9

The value of land and its contribution to wealth

9.1. The previous chapters of this guide focused on the different approaches in which to decompose the total value of a real estate into its two basic components: the value of land underlying dwellings and the value of the construction itself. The objective of this chapter is to show the analytical implications of data on the value of land and the value of dwellings in microeconomic and macroeconomic analysis.

9.2. This chapter is composed of two sections. The first section concentrates on the microeconomic approach to analyse the value of dwellings and the value of land underlying dwellings in relation to households' wealth. It also looks at some macroeconomic aspects closely related to this. The second section introduces the importance of wealth and its two underlying components in macroeconomic analysis and policy making.

9.1 Dwellings and land underlying dwellings as a storage of wealth

Introduction

9.3. The concept of wealth generally refers to the financial and non-financial resources at the disposal of an institutional unit or sector shown in the balance sheet. These resources are summarised in the balancing item, net worth. Net worth is defined as the value of all the assets owned by an institutional unit or sector less the value of all its outstanding liabilities. For the economy as a whole, the sum of non-financial assets and net claims on the rest of the world is often referred to as national wealth (SNA 2008 paragraph 13.4).

9.4. On the balance sheets, there are many non-financial assets comprising wealth. They are dwellings, other buildings and structures, machinery and equipment, cultivated biological resources, intellectual property products, inventories, land, mineral and energy reserves, non-cultivated biological resources, etc. Among them, dwellings, other buildings and structures, and land are often the most valuable ones.

9.5. This chapter focuses on the importance of dwellings and land underlying dwellings as a component of wealth. More specifically, the role of dwellings as a storage of wealth is explained at the households' level as well as at the national level. At each level, the inclusion of the value of underlying land will lead to a more realistic analysis.

9.6. With the increasing availability of balance sheet data for non-financial assets (through the ESA 2010 transmission programme Table 26) and initiatives like the Task Force 'Household Perspective' ([90]), the data to measure wealth is becoming more accessible. This will help to better understand the source of households' wealth. The compilation of non-financial assets by institutional sector is a substantial improvement in the availability of national accounts data. By combining this data with financial assets and liabilities it completes the data on wealth.

The concept of dwellings and wealth analysis

9.7. The concept of wealth generally refers to economic resources in the form of assets and liabilities. For example, the SNA 2008 refers to the wealth of an economy's inhabitants as being the levels of an economy's assets and liabilities at particular points of time (SNA 2008 paragraph 1.2).

9.8. As explained in the introduction wealth will be analysed using two different approaches: a microeconomic and macroeconomic approach. In the micro level approach the definition of wealth, or net worth, is the value of all assets owned by a household less the value of all their liabilities at a particular point in time. At the macro level it is the same definition, assets less liabilities.

9.9. There are differences between the micro and macro approaches. The micro assets component 'principal residence' is composed of two components, 'fixed assets' and 'natural resources', without the separation of land from the buildings that stand on it ([91]). This is the most distinctive feature of the standard micro data representation of households' wealth compared to the macro level representation. The micro approach is quite different from the balance sheet approach in the SNA 2008 where the value of buildings and land value underlying them are separately recorded as produced non-financial assets and non-produced non-financial assets, respectively. From this point of view, wealth analysis is mostly based on the combined value of land and structure rather than separating them like balance sheets in the SNA 2008.

9.10. The major difference between the micro data approach and the balance sheet approach (macro data) of the SNA 2008 comes from their different objectives. The micro data approach focuses on households' wealth as it is. So the separation of underlying land from dwellings is not necessary. In addition, the micro data approach reflects more closely the real estate market transaction where the combined value of the dwelling and its underlying land is traded

([90]) This Task Force has been mandated by the so-called 'Eurostat/INSEE Sponsorship group' to study the feasibility of the recommendations done in the Stliglitz/Sen/Fitoussi report and strengthen the availability of non-financial assets statistics.

([91]) Organisation for Economic Co-operation and Development, *OECD Guidelines for Micro Statistics on Household Wealth*, 2013, p. 225. Available at http://www.oecd.org/statistics/OECD-Guidelines-for-Micro-Statistics-on-Household-Wealth.pdf

as one asset. Contrastingly, one of the purposes of capital measurement in the SNA 2008 is to estimate consumption of fixed capital in order to measure net income which is more relevant to economic welfare. Thus, dwellings must be depreciated and separately recorded from the underlying land which is not depreciated.

9.11. Although the balance sheet approach of the SNA 2008 does not share the common objective of the micro level approach, the combined value of structures and their underlying land on the balance sheet should be analysed when wealth is tackled. This harmonisation will lead to more consistent comparisons of wealth at the micro level as well as at the macro level.

Dwellings as a storage of wealth for households and non-profit institutions serving households

9.12. In the developments related to the 2007–2008 financial crisis there have been many initiatives to strengthen the availability of statistical data. In this respect there are two points of reference regarding non-financial assets and wealth. The first one is the Stiglitz/Sen/Fitoussi Report (2009) ([92]) that emphasised the role of measuring wealth to assess the economic sustainability of growth and promotion of a wider availability of country specific balance sheet statistics. In this respect recommendation 3 of the Stiglitz/Sen/Fitoussi Report states: 'Income and consumption are crucial for assessing living standards, but in the end they can only be gauged in conjunction with information on wealth. A household that spends its wealth on consumption goods increases its current well-being but at the expense of its future well-being. The consequences of such behaviour would be captured in a household's balance sheet, and the same holds for other sectors of the economy, and for the economy as a whole. To construct balance sheets, comprehensive accounts of assets and liabilities are needed. Balance sheets for countries are not novel in concept, but their availability is still limited and their construction should be promoted.'

9.13. The Stiglitz/Sen/Fitoussi Report highlighted the importance of the compilation of households' balance sheets in assessing the economic well-being of the households sector. Since not all countries compile such statistics the 'Eurostat/INSEE Sponsorship group' launched several recommendations aimed at:

— promoting the development of households' balance sheets;

— improving the availability of comparable data;

— expanding the coverage of assets to dwellings and land, so as to better monitor how households' net worth changes with developments in the housing market;

— improving the timeliness of the compilation of households' balance sheets.

9.14. A second initiative is the G-20 Data Gaps Initiative, through its Recommendation 15 that calls for developing a strategy to promote the compilation and dissemination of the balance sheet approach, flow of funds, and sectoral data, starting with G-20 economies.

9.15. The two initiatives listed above support the use of all the available data to compile balance sheet statistics. One of the data sources that are promoted to accomplish better balance sheet statistics is households' surveys, particularly by the incorporation of survey data on households' wealth in addition to income and consumption data ([93]) ([94]).

Dwellings as a storage of wealth at the national level

9.16. In national accounts the items dwellings and land underlying dwellings are reported as part of non-financial assets on the balance sheet. Table 9.1 displays the composition of the balance sheet with the focus on these assets.

Table 9.1: Balance sheet, summary

Assets		Liabilities and net worth	
AN	Non-financial assets		
AN.1	Produced non-financial assets		
AN.11	Fixed assets		
AN.111	Dwellings		
AN.2	Non-produced non financial assets		
AN.21	Natural resources		
AN.211	Land		
	of which:		
	Land underlying dwellings		
AF	Financial assets	AF	Financial liabilities
		B.90	Net worth

Source: SNA 2008, ESA 2010

([92]) See footnote 2.

([93]) Fesseau, M. and M. L. Mattonetti, *Distributional Measures Across Household Groups in a National Accounts Framework*, 2013, pp. 1–8. Available at http://www.oecd-ilibrary.org/docserver/download/5k3wdjqr775f.pdf?expires=1420814342&id=id&accname=guest&checksum=587E48A38DE5B324A7BBF2FCB2C431D5

([94]) Organisation for Economic Co-operation and Development, 2013, pp. 119–143. Available at http://www.oecd.org/statistics/302013041e.pdf

9.17. For households ([94]) the value of housing wealth is composed of the value of the dwelling and its underlying land and is usually the most valuable item in their balance sheet. Table 9.2 illustrates the shares of financial, non-financial, housing wealth, and land as a percentage of total wealth. As seen in Table 9.2, the importance of housing wealth differs among countries from 63 % of household wealth in France to 25 % in the United States. For European households, housing wealth is around half of the wealth of this sector. The share of land, as a proportion of housing wealth, represents 33 % in France, the largest share of the countries shown, and the smallest share in Germany with 16 %.

Table 9.2: Shares of financial and non-financial wealth in gross wealth of households and non-profit institutions serving households
(% of total wealth)

Country ([1])	Financial wealth	Non-financial wealth	Housing wealth	Value of land
Italy	40	60	57	27
Germany	43	57	52	16
The Netherlands	54	46	43	21
United States	69	31	25	-
France	35	65	63	33

([1]) Data for Italy, The Netherlands and France refer to 2011. Data for Germany and United States refer to 2012.

Sources: Banca d'Italia, DESTATIS, Deutsche Bundesbank, ONS, CBS, FED; ECB calculations.

9.18. The varying role of housing as part of wealth may be attributed to specific economic developments such as the extent of mortgage loans or a relatively high land price compared to other wealth elements in each country.

9.19. The value of dwellings (excluding land) is one of the most important items even at the national level. As shown in Table 9.3, the share of dwellings to the total value of produced non-financial assets constitutes 54.9 % for France and 22.2 % for Japan. Although some of the differences across countries may be attributed to different service lives and estimation methods for dwellings (see Chapter 6.5 for a discussion of service lives and depreciation), it is clear that dwellings make up a large share of the value in national balance sheets.

Table 9.3: Composition of produced assets, year 2010
(%)

	Asset ([1])	Australia ([2])	France	Japan	Canada	Czech Republic
N.1	Produced assets	100.0	100.0	100.0	100.0	100.0
N.11	Fixed assets	96.4	93.1	95.5	94.0	90.3
N.111	Tangible fixed assets	87.4	88.5	93.6	89.1	88.1
N.1111	Dwellings	34.8	53.2	22.2	45.5	24.5
N.1112	Other buildings and structures	39.2	26.5	59.0	35.6	49.2
N.1113	Machinery and equipment	12.8	8.5	12.4	8.0	14.3
N.1114	Cultivated assets	0.6	0.3	0.0	-	0.1
N.112	Intangible fixed assets	4.1	4.6	1.9	4.9	2.2
N.12	Inventories	3.6	5.0	4.5	6.0	9.1
N.13	Valuables	-	1.9	-	-	0.6

([1]) The classification is according to SNA 1993

([2]) For Australia this sum presents a difference in the original data

Source: OECD database

9.20. Table 9.3 does not tell the whole story of the importance of dwellings wealth at the national level. Land underlying dwellings should also be included when national wealth is concerned. Land underlying dwellings occupies a large portion of the value of total land. Hence the importance of dwellings combined with the underlying land will not be diminished even though the scope of wealth is extended to the value of land.

([94]) A number of countries are not able to provide a breakdown of households and non-profit institutions serving households (NPISHs) in their sector accounts. As a consequence, to ensure the highest level of comparability, the figures shown here are for the households sector including NPISHs.

9.21. Complete analysis of the importance of housing wealth across countries can only be done when the value of land is fully compiled on the balance sheet. A few countries currently estimate the total value of land on the national balance sheet as shown in Table 9.4: Australia, Canada, Czech Republic, France, Japan and Korea. The share of produced assets to total non-financial assets range from 47 % to 67 %, the largest share is shown for the Czech Republic and the smallest share is shown for Korea. Whereas non-produced assets (including land) shares range from 33 % to 53 % of total non-financial assets.

Table 9.4: National balance sheet, portion in the value of total non-financial assets, 2011
(%)

	Australia	Canada	Czech Republic	France	Japan	Korea
Total non-financial assets	100	100	100	100	100	100
Produced assets	51	65	67	54	58	47
Non-produced assets	49	35	33	46	42	53
Value of total land	39	35	7	44	42	53

Sources: OECD database

9.2 Households' real estate wealth data as an indicator in macroeconomic and financial analysis

9.22. The availability of granular statistics on dwellings and land are important for policy makers when assessing economic stability and macroeconomic imbalances. As argued in Chapter 9.1 households' housing wealth and its key constituents dwellings and land underlying dwellings are large components of total households' wealth. This chapter focuses on the macroeconomic consequences of changes in house prices and households' wealth which are driven mainly by fluctuations in the value of dwellings and the value of land underlying dwellings. In this respect having detailed statistics on value of land and dwellings could help to pinpoint the driving elements that cause macroeconomic imbalances related to the households sector and help understanding of the causes of the vulnerability of the households sector in times of financial instability.

9.23. This chapter does not intend to provide arguments for debate, it rather tries to serve the purpose of presenting national accounts statistics, more specifically those statistics described and developed through the compilation guide, which can be used to capture real estate market developments and imbalances. It should be noted that the compilation guide focuses on the valuation of land, whereas housing wealth and housing prices reflect the value (changes) of the real estate property, including the structure and underlying land. However, as argued earlier, the value of land represents a large portion of the property's total value. Besides that, in many cases it represents the difference between the market value and the so-called replacement value of the structure which is estimated using the perpetual inventory method.

9.24. The impact of households' wealth (which is the value of dwellings and land owned by the household) on households' expenditure, as well as on economic stability is of interest to economists and policy makers, in particular following the role that housing market developments have played in the 2007–2008 financial crisis in several countries. Source data used for the estimation of the (total) value of land, such as (average) land prices, may be a useful indicator themselves. As land is an asset, large price variations, similar to properties, may indicate unsustainable developments. Land prices can also be an early indicator of future housing market developments, as a shortage of land and increasing prices will impact on the price of future building projects. Cooper (2012) shows a positive correlation between real house price developments and real households' consumption. This can be explained by the fact that house prices impact on households' consumption through standard macro models (confidence, wealth effects) and real-financial linkages (working through collateral, loans and banks).

9.25. Housing wealth represents a significant fraction of total households' portfolio wealth in most economies (see Table 9.2 from Chapter 9.1). Price developments can have a significant impact on consumer confidence, households' behaviour and households' expenditure as the property can, apart from providing shelter, be used as an investment (storage of wealth, expected rent income) or may provide room for additional, 'free' collateral (housing equity withdrawals for consumption purposes). Such developments do not necessarily lead to macroeconomic, financial and price instability. However, past or expected high price increases of housing may alter households' investment behaviour, the allocation of financial and non-financial investment and

households' indebtedness. As a result of a sudden decline in property prices, households' balance sheets and thus wealth deteriorate, which may alter their consumption behaviour, which, in certain circumstances, can lead to macroeconomic instability. Worsening economic conditions may then further impact on the situation of the household, reduce income, employment and investment, and increase the debt to income ratio.

9.26. To limit the harm of a rapidly deflating or even bursting bubble, which is possibly costly in both economic and social terms, one could argue that policy strategies are required to prevent imbalances (e.g. housing bubbles) occurring. Whether or not to act is subject to debate and preferences depend heavily on the economic and political background. Apart from the discussion about the preferred policy to deal with asset price bubbles (i.e. 'leaning against the wind' (ECB, 2010)), the views on the potential negative impact of housing bubbles on long run economic growth diverge and scepticism exists whether bubbles can be detected in real time allowing policy makers to react in a timely manner (Alessi and Detken, 2011).

9.27. Mainstream economic theory suggests that it is impossible to (accurately) predict the timing of a housing bubble bust, as (fully) informed investors would anticipate the sharp drop of house prices, sell their real estate disallowing a boom-bust cycle. Nevertheless the behaviour of (a set of) housing market indicators can provide fairly reliable indications of the likelihood of a bust, subject to the inevitable limitation of accuracy as to the precise timing of the event (Kannan et al., 2009).

9.28. Housing market indicators cover a wide range of (financial and non-financial) ratios and economic indicators to evaluate the valuation of residential property. They compare the observed levels with those that proved to be unsustainable in the past. Kannan et al. (2009) for example find that 'inflation, output and the stance of monetary policy do not typically display unusual behaviour ahead of asset price busts. By contrast, credit, shares of investment to gross domestic product (GDP), current account deficits, and asset prices typically rise, providing useful, if not perfect, leading indicators of asset price busts.' Of which '(..) large deviations in credit relative to GDP, in the current account balance, in the residential investment share of GDP, and in house prices themselves are particularly predictive of an impending housing price burst.'

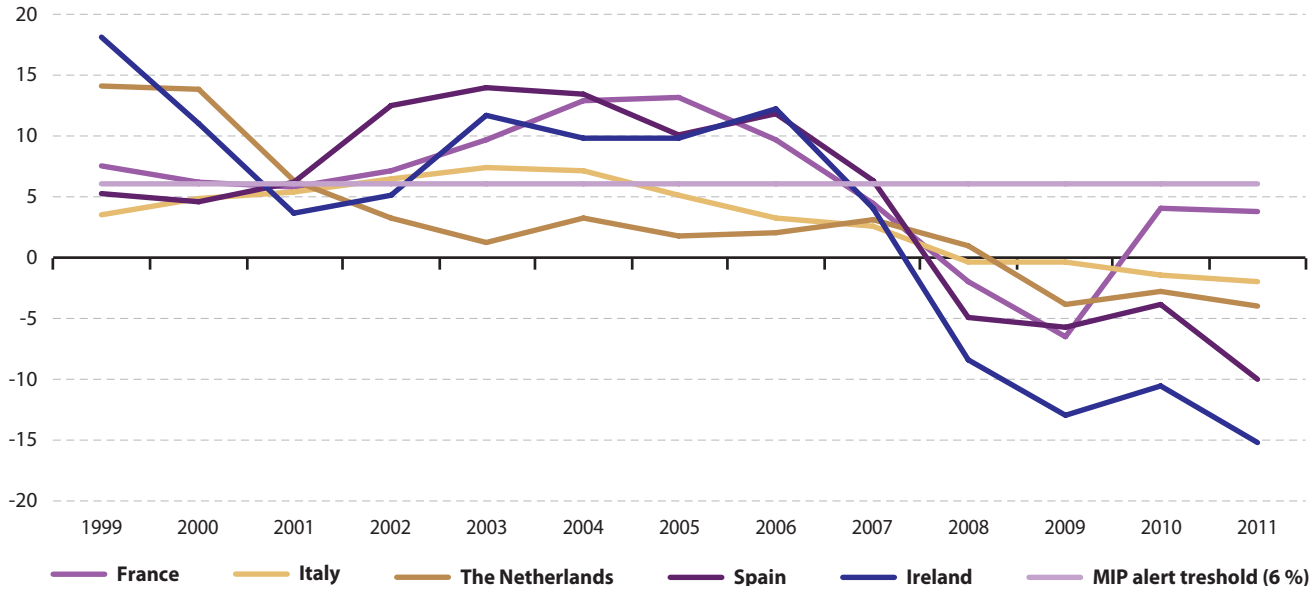
9.29. Regardless of the chosen policy approach, central banks around the world closely monitor property market developments. Furthermore, following the global financial, and related European sovereign debt crisis, the European Union (EU) introduced the European Systemic Risk Board (ESRB) in 2010 in order to strengthen macro prudential oversight at EU level. Furthermore, in 2011 the Macroeconomic Imbalances Procedure (MIP) was established in the EU, focusing on possible causes of macroeconomic misalignments ([96]). Based on the ESRB and MIP indicators the so-called dashboard/scoreboard has been set up, which aims to identify possible risks for financial and macroeconomic stability in Europe at an early stage, enabling supervisory mechanisms and policymakers to act and prevent or mitigate these risks. To allow for real time or early stage warning both the dashboard and scoreboard include a number of indicators, among which are some related to house prices and households' indebtedness.

9.30. Two relevant aspects of the housing market, which also play an important role in the build-up of imbalances (bursting of a housing bubble), are the valuation of housing and the indebtedness of households. The affordability of housing can be measured as the price level of dwellings to households' disposable income, monthly or annual mortgage burden to households' disposable income, price-to-rent ratio, estimates for owner-occupied housing costs derived from the user cost approach or simply by analysing house price developments over time corrected for general inflation, i.e. changes in 'real house prices' (see also ECB, 2011). As the ratios or growth in real house prices reach unsustainable levels, fewer households are able to afford to acquire property, leading to a decrease in demand and, eventually, to falling house prices. Figure 9.1 shows the trend of deflated house prices in some countries; the impact of the financial crisis in 2007–2008 is clearly observable. The economic imbalances that this situation provoked determined important readjustments in the real estate market.

9.31. As discussed earlier, estimations for the value of land and source data described in the compilation guide can contribute to macroeconomic and financial analyses. First, the value of property, which consists of both the value of the structure and the land it sits on, can be used to make estimates for loan-to-value ratios (see Figure 9.2). Note that this indicator represents the aggregate resident households sector and does not provide any information of dispersion within the households sector. Large differences may persist between ratios for wealthy and poor households as well as first time buyers and 'longer established' households due to the repayment of the principle (loan).

([96]) For more detailed information regarding regulation and the background of both sets of indicators see http://www.esrb.europa.eu/home/html/index.en.html (European Systemic Risk Board) and http://ec.europa.eu/economy_finance/economic_governance/macroeconomic_imbalance_procedure/index_en.htm (Macroeconomic Imbalances Procedure).

Figure 9.1: Deflated house prices, selected countries
(% year-on-year change)



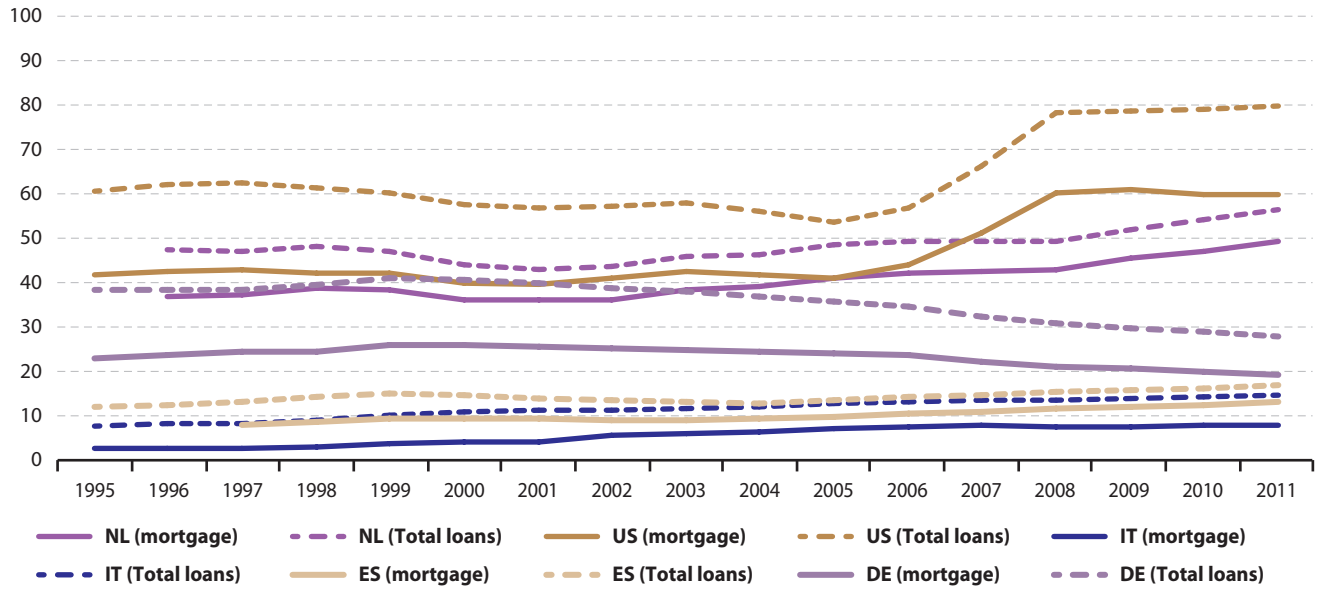
Source: European Commission, MIP scoreboard

9.32. Debt to income and debt to equity (or loan-to-value and loan-to-collateral) ratios are different measures of households' indebtedness. The debt to income indicates to what extent the debt is sustainable (see Figure 9.3). An alternative measure would be the monthly or annual cost of house ownership, which includes, besides mortgage payments, also utilities, structural insurance, mandatory service charges, regular maintenance and repairs and property taxes, as a ratio of monthly or annual income (see also EU statistics on income and living conditions (EU-SILC)).

9.33. The loan-to-value ratio measures financial leverage, as it shows the ratio of the loan taken to the value of the underlying property. In some countries households can take out a loan larger than the value of the underlying property, leading to a ratio greater than 1. The ratio may also exceed 1 due to second mortgages or mortgage equity withdrawal, though the effect of this has been small in most European countries. Sharply decreasing house prices, while keeping the amount of the loan unchanged, leads to a sharp increase of indebtedness relative to equity, which in turn may lead to financial and macroeconomic instability.

9.34. To capture housing bubbles one should concentrate on country specific analysis as there may be major structural and policy differences across countries, which may change over time. Real house prices (and demand for houses) are influenced by demographic developments, housing supply, households' gross disposable income, structural unemployment, financial (de)regulation, interest rates and taxation (Andrews, 2010). Andrews (2010) shows that quite large differences between OECD countries exist for responsiveness of housing supply, mortgage interest deductions (tax relief) and transaction cost. The same applies for the very different ratios of owner-occupiers across countries.

Figure 9.2: Households' loan to value ratio, selected countries
(%)



Source: FED, CBS, Deutsche Bundesbank, DESTATIS, Banca d'Italia, Banco d'Espana, OECD, ECB calculations.

9.35. Similarly to households' housing wealth, estimates for commercial property following the compilation guide and in particular Chapter 7 (sectorisation and cross-classification) are useful to assess developments in commercial property owned by other institutional sectors. In 2008 the sovereign debt crisis in Europe showed problematic consequences of deteriorating prices of commercial property portfolios of banks, which needed to be supported by national governments (which, in turn, received support from the European Financial Stability Facility (EFSF) and the European Stability Mechanism (ESM)). In addition, more accurate estimates of net wealth of non-financial corporations and governments contribute to net worth assessment of these sectors.

9.36. The usefulness of housing market indicators depends heavily on the timeliness of relevant data. Macroeconomic and macro prudential analysis require more timely dissemination of the wide range of statistics used as housing market indicators. The Federal Reserve (FED) for example publishes real estate developments (flows and outstandings) in its quarterly Flow of Funds Accounts for the United States approximately 60 days after the end of the reference period. However in Europe, statistics for non-financial assets are disseminated relatively late, especially when compared to main aggregates and financial statistics. Currently the transmission deadline for non-financial assets is 24 months after the reference period, whereas quarterly main aggregates are available 2 months after the reference period and residential property prices 90 days after the reference period.

Figure 9.3: Debt to income ratio, selected countries
(% of households' gross disposable income)

(1) Last observation for Cyprus and Greece refers to 2011

Source: European Central Bank, ESRB dashboard

9.37. Finally, for compiling regional aggregates, such as euro area or EU aggregates, the comparability of the statistical methods applied is an important requirement for analysis and policy uses. Given the difficulty to identify observable (price) characteristics of land, the international efforts undertaken with this compilation guide to improve the comparability of current methods are an important step in this direction.