ARTICLES

HOUSING WEALTH AND PRIVATE CONSUMPTION IN THE EURO AREA

This article reviews theoretical and empirical evidence on the effect of housing wealth on consumption, a key link between the housing sector and economic activity. Limited available evidence suggests that the housing wealth effect is relatively modest in the euro area compared with the United States and the United Kingdom, which may in part reflect the fact that euro area households borrow less extensively against housing wealth to finance consumption. In particular, generally vigorous house price growth in the euro area over the last decade has contrasted with weak consumption growth. However, it must be acknowledged that there is considerable heterogeneity across the euro area in terms of both the dynamics of house prices and the reaction of consumer spending to house price shocks.

1 INTRODUCTION

Housing prices in industrialised countries have received much attention in recent years, because of both their generally strong growth in the decade up to 2005 and their more recent deceleration. In the euro area, a significant cooling in house price growth since 2005 has raised questions about the qualitative and quantitative linkages between the housing sector and the rest of the economy. This article reviews the evidence on the influence of housing wealth[1] on private consumption spending.

While other channels between housing markets and the economy may exist, such as the effects of housing price fluctuations on residential investment or on the balance sheets of financial institutions, the wealth effect link is often believed, given the large share of consumption in GDP (57% in the euro area in 2007), to be particularly significant. Increasing house prices result in greater housing wealth and also make it possible for households to borrow more using housing wealth as collateral. Both effects contribute to higher consumer spending. Given that housing often makes up the bulk of the assets of homeowners, it often requires debt financing. Accordingly, institutional mortgage market features (such as the opportunities for early repayment) are of considerable importance in shaping both the evolution of housing wealth and any associated wealth effects on consumption spending. Unfortunately, limited data availability implies that there is little empirical literature on the housing wealth effect in the euro area. The small body of evidence suggests that housing wealth has a relatively modest impact on consumption (compared with other industrialised countries such as the United Kingdom or the United States).

This article describes the dynamics of consumption and wealth in the euro area, summarises the links between housing and consumer expenditure, and discusses the estimates of the housing wealth effect on consumption, the determinants of this effect and its variation across countries. In the following section, the recent evolution of euro area house prices is described, along with developments in household wealth and private consumption. Section 3 discusses how wealth affects consumer spending, how various "frictions" such as collateral constraints or down-payments can play a role, how financial innovation changes the transmission of housing price shocks to consumer spending and how the responses of households differ depending on their home-ownership status, wealth or debt. Section 4 reviews the existing empirical estimates of wealth effects and investigates how they vary across countries and households. Section 5 concludes.

1 Household net worth equals total assets net of total liabilities. Total assets consist of financial assets (which include currency and deposits, shares and other securities) and non-financial assets, whose key component is housing wealth (i.e. real estate).

2 HOUSING MARKETS, HOUSEHOLD NET WORTH AND CONSUMPTION IN THE EURO AREA

The development of housing wealth in the euro area over the past 25 years has generally borne a close resemblance to the evolution of euro area residential property prices (see Chart 1; see also Box 2 for a cross-country analysis).[2] This relationship follows from the fact that house prices affect the value of the stock of housing.

The two broad housing wealth cycles in the euro area since the early 1980s have corresponded to cycles in house prices, with peaks in the growth rates in the period 1989-90 and in 2005. Housing market developments have been moderating fairly steadily since mid-2005, following a strong expansion over the preceding years. In annual terms, house price growth declined from a peak of 7.6% in the first half of 2005 to 3.7% in the second half of 2007 (or 4.2% for 2007 as a whole). This compares with an average annual growth rate of 6.6% over the period 1999-2005. The moderating dynamic in house prices has corresponded to a marked fall in the growth rate of euro area housing wealth in the period to 2007. Available information, for instance country information on house price developments and data on euro area housing loans, indicates that a further fall is likely in 2008.[3]

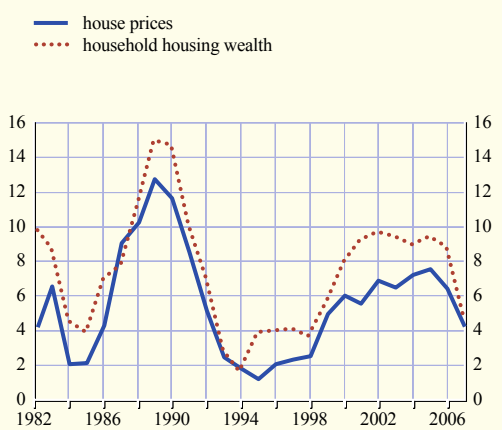
Housing wealth has played a dominant role in the evolution of household net worth in the euro area over recent years. As indicated in Chart 2, net worth as a percentage of gross disposable income in the euro area was around 640% in 2007, up from nearly 530% in 1999. This development mostly reflects the strong housing market dynamics and associated house price increases, as the ratio of housing wealth to disposable income increased by more than 41% over the same period. A steady increase in housing wealth contrasts with higher volatility in financial wealth. According to available estimates, financial wealth peaked in 1999 as a percentage of disposable income but, following a pronounced decline, only regained this level

2 For more detail, see the box entitled "Estimates of housing wealth for households in the euro area" in the December 2006 issue of the Monthly Bulletin.

3 For more detail, see the box entitled "Recent housing market developments in the euro area" in the July 2008 issue of the Monthly Bulletin.

Chart 1 Growth in housing wealth and residential property prices in the euro area

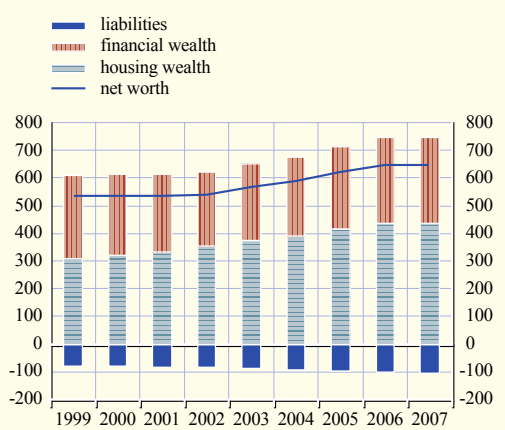
(annual percentage changes)



Source: ECB.
Note: Data for housing wealth in 2007 are a preliminary estimate. Housing wealth data exclude Slovenia.

Chart 2 Household net worth in the euro area

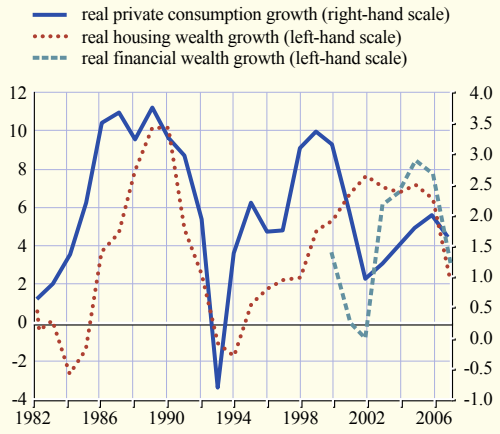
(as a percentage of gross disposable income)



Source: ECB.
Note: Data for housing wealth in 2007 are a preliminary estimate. Housing wealth data exclude Slovenia.

Chart 3 Real wealth breakdown and real private consumption

(annual percentage changes)



Sources: ECB and Eurostat.
Notes: Real data obtained using the private consumption deflator for the euro area. Data for housing wealth in 2007 are a preliminary estimate. Data for housing wealth and private consumption before 1995 are linked backwards using data from the ECB's Area-Wide Model. Housing wealth data exclude Slovenia.

again in 2005. As financial wealth is influenced by equity prices (in addition to bonds and other financial assets), much of this volatility relates to pronounced equity market movements over this period. The levels of volatility in housing and financial wealth may influence the extent to which euro area households perceive the respective movements in wealth as permanent versus transitory.

Despite the sizeable increase in household housing wealth and net worth since 1999, private consumption growth in the euro area has remained relatively subdued, influenced in particular by weak income growth as well as by commodity price shocks over the last few years.[4] Because private consumption in the euro area has many fundamental drivers, it is unsurprising that housing wealth and consumption have not shown a consistent relationship over the last 25 years. Over the 1980s and much of the 1990s, private consumption growth tended to move closely together with housing wealth, even preceding movements in the latter to some extent. In recent years, however, the co-movement between the two variables appears to have weakened somewhat, at a time when the co-movement between financial wealth and private consumption appears to have been somewhat stronger (see Chart 3).

A comparison of data on the euro area with data on the United States suggests that the ratio of both the housing and financial wealth components, as well as of consumption, to disposable income differs considerably across the two economic regions, notwithstanding important caveats related to measurement issues. In particular, euro area housing wealth relative to household disposable income is higher than in the United States, while the analogous ratio for euro area financial wealth is lower (see Chart 4). At the same time, the ratio of private consumption expenditure to household disposable income is lower in the euro area than in the United States (with the corollary of a higher euro area saving ratio). Moreover, the indebtedness of euro area households appears to remain below that of households in the United States. While euro area loans to households for house purchase grew steadily from around 40% of household disposable income in the fourth quarter of 1999 to almost 60% in the fourth quarter of 2007, this ratio remains below the ratio of home mortgage liabilities of households (and non-profit organisations) to disposable income in the United States, which stood at over 100% in the fourth quarter of 2007.

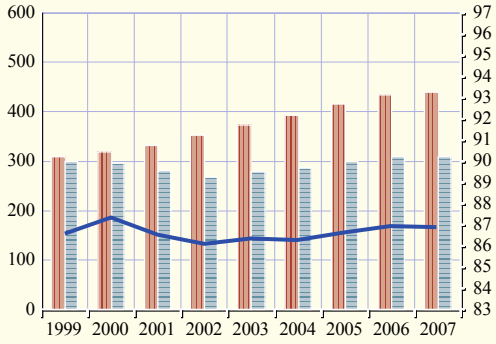
4 For recent developments in private consumption, see the Box entitled "Recent developments in private consumption and the impact of price increases" in the July 2008 issue of the Monthly Bulletin.

Chart 4 Nominal wealth and private consumption

(as a percentage of nominal disposable income)

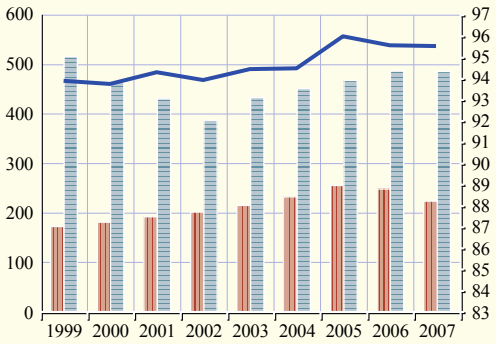
private consumption (right-hand scale)
housing wealth (left-hand scale)
financial wealth (left-hand scale)

a. euro area



Sources: ECB and Eurostat.
Note: Data for housing wealth in 2007 are a preliminary estimate. Housing wealth data exclude Slovenia.

b. United States



Sources: Federal Reserve System and Bureau of Economic Analysis.
Note: Personal consumption expenditures as a proportion of disposable personal income. Wealth data include households and non-profit organisations. Housing wealth refers to total real estate holdings; financial wealth refers to total financial assets.

3 HOUSING AND CONSUMPTION: MAIN LINKS AND MECHANISMS

The last section having reviewed the evolution of euro area wealth and consumption, this section discusses the channels through which wealth would be expected to influence consumption. The conceptual framework which tends to be used to analyse consumption dynamics is the permanent income hypothesis/the life-cycle theory, in which consumption spending is determined by expected lifetime resources.

In addition to serving as an asset to invest in, housing provides housing services.[5] Following an increase in house prices, not only do homeowners become wealthier but at the same time the price of housing services rises. Consumers may as a result reduce their demand for housing services. The overall effect of higher house prices on total consumption expenditure is thus in theory ambiguous.

FINANCIAL FRICTIONS

Much of the empirical evidence suggests that the housing wealth effect is quite large, especially in countries such as the United States and the United Kingdom (see Section 4 for a summary of the literature). To account for this finding, recent theoretical models have recognised the importance of financial "frictions", such as collateral constraints, down-payments and transaction costs.

Collateral constraints limit the ability of consumers to borrow against their expected future income. As banks are unable to evaluate credibly the risk inherent in households' expected income stream, they require collateral. Households may be offered more favourable conditions on loans which are backed by collateral. The total value of a loan is normally kept below a given fraction of household assets. For example, a bank may only be willing to lend up to 70% of the value of a house. For homeowners who are at their borrowing limits, a rise in housing prices can alleviate these constraints, making it possible to borrow more funds against the increased value of their house and consequently allowing them to spend more.

5 The price of housing services reflects the amount of money that tenants spend on the provision of shelter (rents) and that owner occupants would have spent had they been renting (imputed rental value).

On the other hand, faced with higher housing prices and down-payments, households considering buying a house may have to cut their spending. First-time buyers are typically people acquiring a house early in life when their income is relatively low. Since the purchase of a house requires a large sum of money, which rises with its value, many young households may actually save more and spend less when real estate prices increase. However, because down-payments only affect households which are considering buying a house for the first time – a relatively small fraction of population – this effect is likely to be relatively small in the aggregate.

A key feature of housing wealth is its illiquidity: compared with most financial assets, it is relatively costly to convert increases in housing wealth into money, which can be spent.[6] Consequently, the response of consumers to house price shocks can be qualitatively different from their reaction to financial asset price shocks. In particular, consumer spending is likely to respond to a house price shock only after the accumulated price shock has become so large that it exceeds the transaction costs associated with adjusting the housing stock or borrowing against housing wealth.[7] Transaction costs can also explain why the response of consumption to large house price shocks can be disproportionately stronger than the response to small shocks.

MORTGAGE MARKET INSTITUTIONS

The transmission of house price shocks through the macroeconomy is affected by how "complete" mortgage market institutions are in terms of offering a wide spectrum of financial products that make it easy to borrow (for and against housing), in terms of the prices of these products and in terms of the range of customers the institutions serve. Consumer spending in countries with more complete mortgage markets, where housing is effectively more liquid, typically responds more to house price shocks than in countries with less complete mortgage markets (see also the empirical evidence reported in Section 4).

Measures of the completeness of mortgage markets are generally constructed using information on a number of institutional features, above all typical loan-to-value ratios, the cost of early repayment and the availability of mortgage equity withdrawal.[8]

In part as a result of deregulation and financial innovation, mortgage markets have over the past 20 years generally become more complete, although at a different pace and to a different extent across countries. Loan-to-value ratios have risen and the use of equity release products has become more widespread, especially in countries such as the United States and the United Kingdom.

Deregulation of mortgage and financial markets in many countries, which intensified substantially in the early 1980s, has also allowed more financial institutions to enter the market and lowered transaction costs. In addition, new financial products have made it easier for homeowners to borrow against housing. Increased availability of credit – in particular lower down-payments for first-time home buyers and easier access to loans collateralised by houses (manifested in increasing loan-to-value ratios) – has contributed to the substantial increase in the size of the housing wealth effect

6 It is even more costly to adjust one's housing stock by moving. For the way in which moving costs and the availability of reverse mortgages affect the housing wealth effect see Skinner, J. (1996), "Is housing wealth a sideshow?", in D. Wise (ed.), *Advances in the Economics of Aging*, NBER, University of Chicago Press, pp. 241-268.

7 Transaction costs normally have both a fixed component (stemming from various fees) and a variable component, which depends on the value of the house. The mechanism described here is based on the assumption that the accumulated house price shocks have to cover both cost components to justify moving.

8 The loan-to-value ratio is the amount of mortgage credit as a percentage of the total value of the property. The cost of early repayment reflects how much a household has to pay to the mortgage provider if it decides to pay back the mortgage earlier than specified in the contract (possibly in order to switch to a mortgage with more favourable conditions). Mortgage equity withdrawal is the practice of households taking on debt that is secured with a property in order to finance consumption spending, the acquisition of other assets or the repayment of unsecured debt. For an indicator of mortgage market completeness, see IMF (2008), "The Changing Housing Cycle and the Implications for Monetary Policy", World Economic Outlook, Chapter 3, April.

in countries such as the United States and the United Kingdom.[9]

While financial innovation is taking place worldwide, substantial differences persist in institutional mortgage market features, such as the typical loan-to-value ratios and the cost of early repayment of mortgages, even in areas such as the euro area that are in many respects fairly homogeneous, as shown in Box 1. Variation in these institutional features can affect the response of economies to housing price and interest rate shocks.[10] For example, the transmission of interest rate shocks is likely to be stronger in countries with adjustable-rate mortgages.

Although financial innovation, a wider range of financial products and lower transaction costs can in principle increase the welfare of many households, economies where households can access mortgage credit more easily (such as the United States, Denmark, the Netherlands, Australia or Sweden)[11] are likely to be more responsive to house price shocks than the economies of many euro area members (including France, Italy, Germany, Austria, Belgium or Greece). The latter economies may be more stable and more effective at minimising default risk and lending to households that want to borrow beyond their expected income prospects. In addition, credit provision in the former group of countries may be particularly pro-cyclical and therefore prone to amplifying macroeconomic volatility.[12]

9 See Muellbauer, J. N. (2007), "Housing, Credit and Consumer Expenditure" in the proceedings of the Federal Reserve Bank of Kansas City Symposium on Housing, Housing Finance and Monetary Policy, Jackson Hole.

10 See Maclennan, D., J. N. Muellbauer and M. Stephens (1998), "Asymmetries in Housing and Financial Market Institutions and EMU", *Oxford Review of Economic Policy* 14, pp. 54-80.

11 The countries in this and the following bracket are sorted by the value of the index of household access to mortgage credit (see IMF (2008), "The Changing Housing Cycle and the Implications for Monetary Policy", Chapter 3, World Economic Outlook, April).

12 For evidence from a highly disaggregated (zip-code-level) US dataset on how rapid expansion in the supply of mortgage credit to high-risk borrowers can explain much of the boom-bust variations in house prices and the related dynamics in defaults, see Mian, A. and A. Sufi (2008), "The Consequences of Mortgage Credit Expansion: Evidence from the 2007 Mortgage Default Crisis", NBER Working Paper 13936.

Box 1

THE ROLE OF INSTITUTIONAL FACTORS IN THE TRANSMISSION OF HOUSING PRICE SHOCKS

The ease with which it is possible to transform house price gains into funds for spending differs across euro area economies, partly reflecting institutional differences in mortgage markets. Thus the strength of the transmission of house price shocks to the economy depends on – among other things – the percentage of the population owning a dwelling, the typical loan-to-value ratio (LTV) and possibilities for early repayment of mortgages. This box discusses these factors, but in view of the lack of harmonised and centralised data, a degree of caution in interpreting the numbers is warranted.

Wealth gains or losses through changes in house prices can only arise for households owning a dwelling (a house or a flat). For most countries, the owner-occupation rate, which indicates the percentage of dwellings occupied by their owners, gives a good approximation of the proportion of the population owning a dwelling. This rate varies substantially in the euro area, from 44% in Germany to 83% in Spain (see table). All other things being equal, wealth effects could be much higher in the latter country.

Another variable in the transmission of housing price shocks is the LTV ratio. All other things being equal, a higher ratio indicates easier access for households to debt based on a house as

Institutional mortgage market characteristics in selected euro area countries

(percentages)

	Owner-occupation rate [1] 2005	Typical LTV ratio [2] 2005	Early repayment [3] 2007	Debt for house purchase-to-GDP ratio [4] 2007
Belgium	67	80-85	C	33.9
Germany	44	70	F/N	39.6
Ireland	78	91-95	N	65.6
Greece	73	60	N	27.2
Spain	83	83	C	58.0
France	58	66	C	33.5
Italy	72	80	F	17.2
Cyprus	68	80	C	43.5
Luxembourg	69	Max 80	F/N	37.9
Malta	75	68	N	36.1
Netherlands	54	112	N	67.8
Austria	52	70-85	N	23.8
Portugal	73	70-80	C	61.0
Slovenia	82	NA	C	7.7
Finland	64	70-85	N	33.8

Sources:
1) Eurostat, Yearbook 2008.
2) Miles, D. and V. Pillonca (2008), "Financial Innovation and European Housing and Mortgage Markets", *Oxford Review of Economic Policy*, Vol. 24, Issue 1, pp. 145-175.
3) European Commission 2007 White Paper on the Integration of EU Mortgage Credit Markets, supplemented with more recent information.
4) ECB.
Note: C = capped fees, F = no fees, N = no limits on fees imposed, NA = not available.

collateral in the event that house prices increase. The higher the LTV ratio, the more a house price change can increase households' borrowing opportunities. Furthermore, a high LTV ratio may indicate that households not having taken the maximum loan amount initially may increase their borrowing. The table shows large differences between typical LTV ratios in euro area countries, ranging in 2005 from 60% in Greece to 112% in the Netherlands, though for most countries the typical loan represents about 80% of the house value. The differences across the euro area reflect, among other things, the presence in some countries of a guarantee system for interest payments and redemptions, sometimes set up by the government and paid for by all participating households. Where such a system is in place, as in the Netherlands and Finland, banks will be willing to grant loans for house purchase with a higher LTV. A relatively easy enforcement of foreclosure procedures in the event that a household fails to repay a loan will also have a positive effect on the LTV ratio that mortgage suppliers offer.

Opportunities for early repayment of loans for house purchase – that is, before the agreed maturity of the loan has been reached – may further strengthen the transmission effect. Early repayment means the debtor can switch to a new and larger loan should the value of the underlying collateral, the house, rise, and thereby gives access to housing wealth. Households may choose this option when other possibilities, notably taking up a second loan on the same property, are not feasible or are more expensive. Early repayment regimes in the euro area vary considerably, as shown by the table: while in most countries early repayment is a legally established right, in others it can be excluded by contract. Fees to be paid by households should they exercise the option of early repayment differ widely: in some countries demanding a fee is legally prohibited, whereas in others there is full contractual freedom to set fees. The table shows the general compensation regime in euro area countries, although many exemptions and other details are not shown. It must be noted that in countries where fees are capped or excluded banks may pass on the costs related to early repayment to all households taking up a loan for house purchase by demanding generally

higher interest rates. Besides early redemption fees, other transaction costs of remortgaging play a role in households' decisions whether to redeem part or all of their loan for house purchase and take up a new one. More generally, lower housing transaction costs facilitate selling and/or buying a house, which can be an indirect way to withdraw equity.

The amount of outstanding debt for house purchase can be seen as a crude summary indicator of the potential strength of the transmission of house price shocks to the economy, as higher owner-occupation rates, higher LTV ratios and greater opportunities for early repayment will in principle be reflected in higher debt ratios. Large differences in debt ratios can in fact be observed in the euro area: from 8% of GDP (Slovenia) to 68% of GDP (the Netherlands). However, these differences also reflect other factors, which somewhat reduce the information value of the debt-to-GDP ratio as a summary indicator of the opportunities for realising wealth effects. In some countries, households tend to have no or only small mortgages for historical and cultural reasons. Cross-country variation in debt for house purchase is also related to features such as the degree to which the rental market offers good alternatives to owning a dwelling and the scale of fiscal subsidisation of owner-occupied housing. It is worth noting that lending to households with a high probability of insolvency seems to have been more limited in the euro area than in the United States and the United Kingdom.

In conclusion, substantial differences in mortgage market institutions can be observed in euro area countries, which may well affect the transmission of house price, income or interest rate shocks to the economy. For example, the extent of household indebtedness or the interest rate sensitivity of consumers' liabilities affects the vulnerability of an economy to adverse shocks. In addition, a high degree of owner-occupation, high LTV ratios and extensive opportunities for early repayment in principle allow a stronger and faster transmission. However, the same factors may also contribute to a higher degree of housing market volatility.[1]

1 For more detailed results see e.g., Calza, A., T. Monacelli and L. Stracca (2006), "Mortgage Markets, Collateral Constraints, and Monetary Policy: Do Institutional Factors Matter?", Working Paper 10, Center for Financial Studies, Goethe University, Frankfurt.

DIFFERENCES IN WEALTH EFFECTS ACROSS HOUSEHOLDS

The response of the macroeconomy to house price shocks is determined by the reactions of individual households, which differ substantially depending on their wealth, expected income profile, debt, home-ownership status and demographics. Both theoretical considerations and the available evidence (based on household-level data) suggest considerable heterogeneity in wealth effects across households. An understanding of these differences can shed light on what happens to the wealth effects at the aggregate level as financial innovation progresses, demographics evolve or tax and pension systems change.

The reactions of renters and homeowners to positive housing shocks differ: the former are negatively affected by increased (current and expected future) rents and have to reduce expenditure on other consumption goods. The latter, on the other hand, spend more as their wealth rises. The extent to which both groups react to housing price changes depends on the flexibility of rents. Much of the housing market (both in the United States and in particular in the euro area) is subject to rent controls, which limit the pass-through of shocks to rents.[13]

However, the reactions of renters and homeowners do not have to be symmetric. For example, if homeowners are wealthier, they are

13 For empirical evidence from the United States see Genesove, D. (2003), "The nominal rigidity of apartment rents", *Review of Economic Studies* 85(4), pp. 844-853.

unlikely to react as strongly as renters. A key reason is that richer people have lower marginal propensities to consume. Moreover, there is some empirical evidence that precautionary savings cause asymmetric reactions of spending to negative and positive wealth shocks.

In addition, the spending of more indebted households can be more sensitive to shocks. While greater access to new credit can give consumers better opportunities to insulate spending from income and interest rate shocks, households which accumulate a substantial amount of debt may have to allocate sizeable resources to debt service. Consequently, they have a smaller amount of funds available to smooth consumption should they face adverse shocks (such as an increase in the interest rate on their mortgage). The mechanism can in some countries be amplified by the strong positive correlation between income and housing price shocks.

Interactions between income and housing prices can during good times constitute a self-sustaining process in which consumers experience positive shocks to both variables. Because housing price increases are fairly persistent (relative to stock price increases, for example), housing booms often last several years. In such periods some people may extrapolate the rising house prices into the future and may invest in houses even though their current and expected incomes are insufficiently high. Such consumers may have to face adverse consequences once housing prices start to stagnate or even fall. Households which are confronted with a combination of low or even negative house equity and bad income shocks may have to curb their spending considerably.[14]

4 EMPIRICAL ESTIMATES OF THE HOUSING WEALTH EFFECTS IN INDUSTRIALISED COUNTRIES

This section outlines empirical evidence on housing wealth and private consumption, building on the descriptive analysis and theoretical arguments presented thus far. While numerous studies have analysed the relationship between housing wealth and private consumption in industrialised countries, few studies exist on the euro area as relatively limited data on housing wealth hamper a complete empirical assessment. The literature can be divided into two groups, one dealing with macro data and one using micro data.

Much of the literature uses aggregate data, which are available for longer periods, more frequently and with greater timeliness than household-level data. Because measurement of household net worth can be problematic and reliable data on housing wealth in the euro area have only recently become available, much of the work initially concentrated on the United States (see following table) and the evidence from other countries was added only later. Results are usually summarised in terms of the marginal propensity to consume out of housing wealth, which indicates how much consumption changes (in absolute terms) for a one-euro/dollar/pound change in wealth. The studies found long-term marginal propensities to consume of between 6 and 10 cents per dollar for the United States, 9 cents per dollar for Canada, 4 pence per pound for the United Kingdom and 1 to 2 cent per euro for Italy. Some work estimated the consumption response to wealth shocks using elasticities rather than marginal propensities to consume. The two measures are closely related: the elasticity of consumption to housing wealth equals the marginal propensity to consume multiplied by the ratio of housing wealth to (annual) consumer expenditure.[15] In general, these elasticities also

14 While the links between household balance sheets, income and expenditure are under-researched, household-level data from the United Kingdom provide evidence that indebted households react (much) more strongly to shocks, see Disney, R., S. Bridges and J. Gathergood (2006), "Housing wealth and household indebtedness: Is there a household financial accelerator?", Česká národní banka Working Paper 12. Using data from the British Household Panel Survey, the authors "estimate an average aggregate marginal propensity to increase household net borrowing in response to an increase in house prices of around 0.03 – varying from almost 0.4 for highly levered households to zero for households with very low loan-to-value ratios". House price fluctuations can also have a disproportionate impact on savings for households with negative housing equity.

15 The ratio of housing wealth to consumption varies considerably over time and across industrialised countries. For the euro area, it ranged between 3.3 and 5.8 between 1980 and 2006. See also Box 2 entitled "Cross-country heterogeneity in housing wealth".

suggest the existence of positive and significant housing wealth effects for countries such as the United States and the United Kingdom, while the evidence for euro area countries is more mixed and relatively scarce. In addition, wealth effects tend to be larger for economies with more developed financial markets,[16] which could indicate that the reaction to housing shocks is on average smaller for the euro area, where many countries have bank-based financial systems, than for countries such as the United States and the United Kingdom.

Unlike most other studies, Slacalek (2006)[17] provides estimates of housing wealth effects for the euro area as a whole, constructing housing wealth data for eight euro area countries over the period 1979-99. It finds no significant housing wealth effects for the euro area over the full sample, although the effect is significant for the period starting in 1989, with a marginal propensity to consume out of one euro of housing wealth of 1.95 cent. This estimate is substantially smaller than the study's results for the United States and the United Kingdom, which exceed 3 cents/pence per dollar/pound.

16 See Ludwig and Sløk (2004; see table below).
17 See table.

Estimates of housing wealth effects using macro and micro data

(marginal propensity to consume out of one unit of local currency of housing wealth)

	US	CAN	UK	OECD	FR	IT	FI	ES	euro area
Macro data									
Marginal propensities to consume									
Bassanetti and Zollino (2008)						0.01-0.02			
Bertaut (2002)	0.10	0.09	0.04						
Carroll, Otsuka and Slacalek (2006)	0.06								
Skinner (1993)	0.06								
Slacalek (2006)	0.05	0.05	0.05	0.01					0
Elasticities									
Boone and Girouard (2002)	0.03	0.19	0.04		0.05	-0.06			
Case, Quigley and Shiller (2005)	0.03-0.10			0.09-0.17					
Ludwig and Sløk (2004)				0.04					
Micro data									
Marginal propensities to consume									
Bover (2006)								0.02-0.07	
Campbell and Cocco (2007)			0.08						
Guiso, Paiella and Visco (2005)						0.02			
Lehnert (2004)	0.02								
Paiella (2004)						0.02			
Elasticities									
Bostic et al. (2006)	0.06								
Grant and Peltonen (2008)						0.08			
Sierminska and Takhtamanova (2007)		0.12				0.13	0.10		

Sources: Bassanetti, A. and F. Zollino (2008), "The Effects of Housing and Financial Wealth on Personal Consumption: Aggregate Evidence for Italian Households", in *Household Wealth in Italy*, Banca d'Italia; Bertaut, C. C. (2002), "Equity Prices, Household Wealth, and Consumption Growth in Foreign Industrial Countries: Wealth Effects in the 1990s", Federal Reserve Board, International Finance Discussion Papers 2002-724; Carroll, C. D., M. Otsuka and J. Slacalek (2006), "How Large Is the Housing Wealth Effect? A New Approach", NBER Working Paper 12746; Skinner, J. (1993), "Is Housing Wealth a Sideshow?", NBER Working Paper 4552; Slacalek, J. (2006), "What Drives Personal Consumption? The Role of Housing and Financial Wealth", DIW Berlin Discussion Paper 647 (only the panel results are reported in the table); Boone, L. and N. Girouard (2002), "The Stock Market, the Housing Market and Consumer Behaviour", OECD Economic Studies, 32(2):175-200; Case, K. E., J. M. Quigley and R. J. Shiller (2005), "Comparing Wealth Effects: The Stock Market versus the Housing Market, Advances in Macroeconomics", 5(1):1-32; Ludwig and Sløk (2004), "The Relationship between Stock Prices, House Prices and Consumption in OECD Countries", *Topics in Macroeconomics*, 4(1), Article 4; Bover, O. (2006), "Wealth Effects on Consumption: Microeconometric Estimates from the Spanish Survey of Household Finances", CEPR Discussion Paper 5874; Campbell, J. Y. and J. F. Cocco (2007), "How Do House Prices Affect Consumption? Evidence from Micro Data", *Journal of Monetary Economics*, 54(3): 591-621; Guiso, L., M. Paiella and I. Visco (2005), "Do Capital Gains Affect Consumption? Estimates of Wealth Effects from Italian Households' Behavior", Banca d'Italia Working Paper 555 (June); Lehnert, A. (2004), "Housing, Consumption, and Credit Constraints", Federal Reserve Board, Finance and Economics Discussion Series 2004-63; Paiella (2004), "Does Wealth Affect Consumption? Evidence from Italy", Banca d'Italia Working Paper 510; Bostic, R., S. Gabriel and G. Painter (2006), "Housing Wealth, Financial Wealth, and Consumption: New Evidence from Micro Data", University of Southern California, Lusk Center for Real Estate Working Paper; Grant, C. and T. Peltonen (2008), "Housing and equity wealth of Italian households", ECB Working Paper No 857; Sierminska, E. and Y. Takhtamanova (2007), "Wealth Effects out of Financial and Housing Wealth: Cross Country and Age Group Comparisons", Federal Reserve Bank of San Francisco Working Paper Series, 2007-01, January.

Because of data limitations there is little consensus on how the wealth effects differ for housing and financial wealth: while some studies find that the housing wealth effect is substantially stronger than the financial wealth effect,[18] others report the opposite.[19] The theoretical reasons for such differences are also not clear-cut. On the one hand, financial wealth tends to be more concentrated in high-income households, and shocks to financial wealth are typically much more transitory than shocks to housing wealth. Both facts could suggest a weaker propensity to consume out of financial wealth. On the other hand, when housing wealth increases are caused by house price increases, house buyers need to save more in order to accumulate the necessary savings for a down-payment.[20] In addition, the size of the housing wealth effect is affected by the pass-through of housing price shocks to rents and the proportions of renters and homeowners in the economy.

Estimates of the wealth effect using aggregate data suffer from at least two shortcomings. First, heterogeneity across households (in terms of home-ownership status, age, income or region) cannot be investigated. Differences between households can be important if the intention is to restrict the analysis to a particular population group, such as highly indebted consumers. Second, variations in asset prices and consumption are in part driven by the same macroeconomic factors, which are difficult to account for adequately. Although this may bias estimates of the wealth effect, it is a less serious issue at less aggregate (e.g. regional) levels, where variation in local housing prices is driven to some extent by local rather than macroeconomic factors.

Marginal propensities to consume estimated with household-level data generally lie close to those obtained with macro data. A number of studies using micro data exist for some euro area countries – mainly Spain, France, Italy and Finland – which provide data at the household level. Estimated marginal propensities to consume out of housing wealth for Spain and Italy are 2 to 7 cent per euro and 2 cent per euro respectively.[21] There is also mixed evidence as to whether the housing wealth effect is larger than the financial wealth effect in these studies.

Studies based on micro data have also examined the heterogeneity of wealth effects across households, controlling for demographic variables.[22] It was for example found that middle-aged homeowners have the largest wealth effects.[23] In addition, homeowners tend to have positive wealth effects when house prices rise, while renters increase their savings.[24] Therefore, demographic changes and changes in the economy's home-ownership structure can affect aggregate consumption behaviour. In addition, some evidence was found for an asymmetric effect of wealth on consumption: consumers seem to react more to housing wealth losses than to gains.[25] This might be related to the existence of precautionary savings as well as to liquidity constraints.

The empirical evidence on the strength of the wealth effect on consumption is subject to many caveats. First, household wealth does not move independently of consumption, and other variables may affect this bivariate relationship. Indeed, while asset prices (including housing) are influenced by economic activity, they may also embody expectations (and changes in expectations) about future income. As standard theoretical models based on the permanent income hypothesis/the life-cycle theory ultimately relate to lifetime consumption

18 For example Case et al. (2005; see table above).
19 For example Ludwig and Sløk (2004; see table above).
20 See also the article entitled "Recent trends in residential property prices in the euro area" in the May 2003 issue of the Monthly Bulletin.
21 The results for Finland and France in the table above are reported in terms of elasticities rather than as marginal propensities to consume.
22 See also Section 2.
23 See Bover (2006; see table above). For a discussion of this effect, see also Section 2.
24 See Guiso et al. (2005) and Campbell and Cocco (2007). See table above.
25 See Engelhardt, G. V. (1996), "House prices and home owner saving behaviour", *Regional Science and Urban Economics*, 26(3/4): pp. 313-336 and Berben, R. P., K. Bernoth and M. Mastrogiacomo (2006), "Households' response to wealth changes: Do gains or losses make a difference?", De Nederlandsche Bank Working Paper 90.

planning, demographic developments – both current and expected – as well as credit market imperfections are likely to play a significant role in governing the household wealth/consumption relationship. Empirical literature often has serious difficulties adequately accounting for these complex relationships.

Second, a muted consumption response to increases in housing wealth at the euro area level may to some extent mask heterogeneity across euro area countries – owing to both country-specific mortgage finance structures (see Box 1) and the evolution of country-specific fundamentals that are important for consumption and translate into differences in housing wealth (see Box 2). Third, housing markets may be particularly prone to structural breaks and subject to nonlinear relationships with economic activity. The influence of housing wealth may be particularly susceptible to changes in historical relationships given evolving economic, financial or institutional factors (with the latter including, for instance, the role of non-market forces such as housing market regulation and tax policies in driving housing market developments). Fourth, threshold effects and asymmetries may affect the transmission of housing price shocks. Threshold effects, due to which consumption reacts differently to small and large house price shocks, can be caused by credit market imperfections. These imperfections can include transaction costs or can arise as households strive to separate out transitory and permanent wealth shocks. Asymmetries, for example a larger response of spending to a fall in housing prices than to an increase, can be caused by liquidity constraints.

Box 2

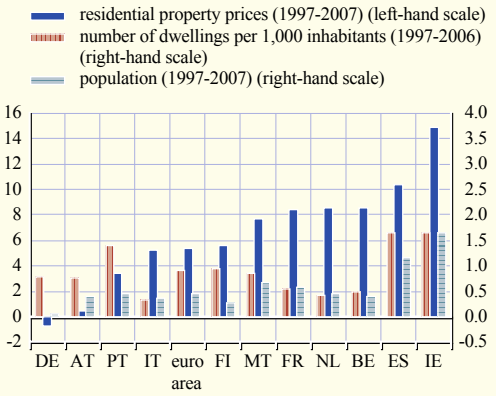
CROSS-COUNTRY HETEROGENEITY IN HOUSING WEALTH

Box 1 documents the substantial heterogeneity across euro area countries in terms of various institutional features of mortgage markets. These features can lead to cross-country heterogeneity of housing wealth and its accumulation rate.

Comparable data on housing wealth in the euro area countries are not available. However, an approximate indication of the growth in housing wealth in individual countries can be obtained by looking at the average change in residential property prices, the average change in the number of dwellings per 1,000 inhabitants and the average growth rate of the population (see Chart A). These three factors combined give a broad indication of the growth of the nominal stock of housing wealth.[1]

Chart A Residential property prices, number of dwellings and population

(average annual percentage changes)



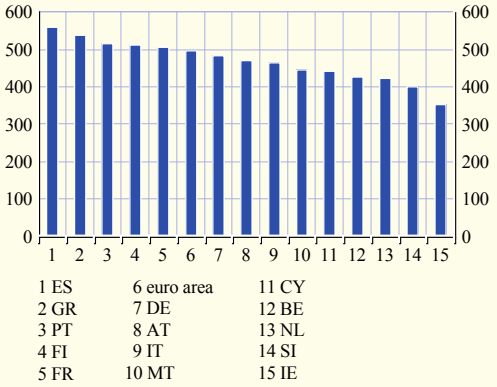
Sources: ECB and Eurostat.
Notes: Comparable data are not available for Greece, Cyprus, Luxembourg, Slovenia or Slovakia.
Residential property price changes for Finland are an average of 1997-2000.
Changes in the number of dwellings are averages of 1997-2005 for Ireland, Italy and Portugal, of 1997-2004 for Malta and of 1997-2002 for Austria.

1 More formally: $\Delta HW = \Delta P + \Delta(N/POP) + \Delta POP$, i.e. in a given period the (percentage) change in nominal housing wealth (ΔHW) equals the change in house prices (ΔP) plus the change in the number of dwellings per inhabitant ($\Delta(N/POP)$ plus the change in population (ΔPOP)). The information provided in Chart A does not give any indication of the *level* of housing wealth across euro area countries.

Between 1997 and 2006 the number of dwellings per 1,000 inhabitants rose on average in all euro area countries for which data are available, especially in Ireland, Spain, Malta and Portugal. The largest increases were recorded in countries (such as Ireland and Spain) showing the strongest population growth. These increases notwithstanding, the number of dwellings per 1,000 inhabitants in 2006 ranged between 560 in Spain to close to 350 in Ireland, thus exhibiting substantial differences across countries (see Chart B). This may also hint at heterogeneity of the level of the housing stock in the euro area.[2]

Chart B Number of dwellings per 1,000 inhabitants across euro area countries

(2006 levels unless otherwise specified)



Source: Eurostat.
Notes: Data for Luxembourg are not available.
Data for Ireland, Italy, Portugal and Slovenia refer to 2005, for Greece and Malta to 2004 and for Austria to 2002.

Given a high correlation between residential property prices and housing wealth in the euro area (see Chart 1 in Section 2), changes in the former have been the major driver of housing wealth dynamics. Between 1997 and 2007, prices for residential property increased on average by close to 5.5% annually in nominal terms in the euro area, with considerable heterogeneity across countries. The strongest price increases were recorded in Ireland and Spain (close to 15% and above 10% respectively), suggesting that population growth has contributed to the housing price dynamics in these countries, while an average drop in prices of close to 0.6% per year was observed in Germany. Considerable house price inflation, above or just below 8%, was also reported in Belgium, France, Malta and the Netherlands.

2 A higher number of dwellings in some Mediterranean countries may also be related to a higher number of secondary residences in these countries.

5 CONCLUSION

The limited available evidence on the dynamics of consumption and housing wealth in the euro area suggests a relatively weak relationship between them compared with economies with more strongly market (versus bank) based mortgage markets, such as the United States and the United Kingdom, especially since 2000. This finding can be partly explained by the institutional features of mortgage markets and the way in which they affect the links between housing and the economy. In particular, mortgage equity withdrawal is generally less widespread in the euro area than in countries such as the United States and the United Kingdom, probably both because it is less widely offered by banks and because it is less frequently demanded by households. In addition, less financial innovation may have had the beneficial corollary of a less pronounced expansion of lending to less creditworthy borrowers, whose consumption may be particularly sensitive to house price and other shocks.

Accordingly, just as the housing market boom of recent years did not appear to provide a large boost to euro area consumption spending, the slowdown under way should on balance also have a relatively limited impact in the euro area as a whole. Nevertheless, substantial cross-country heterogeneity may imply stronger effects in some regions of the euro area.