above. Shifts in credit conditions are also omitted from the OECD country data though, for example, Finland, Norway, Sweden, the UK and the Netherlands all went through revolutions in credit availability. The rise in house prices is highly correlated with the shift in credit conditions. Not surprisingly, the supposed housing wealth effect is larger for the OECD countries, where credit conditions went through larger changes than for US states after 1982.

Barrell and Davis (2004) estimate equations for the G-5 countries with an equilibrium correction allowing a constant elasticity long-run net wealth effect and real interest rate effects, but no controls for shifts in credit conditions, unemployment rates or expected income growth. They estimate both single country equations and pooled equations imposing common long-run coefficients. Byrne and Davis (2003) estimate equations for G-7 countries with no controls for shifts in credit conditions, interest rates, unemployment rates or expected income growth. They do not distinguish housing wealth but test for differences between liquid and illiquid assets effects. For most countries they find liquid asset effects smaller than those from illiquid assets, and typically negative for the US and especially the UK. Since liquid assets are defined as gross liquid assets minus debt, this is a classic symptom of omitted variable bias: credit market liberalization is associated with rises in debt relative to income and relative to gross liquid assets. The omitted variable has a positive effect on consumption but is negatively correlated with net liquid assets, and so biases the latter’s effect in a negative direction.

In contrast to Case et al., Catte et al. (2004) note institutional differences and find major heterogeneity for the parameters in different OECD economies. They estimate ECM models which do have long-run wealth effects, as well as interest rate and unemployment effects. However, they do not control for income expectations explicitly or for the effects of financial liberalisation, and this is liable to bias up the estimated housing wealth or collateral effects on consumption. This is also true of Kennedy and Andersen (1994) who study consumption in the form of saving ratios. Nevertheless, this study confirms the heterogeneity of wealth effects across countries, including an apparently negative housing wealth effect for Italy, which could be the result of an ill-functioning mortgage market there.
Boone et al (2001) are sensitive to the potential importance of credit market liberalization and find some evidence for shifts in long-run relationships, particularly for the UK, US and Canada using dummies for credit market liberalization. They control for interest rate and unemployment dynamics. They also find a negative housing wealth coefficient for Italy. However, they do not attempt to control for income growth expectations or the effect of credit market liberalization on the long-term consumption/income ratio.

Brodin and Nymoen (1992) study aggregate consumption in Norway as a function of income, wealth and inflation. Their model aggregates all wealth, including housing wealth and includes no controls for credit market liberalization, interest rates, unemployment etc. The estimated elasticity of consumption w.r.t. wealth is large, almost half that for income, almost certainly biased up by the omission of controls.

Muellbauer and Murphy (1995) study UK regional panel data for 11 regions and include a more complete set of controls than any study up to Aron and Muellbauer (2000). They handle income growth expectations through the fitted values from parsimonious income forecasting equations, and check for interaction effects of these with uncertainty indicators. The shifts in credit conditions are proxied using an indicator derived from data on loan-to-value ratios for mortgages to first-time buyers, a fore-runner of the one discussed below. They include interest rate and unemployment effects. Assets are aggregated into liquid and illiquid categories (measured at the end of the previous year), where the latter includes housing wealth, and shifts in wealth effects with credit conditions are checked. As a check on the aggregation of physical and financial illiquid wealth, a separate allowance is made for a real house price effect, but this always proves insignificant. One problem with the study is the omission of the direct effect on consumption of credit conditions discussed below. The other was the authors’ skepticism over the accuracy of the regional accounts income data. Subsequently, Cameron and Muellbauer (2000) established that these data seriously understated the rise in relative incomes in the South East in the 1980s, probably resulting in an upward bias in the housing wealth effects being estimated.6

For micro data, Campbell and Cocco (2005) and Attanasio et al. (2005) reach diametrically opposite conclusions. The latter use micro data from the Family Expenditure Survey for 1978-2001 to explain consumption spending in terms of age and cohort dummies, household demography, housing tenure, and regional house price growth rates and the level of house prices. They find bigger house price growth rate effects for the young, with the middle aged next and the old last, and similar effects for home owners as for renters. The log level of regional house prices has a similar effect for all three age groups. However, the residuals from regressing regional house prices on regional incomes have their biggest effects

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6 This was the reason the authors did not publish the study.
on the young. Attanasio et al argue that since housing wealth increases with age these findings suggest that house prices are just a proxy for omitted income expectations and probably have no independent role to play in explaining consumption. However, since consumption is likely to be largely determined by current income, and also influenced by financial asset ownership (also increasing with age and differing by region), debt and variations in unemployment rates and interest rates, the failure to control for these other variates implies that no conclusions about the effects of housing assets on consumption can be drawn. The young’s consumption is likely to be most sensitive to current income, and regional house prices are correlated with current income. If house price growth has a weak effect on the consumption of the old, this may be partly because share prices are often negatively correlated with house prices. Further, the collateral role of housing wealth suggests that young house owners, who are more likely to be credit constrained, could well be as sensitive as older owners to rises in house prices.

Campbell and Cocco study micro data from the FES from 1988-2000. They explain changes in consumption per head for different cohorts classified by region, controlling for income growth, regional unemployment, interest rates as well as housing tenure, mortgage debt and regional house prices. They find the largest house price effects for the older homeowners and the lowest for renters. The fact that the latter (in the form of national house prices) is still significant suggests that house prices contain a general ‘confidence’ or expectations effect. They acknowledge their findings are not fully ‘structural’. Their findings suggest that those of Attanasio et al are due to poor economic controls.

For aggregate time series data, the failure to control for shifts in credit conditions is often likely to be critical. Although the implications of financial liberalization have aroused interest, controversy, and a growing literature (such as Bayoumi 1993a, 1993b; Schmidt-Hebbel and Serven 1997; Bandiera et al 2000; Honohan 1999), there has not been an entirely satisfactory applied analysis of these implications in the consumption literature. One major difficulty has been to find an indicator of credit market deregulation with which to model the direct and interaction effects of financial liberalization.

Aron and Muellbauer (2006) study consumption in the UK and South Africa. The contrast is interesting since South Africa is almost unique in experiencing an easing of credit conditions without the usual house price boom. For the UK, they use the consumer credit conditions index, CCI, derived by Fernandez-Corugedo and Muellbauer (2006). This is derived from modelling data on ten credit indicators, from which a common credit indicator and a risk indicator are extracted, after controlling for standard economic and demographic variables. For South Africa they estimate joint debt and consumption equations with an unobservable credit supply indicator entering both consumption and debt equations. This indicator is proxied by a linear spline function (effectively a set of time dummies) and the
parameters are estimated, subject to cross-equation restrictions, from a joint estimation of the household consumption and debt equations.

As in Aron and Muellbauer (2000), they distinguish three facets of financial liberalization, a distinction which the previous literature does not bring out clearly. Financial liberalization reduces credit constraints on households engaging in smoothing consumption when they expect significant income growth. This is the standard mechanism addressed in the literature on credit constraints. Second, credit liberalization reduces deposits required of first-time buyers of housing, see Engelhardt (1996) for micro evidence. This involves a rise in the long-term consumption/income ratio, particularly for younger households. Thirdly, it increases the availability of collateral-backed loans for households which already possess collateral. This should make housing assets effectively more spendable. The three facets thus imply both a shift in the average propensity to consume and important interaction effects, for example with housing wealth, income growth expectations, interest rates and indicators of uncertainty.

In the absence of shifts in credit conditions, a sensible time series specification for a consumption function, following Muellbauer and Lattimore (1995), can be written as follows:

$$\Delta \log c_i = \alpha_0 - \alpha_1 \Delta r_i - \alpha_2 \theta_i + \alpha_3 E_i \Delta \log y_{m_{t+k}} + \gamma_1 \frac{LA_{t-1}}{y_t} + \gamma_2 \frac{IFA_{t-1}}{y_t} + \gamma_3 \frac{HA_{t-1}}{y_t} + \log y_t + \log c_{t-1}$$

(1.2)

Here $c$ is consumption, $r$ is the real interest rate, $\theta$ is an indicator of income uncertainty, $E_i \Delta \log y_{m_{t+k}}$ is a forecast of the growth rate of non-property income, $LA/y$ is the ratio of liquid assets minus debt to non-property income, $IFA/y$ is the ratio of illiquid financial assets to non-property income, and $HA/y$ is the ratio of housing wealth to non-property income. The speed of adjustment is $\alpha$ and the term in square brackets can be thought of as reflecting the behaviour of households not facing immediate credit constraints.

The specification comes from a log approximation of a consumption function where consumption depends on human capital and other wealth and where habits or adjustment costs induce lagged adjustment, see Muellbauer (1988). Asset to income ratios give a better approximation to the underlying linear additive structure of human and non-human capital than does the more conventional log-assets formulation. The $\gamma$'s are marginal propensities for the different assets, which are allowed to differ. If they are equal, assets can be combined into net worth, here an easily testable hypothesis. The specification enforces long-run homogeneity in that doubling real income and real assets doubles consumption. A higher propensity to spend for liquid assets is consistent with Carroll’s (1997, 2001) buffer stock theory of saving and with reasoning and evidence by Zeldes (1989).
The terms on the second line of (1.2) can be thought of as arising from credit or liquidity constraints: the rate of growth of income will tend to dominate consumption growth of such households. The rate of change of the nominal rate of interest on debt, \( nr \), weighted by the debt to income ratio, \( DB/y \), measures the short-term impact of higher debt service costs on those with debt.

If credit conditions ease, one can expect shifts in a number of these parameters. The following should increase: \( \alpha_0, \alpha_1, \alpha_3, \gamma_3 \); and the following parameters should decrease: \( \alpha_2, \beta_1, \beta_2 \). Aron and Muellbauer (2006) allow these parameters to shift for the UK with the index of credit conditions, CCI, mentioned above. The expected shifts in parameters all occur, though that in \( \beta_1 \) is not very significant, since \( \beta_1 \) itself is not accurately estimated. The marginal propensity to spend out of housing assets at the maximum value of CCI is estimated to be below that out of illiquid financial assets, which, in turn, is below that of net liquid assets. These are lower values of the housing assets effect than commonly found in the literature. However, we also find a housing capital gains term to be relevant. This may well reflect transactions costs which cause households to trade infrequently in housing, and so react to prospective changes in asset values.\(^8\) We find that a 4-quarter moving average of observations on illiquid financial assets fits far better than the end of previous quarter value, consistent with findings by Lettau and Ludvigson (2004).\(^9\) Since much of illiquid financial assets is in pension funds, this plausibly reflects the slow adaptation of contribution and payout rates to changes in asset values.

If equation (1.1) is estimated without CCI effects, the fit is somewhat worse, with a lower speed of adjustment, and the real interest rate effect becomes positive and significant.\(^{10}\) This is not surprising, given the rise in real rates which took place as credit supply conditions eased from the end of 1980. The asset effects remain significant, with the housing assets effect now larger than that out of illiquid financial assets.

If equation (1.1) of Case et al (2005) is estimated, the fit deteriorates sharply. The financial assets effect then becomes insignificant, while the housing assets effect is seven times as large and highly significant. We interpret their findings as spurious: driven by large omitted variable biases and mis-specification. Note that their specification omits

\(^7\) For example, see Poterba and Manchester (1989).

\(^8\) The fact that the effect weakens as CCI rises is consistent with this interpretation: households were increasingly able to use additional mortgage advances without having to sell to access their housing capital.

\(^9\) However, Lettau and Ludvigson understate the empirical significance of the stock market effect over one or two year horizons.

\(^{10}\) To make this specification perform moderately well, it was necessary to use the unweighted log change in nominal interest rates. The results for the specification with CCI effects show a highly significant decline in the weighted log change in nominal interest rates as CCI rises, offsetting the rise in the debt/income ratio.
unemployment rate changes (embodied in our uncertainty proxy $\theta$), real and nominal interest rates, the credit conditions index and level asset effects.

On data for South Africa, see Aron and Muellbauer (2006a) for the asset data, similar specifications yield similar results to those obtained for the UK. Again the data support the shifts in the parameters of (1.2) outlined above. An important difference from the UK study is that without a separately estimated CCI, Aron and Muellbauer (2006) estimate a CCI for South Africa using information from jointly estimated debt and consumption equations with common dummies linked to known episodes of credit market liberalization. As noted above, credit market liberalization in South Africa, beginning in 1983, coincided with a long downtrend in real house prices after the gold boom of the late 1970s and early 80s had driven the market to a peak. The 1980s continuing into the 90s were marked by high and volatile real interest rates, poor income growth and political uncertainty, in which the housing market suffered. Yet the debt to income ratio trended up, as a consequence of domestic liberalization of credit. This helps distinguish direct from indirect effects of credit liberalization.

Given a volatile history, and until recently, fairly subdued though increasingly steady growth, house price to income ratios and debt to income ratios remain substantially below UK levels. However, with sharp declines in nominal and real interest rates in the last three years, subdued inflation, and growth now exceeding 5 percent, consumption, house prices and debt have all risen sharply together. With widely used models in the literature, it would be easy to attribute too much to the housing market channel. Nevertheless, as in the UK, even with comprehensive controls, our model implies a highly significant housing asset effect on consumption in South Africa.

Interestingly enough, in unpublished research with Keiko Murata on Japanese consumption, we find no evidence of significant credit market liberalisation in the 1980s or 1990s in Japan. Furthermore, we do not find a positive land price effect on consumption. This is likely to be a consequence of the structure of inheritance tax in Japan which advantages inheritance of land or housing and so causes most households to refrain from home equity loans. Financial wealth effects are significant, however.

4. Policy Issues and Inequality

Some issues for macro policy and inequality will be illustrated with examples from South Africa, the UK and the Eurozone. These have resonance elsewhere, particularly in emerging market countries with rapidly developing credit markets.
South Africa

South Africa’s credit regime is globally one of the most innovative and liberal, and the easy acquisition of debt has fuelled consumption. Falling nominal interest rates, more affordable mortgages and ease of remortgaging have generated rises in mortgage debt and in house prices. The resulting more valuable housing collateral itself promotes borrowing and spending. The inflationary consequences via the output gap, the trade balance and hence the exchange rate - unless there are other factors keeping the exchange rate high - are well understood. The potential trade-off for interest rate policy poses serious dilemmas for the MPC.

Higher consumption occurs at the expense of personal saving, constraining the domestic funds potentially available for corporate investment. South Africa’s low rate of gross saving of about 15 percent of GDP (including the public sector) compares poorly with emerging market economies with similar levels of income per head such as Chile. Low domestic saving also means an increased reliance on foreign saving, exacerbating the economic vulnerability to reversible capital inflows. Debt to income ratios for SA are less than half those in the UK, suggesting scope for future increases.

There are important implications for monetary policy. The Reserve Bank supervises the banking sector. As explained in Section 3, we find that much of the rise in the consumption-to-income ratio has been the result of financial liberalisation, which has enhanced the effective spendability of illiquid assets, through increasing their use as loan collateral. It has also had a direct effect on the propensity to consume, for example, because of reduced down-payments for housing purchases. A less liberal credit market, achievable through somewhat greater capital requirements for risky mortgage lending, would enhance saving.

The MPC’s interest rate policy should not have to take sole responsibility for this issue, given the policy trade-offs. There are several considerations pointing to the desirability of complementary fiscal measures on households to help stabilise the property market and the macro-economy, namely well-designed property and land taxes. Denmark, which has a very liberal and efficient mortgage market and the highest mortgage stock relative to GDP in the world, has a record of remarkable macroeconomic stability, see Muellbauer (2005). The reasons for this are three-fold. Firstly, fixed rate mortgages are the dominant form of borrowing. This means mortgage costs respond only slowly to short-term interest rates.

11 The June, 2004 Quarterly Bulletin pointed to the annual growth of 25 percent in house prices following the reductions in interest rates from June to December 2003, and world house price developments, which may also have influenced the behaviour of investors.
12 The Bank of England’s MPC has been struggling with similar dilemmas for much of the last eight years.
Secondly, in the Danish system of property taxes, there is a national, progressive tax with annual revaluations of property.\textsuperscript{13} In economic upswings when house price rises outpace incomes, tax revenue rises faster than income, so stabilising spending. Also, knowing that tax liabilities will increase as values rise, discourages the portfolio demand for property. Furthermore, local land taxes tend to encourage the supply of land. Finally, by law, a maximum of 90 percent of the value of a home can be used as collateral. Borrowing above this limit is unsecured and so more expensive and influenced by credit rating criteria.\textsuperscript{14} With all three measures in place, the automatic stabilisers function powerfully, greatly reducing the risks of overshooting, permitting lower interest rates and encouraging saving. Not surprisingly, no European country has more powerful automatic stabilizers, see the UK Treasury’s fiscal report for the five economic tests for Euro entry HMT (2003).

Large real house price rises also have disturbing implications for the distribution of resources between the young and older households already owning homes, and between poorer and more affluent households. In the context of SA’s extremes of wealth inequality, a progressive and transparent property tax would keep housing more affordable for the young and the poor, and tap the wealth of the most affluent, without much effect on their incentives to engage in economic activity. Such a tax is therefore ideally placed to meet growth, distribution and stability objectives. For further discussion of housing subsidies, see below.

Another important set of considerations points to the desirability of such a fiscal measure. Nominal as well as real interest rates matter for economic activity. This is both for tax reasons and because households have a short-term cash-flow perspective on financing their debt. Suppose that as inflation declines, nominal interest rates fall in line, keeping real interest rates (not tax adjusted) constant. Businesses can deduct interest payments from taxable profits. But with constant real rates such benefits decline. For households, the opposite will be true. South African households get no tax relief on interest payments on debt, but they do pay tax on nominal interest receipts from saving deposits. As nominal interest rates decline with inflation, this ‘inflation tax’ on households falls. Thus, in these circumstances, taxation effectively decreases for households, but increases for firms. With firms the main savers in South Africa, the saving rate may be lowered - even though, with higher after tax real returns on their deposits, some households would be expected to save more.

\textsuperscript{13} To protect those with low incomes relative to their housing wealth, pensioners have the option to defer payment until the property is sold.

\textsuperscript{14} In South Africa in 1998, capital requirements on banks were raised for lending at mortgage loan-to-value ratios in excess of 85 percent. Legal limits are clearly a stronger response.
Why might households as a whole save less? Empirical evidence from research on the determinants of household debt and of house prices, suggests that the nominal interest payment on household debt relative to household cash flow (the debt service ratio) is an important factor driving both debt and house prices. As nominal interest rates fall with inflation, mortgages appear more affordable, generating rises in debt and in house prices. In SA, this is likely by far to outweigh the rise in saving induced by higher after-tax returns on deposits. Higher house prices in turn raise the collateral households can offer, and create an even greater demand for and supply of debt. Rebalancing the tax burden away from firms and towards households, particularly in ways that reduce the risk of house price bubbles, can raised the domestic saving rate and make the task of monetary policy easier. This rebalancing is likely to result in higher and steadier growth rates. Without such complementary tax measures, if interest rates were the sole policy instrument to constrain household spending, interest rates would have to be kept higher. The real exchange rate would be higher than it would have been otherwise, and growth lower. The economy would be vulnerable to uncertain capital inflows, and the exchange rate subject to volatility, when the trade balance deteriorated.

South Africa is a deeply unequal society and has one of the highest unemployment rates in the world. According to the 1995 and 2000 household surveys, Stats SA (2002) *Earning and Spending in South Africa: Selected findings and comparisons from the income and expenditure surveys of October 1995 and October 2000*, the percentages of total household spending accounted for by the top quintile in 2000 and 1995 (in parenthesis) were 64%(63%), the top two quintiles 82% (82%), and the top three quintiles 92%(93%). If anything, such surveys are likely to understate the spending of the most affluent. As Turner (1976), Mayo et al (1986) and many others have argued, providing subsidized housing in the form of ‘site and basic service’ allows poor families to expand their housing shelter over time as savings and resources permit. Using their own labour develops skills, so contributing to human as well as physical capital accumulation, and helps develop the habit of saving and a stake in the community. In the South African context, using tax revenue to subsidize site and service for many poor households seems obviously preferable to providing higher quality and costly...

16 Both inflation tax and the short-term cash flow perspective reasons (especially the second), were factors in the UK experience since the mid-1990s. Inflation and nominal interest rates fell, as did inflation expectations, notably after the new monetary policy framework was introduced in 1997. This period saw large rises in household debt to income ratios, in house price to income ratios, lower household saving ratios and larger trade deficits relative to GDP.
17 To an extent this rebalancing may already have occurred, for instance through capital gains tax.
18 For example, concrete foundations, sewage and access to water and electricity.
subsidized housing for the few. Since 1994 housing policy in South Africa has vacillated between the two, as some housing ministers felt site and service was ‘too demeaning’.

The UK

Reference has already been made to some UK policy issues in the introduction. The Bank of England follows housing and mortgage markets very closely but seems puzzled by the shifts in the correlation of real house price growth and consumption in recent years.\textsuperscript{19} Bivariate relationships are never stable for long when the true relationships are multivariate. Aron and Muellbauer’s results predict substantial shifts in the bivariate relationship given the major downturn in illiquid financial asset values in the early years of the millennium, and from other changes including the decline in net liquid assets relative to income.

The Bank has also had to concern itself with potential risks to financial stability. There have been debates about whether there is a ‘bubble’ in the housing market – with more than 30 percent overvaluation estimated by the OECD - and whether therefore heavily indebted UK households, and UK domestic demand more generally, face a bleak future. The econometric evidence in Cameron et al (2006) is that, in 2003-5, values were close to fundamentals, given incomes, interest rates, and the tax and planning regimes. The upward trend in world interest rates and uncertainties about the degree and timing of the unwinding of global macro economic imbalances create some risks for the future, however.

In principle, fiscal policy, land use planning policy and other interventions, such as building subsidized social housing, also have an influence on the level of house prices, and so on the macro economy as well as on housing affordability and the intergenerational distribution of wealth. The UK government has clearly found this a difficult area for decision making. On the fiscal side, the phasing out of mortgage interest tax relief was completed in 2000. Stamp Duty rates on transactions have been raised several times. The 50 percent discount on property tax (Council Tax) on second and further homes has been made optional for local authorities. But the zero marginal tax rate for more expensive homes and the additionally regressive tax structure below that threshold, have been retained, while the scheduled revaluation in 2007 after 16 years, has been postponed. It is clear that property taxes without regular revaluations or indexation to prices are far less useful for macro stabilization. The example of Denmark, where revaluations are annual, illustrates this well, as discussed above.

\textsuperscript{19} See, for example, minutes of the Monetary Policy Committee meeting held on 8-9 February 2006, para 9 and Minutes of Evidence by Mervyn King to the Treasury Select Committee 30\textsuperscript{th} November 2004. Also see Aoki et al (2006).
The UK, along with almost all countries, is perceived to be facing a pensions crisis. One fiscal policy contribution has been to extend tax advantages for Real Estate Investment Trusts and for self invested pension funds investing, for example, in collective schemes owning rental properties. That such tax breaks for relative wealthy investors may make housing affordability more problematic for lower income younger households seems not to have been a major consideration.20

The government has instead focused on the weak supply response of the UK house building industry, behind which lies a sluggish planning system, last revised in 1991 in the direction of greater restrictiveness. Since 1997, planning controls have effectively been tightened further, both by forcing more building onto ‘brownfield’ sites and away from ‘greenfield’ sites, and from increased use of ‘Section 106’ agreements by which land for social housing and other side payments are negotiated, often with long delays, from developers in return for planning permission. The Barker Review of new housing and the current Barker inquiry into the planning system has been developing policy alternatives.

The Eurozone

The UK is far from alone in facing such policy dilemmas. The Dutch government, also faced with a great house price boom has struggled with fiscal issues, finding it politically difficult to reduce tax relief on mortgage interest, or to raise property taxes. The Dutch planning system, once well known for its relative efficiency, is perceived to have been overwhelmed by demand. The Dutch boom, together with higher domestic inflation and so a loss of competitiveness, has been an important factor in recent economic difficulties faced by the country. It illustrates well the dilemmas for monetary policy in the Eurozone stemming from the institutional differences discussed in Section 2.

While the Netherlands experienced a major credit market liberalization in the 1990s, Italy remains with the least developed mortgage markets in core Europe. As noted above, this has much to do with the legal system which makes mortgage repossession very difficult, so undermining the housing collateral function. While low interest rates and increased banking competition have led to rising debt levels in recent years, Italian household debt remains far below the levels in the European countries with more liberal credit regimes. Two of the studies of G-7 consumption functions with fairly comprehensive controls found negative housing wealth effects for Italy, as noted above. The interpretation is that with high deposit requirements, potential first time buyers need to save more when house prices rise, while

20 Though it probably was a factor in the late exclusion of individual property investments from self invested pensions in December 2005, when the Treasury had earlier signalled their inclusion and the financial services industry was geared up in readiness.
tenants may take higher house prices as an indicator of future rent rises. It is likely that the rises in Italian house prices in recent years are due to low interest rates and foreign demand, fuelled by easy credit and earlier capital gains in northern Europe and earlier capital gains. This part of the monetary transmission mechanism appears to run in reverse for Italy, contributing to near recession domestic demand conditions in recent years. While it is possible that some improvement has taken place in credit availability in Italy, so that the negative housing wealth effect is weaker or may even have been neutralized by now, it is clear that these asymmetries in monetary transmission are holding back growth in the Eurozone. For Italian society, with the oldest first-time buyers in Europe, the ill-performing credit market, contributes to low rates of household formation and birth rates, and so indirectly to Italy’s demographic and pensions problems.

Unfortunately the level of economic literacy on these complex issues by the general public everywhere and most politicians is such that reasoned debate is difficult. As we have seen, even among professional economists there is widespread confusion about the macroeconomic role of housing and the empirical magnitudes involved.

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