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Housing taxation: A new database for Europe

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Housing taxation: a new database for Europe

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Taxation and Structural
Reforms No 08/2019*

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Ivaškaitė-Tamošiūnė, Andriana Reut,
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Abstract

Tax incentives favouring homeownership are widely used in developed economies. Homeownership is often thought to bring a number of positive contributions, from the promotion of households' saving to enhanced community engagement. However, housing tax incentives are also considered as a major source of distortions for households' decisions, especially in absence of taxation of in-kind services related to housing consumption (i.e. imputed rents) and in presence of mortgage interest payment deductibility. These distortions can have wide-ranging consequences for investment, consumption and public finances. Housing tax distortions have rarely been analysed from a cross-country perspective over time, however, not least because of the absence of comparable data and the difficulty to gather detailed information on the specific tax treatment of homeownership. In this paper we aim to fill this gap by providing comparable time series on the main features of housing taxation in European countries. Our database includes information on transfer taxes incurred when buying a house, implicit recurrent property taxes owed by households, capital gain taxes, imputed rent taxation and mortgage interest tax reliefs. The data is provided for the period 1995-2017 by the time of writing this paper and will be updated annually and made available at the following website: <https://ec.europa.eu/jrc/en/thematic-research-fiscal-policy/housing-taxation>. We use this data to estimate the user cost of owner-occupied housing (UCOH) following the approach proposed by Poterba, (1992) and Poterba and Sinai (2008), which provides a synthetic indicator on the distortions exerted by the tax system on households' housing investment choices. A number of additional data used to calculate the UCOH indicator, such as maximum loan to value ratio and maximum loan duration, interest rate for long-term government bonds, interest income tax and house price are also provided.

Introduction

Homeownership is usually associated with a number of positive economic and societal aspects, from households' wealth accumulation, better educational achievement of children (Grinstein-Weiss et al., 2010), enhanced community engagement and neighbourhood stability, improved property condition and maintenance, and lower crime rates (Andrews and Sanchez, 2011; Binner and Day, 2015). Housing investment also represents the main source of wealth for most households with lifetime consequences on savings and consumption and act as a complement to public pensions through foregone rent payments (Eckardt et al., 2018 and OECD, 2013). Housing represents therefore a major field for public policy intervention given its wide social and economic dimensions.

Governments often grant tax breaks in order to promote homeownership. Yet, housing tax incentives may entail significant cost through reduced tax revenues and affect adversely agents decisions regarding labour decisions (e.g. through reduced geographical labour mobility, see Oswald, 1999) or distort investment choices leading to sub-optimal economic outcomes (see in particular Poterba 1984, 1992; Hendershott and Slemrod, 1982). Policy recommendations for reforming housing policies are generally issued by international institutions, especially so in the aftermath of housing booms and bursts, see for instance Kalyva et al. (2014), Braude et al. (2013) and Slack and Bird (2014). Yet, cross-country analyses of housing taxes have often been hampered by the difficulty to gather comparable information across countries and the impossibility to track policy reforms over time. The objective of this paper is to provide for the first time a comprehensive database on the tax treatment of housing taxation across European countries. This data covers 28 European countries and span the period 1995-2017. The full database is included in the Appendix 1 of this paper and can also be downloaded at <https://ec.europa.eu/jrc/en/thematic-research-fiscal-policy/cost-housing-investment>. Future updates of this database will also be posted in this website.

We illustrate the use of this database by estimating the cost of owner-occupied housing, following Poterba (1984, 1992). This indicator is regularly used in policy analysis (see for instance European Commission, 2014) in order to measure the bias exerted by the tax system towards homeownership against renting and alternative forms of investment. Housing tax exemptions can alter consumption decisions by affecting the tenure choice between owning and renting. According to the neoclassical investment theory, housing can be thought as an investment good that generates a flow of housing services (see in particular the seminal article by Hall and Jorgenson, 1967). The cost of consuming this flow of services is either the imputed rent if the house occupier is the owner or the rent if he/she is the tenant. Theoretically, both owner-occupied and rented housing services should be taxed at similar rates, and also at rates that are consistent with the taxation of other large durable consumption goods (Mirrlees et al., 2011; Englund, 2003). However, tax incentives typically take the form of exemptions from capital gains taxes on the sale of immovable property, non-taxation of imputed rental incomes and/or the existence of deductibility on mortgage interest payments, and tend to lower the cost of owner-occupied housing compared with rental-occupied housing. This preferential tax treatment incentivises over-consumption of owned housing (Berkovec and Fullerton, 1992; Skinner, 1996). Favouring concentration of capital in owned housing over rented housing distorts savings and consumption patterns over an individual's lifetime. The non-taxation of imputed rents combined with the deductibility of mortgage interest incentivise the accumulation of savings and lower consumption when an individual is young and hence provide a greater incentive to purchase a house rather than to rent it (Gervais, 2002).

The most common measure for capturing the size of the preferential tax treatment of owner-occupied housing is the user cost of housing. This normalized measure estimates for each household the annual tax-adjusted cost of owning the main residence, consisting of the forgone return to housing equity and/or the cost of mortgage payments plus transaction costs, maintenance and property taxes, minus expected capital gains. Several studies have compared the user cost with the cost of housing services associated with the rental housing to show the bias in the tenure choice towards owner-occupied housing. These studies have shown in particular the existence of a significant wedge between the user cost of owner-occupied housing and the rental price as a result of a preferential taxation of housing investment (see for instance Blackley and Follain, 1996; Diaz et al., 2008; Heylen, 2013). The evidence for the US also suggests that the user costs are more volatile than rents (Verbrugge, 2008). Other studies employ the user cost of housing measure among other variables to find evidence for house price bubbles (Himmelberg et al., 2005; McCarthy and Peach, 2004) or to show that it affects the demand for rental housing (DiPasquale and Wheaton, 1992). Movements in user cost of housing were also found to move in line with house prices evolution in Finland (Kivistö, 2012). Historical estimates of the user cost of housing have also been used to understand developments in house prices in Ireland over the period 1980-2012 (Browne et al., 2013). For the euro area countries, estimations of the user cost of housing show that favourable taxation of owner-occupied housing introduces distortions to household saving and investment decisions (Fatica and Prammer, 2018).

Our database, provided in Appendix 1 of this paper, covers several key features of housing taxation and other housing-related parameters needed to estimate the user cost of owner-occupied housing. The tax parameters covered include the transfer tax, capital gain tax, information on imputed rent taxation and mortgage interest tax relief, the implicit recurrent property tax. We also provide information on house price, the maximum loan to value ratio and maximum loan duration, interest rate for long-term government bonds and the interest income tax. The details of the calculations, including other macroeconomic indicators used and assumptions made to estimate the UCOH indicators are provided in the Appendix 2. Appendix 3 provides country specific information on each indicator. Lastly, Appendix 4 shows the contribution of individual tax elements to UCOH indicator for all countries for different years.

Our analysis shows that homeownership varies greatly across EU countries. Homeowners are typically granted specific tax advantages through exemption from capital gain taxes, exemption from imputed rents and mortgage interest tax reliefs. There is an even greater variation in the share of homeowners with a loan or a mortgage, reflecting cross-country differences in financial development and other institutional features. Maximum loan to value (LTV) ratios are high although in practice actual LTVs are usually much lower than the legal maximum, while the evidence suggests that high LTV ratios and long loan duration coupled with a generous tax treatment can fuel home acquisition and house prices in a significant way. The cross-country differences in the tax treatment of homeownership are partially reflected in the differences of the UCOH indicator, although these differences can also be attributed to other non-tax and institutional factors. While the UCOH has tended to decrease over the past two decades, largely under the influence of the global fall in interest rates, tax factors have become more prominent over time in order to explain the variation of this indicator. Many countries have reduced the generosity of tax rebates over the past ten years, especially by reducing or scrapping mortgage interest deductions. Recurrent property taxes remain the most important tax component of the user cost of homeownership, however.

The rest of the paper is organised as follows. Section 1 provides a descriptive analysis of our housing tax database. Section 2 presents the method employed in the estimation of the user cost of owner-occupied housing and the developments of this indicator between 1996 and 2017. Section 3 summarises our main findings. The Appendices 1, 2, 3 and 4 provide the full detail of the housing tax database and UCOH indicator. This database will be updated annually and posted at the following website: <https://ec.europa.eu/jrc/en/thematic-research-fiscal-policy/housing-taxation>.

1 Descriptive analysis of the housing tax database

Homeowners benefit from a favourable tax treatment in most EU countries, although there is a significant variation in tax regimes associated with homeownership. These fiscal incentives typically take the form of exemptions from capital gains taxes on the sale of immovable property, non-taxation of imputed rental incomes and the existence of deductibility on mortgage interest payments. When coupled with high loan-to-value (LTV) ratios and long loan maturities on mortgage lending, housing tax incentives may bias household investment decisions and contribute to household indebtedness, with implications on house prices and macro-economic stability as evidenced during housing bubble boom and bust of the 2007-2008 crisis, see Swank et al (2002) and Kelly et al (2017).

Homeownership rates vary widely in the EU, ranging from slightly over 50 percent in Germany and Austria to over 90 percent in Lithuania and Romania. Significant differences among European countries are also observed in the share of homeowners that are indebted: in Romania less than 1 percent of homeowners have an outstanding mortgage while in the Netherlands around 60 percent of homeowners are indebted (Table 1). These variations cannot be explained by fiscal and macro-prudential policies alone, however, with historical, institutional, cultural and other factors possibly playing an important role too.

Mortgage interest tax relief (MITR) is a prevalent feature of EU housing tax regimes. MITR can take the forms of a tax credit which is deducted from the final tax liability or a tax allowance which is deducted from the taxable base. In the latter case, the final gain from the provision depends on the personal income schedule. Irrespective of their type, MITRs tend to have regressive income distributional impact (Fatica and Prammer, 2018). That is, higher income groups tend to benefit more from the MITR (Haylen, 2013; Heylen and Haffner, 2015), especially if top PIT rates are high and no capping for MITRs is applied to dampen the regressivity.

The number of EU countries providing a mortgage interest tax relief rose from 14 to 18 countries between 1996 and 2006. Subsequently, the use of MITR was scaled down and since 2013 only 9 EU countries allow the deduction of mortgage interest for new mortgages (Table 1). Although a large body of literature suggests that removing MITR reduces incentives for investment and consumption of owner-occupied housing (Rosen, 1979; Rosen and Rosen, 1980; Gervais, 2002), others found that scraping out the mortgage tax relief has little effect on homeownership rate (Glaeser and Shapiro, 2002; Clambers et al., 2009; Sang-Wook Stanley, Francis, 2011). The evidence also suggests that MITRs have an impact on the intensive margins of housing demand (home size and home value) and homeowner indebtedness, as it encourages people to acquire larger homes, commit to bigger mortgages and take more time to repay it (Gervais, 2002; Sang-Wook Stanley, Francis, 2011;

Chambers et al., 2009; Heylen and Haffner, 2015; Alpanda, Zabairy, 2017 and Gruber, Jensen and Kleven, 2017).

Alongside tightening MITRs, regulatory constraints or formal capping of LTV ratios can effectively reduce household leverage (Alpanda, Zabairy, 2017) and to some extent dampen house prices and foster pro-cyclical credit growth (ECB, 2014; Vandenbussche et al., 2015). LTV ratios vary widely across countries, but have been relatively stable over time (Table 1). A high LTV ratio increases access to a mortgage loan for individuals, as they may finance their homes almost entirely by debt without the limitations imposed by the need to provide down payments. Some countries have binding caps for the maximum LTV ratio for residential mortgage lending (e.g. Estonia, Cyprus, Germany, Ireland, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Romania, Finland, Spain and Sweden), while others have recommended limits (e.g. Denmark, Czechia, Poland, Slovakia)¹. In 2017, the maximum LTV ratios do not go below 70% (Germany, Malta, Spain) but can go up 100% in Slovakia or even more in the Netherlands (making it possible to borrow more than 100 percent of the purchase price). The average maximum LTV ratio for the EU Member States was slightly above 80% in 2017².

The requirements for down payments generally remained rather stable across the years, with notable exceptions being: Italy (where LTV ratios were 55% in the late 90s and went up to 70% from 2008); the Netherlands (varying from 100% in late 90s and increasing up to 125% in 2001-2007 and gradually decreasing afterwards); Romania (from 60% in the early 2000 to 90-100% in 2007-2010); and Czechia (70% in the late 90s and early 2000, 100% from 2006 and decreasing to 90% by 2017). Overall, maximum LTV ratios have been raised since the late 90s and early 2000s. In the last three years a few countries with relatively high LTV ratios (Czechia, Ireland, Latvia, the Netherlands, Poland) imposed slightly stricter regulations. On the contrary, the LTV ratios increased in Denmark, Finland and Slovakia. In practice, countries differ greatly in terms of the share of loans actually taken with maximum LTV ratios, with the observed average LTV ratios being much lower than the maximum (Kelly et al., 2019; IMF, 2018; ESRB, 2015).

Loan maturity can affect mortgage loan choices both in terms of the decision to take a mortgage (the extensive margin) and the amount of the mortgage payments (the intensive margin). Similarly to LTV ratio, maximum loan maturity differs across the EU and across the years (Table 1). Since 2006, it has varied from as little as 15 years in Italy and Slovakia to 60 years in Sweden, where the maximum loan duration remained stable throughout the years. On average, the maximum loan maturity in the EU has increased from 26 to 30 years in over the last 20 years³.

¹ European Systemic Risk Board (2016), "A Review of Macprudential Policy in the EU in 2015", ESRB, May 2016, p.11.

² LTV ratios are collected from different sources as there is no comprehensive database covering all countries for all years of interest: the European Systemic Risk Board (ESRB) reports are complemented with other sources. The focus is on maximum LTV limits (whenever this information is available) as the assumption is that an individual interested in purchasing a dwelling would aim to benefit from the biggest loan possible.

³ In line with the information on LTV ratios, information from different sources is used. The underlying assumption is that an individual interested in purchasing a dwelling would aim to benefit from the longest possible loan duration.

Table 1. Mortgage interest tax relief, loan to value ratio and maximum loan duration

Country	Owner (%)*	Owner with loan or mortgage (%)*	Mortgage interest tax relief			Maximum loan-to-value (LTV) ratio (%)			Maximum loan duration (years)		
	2017	2017	1996	2006	2017	1996	2006	2017	1996	2006	2017
AT	55.0	24.3				80	80	85	30	25	30
BE	72.7	42.9	Y	Y	Y	80	80	90	20	20	30
BG	82.9	2.9			**	n.a.	80	84	n.a.	25	30
HR	90.5	6.9		Y		n.a.	75	75	n.a.	25	30
CY	70.7	19.8	Y			n.a.	80	80	n.a.	25	25
CZ	78.5	20.7		Y	Y	70	100	90	20	30	30
DK	62.2	47.8	Y	Y	Y	80	80	95	30	30	30
EE	81.8	20.0	Y	Y	Y	n.a.	85	85	n.a.	30	30
FI	71.4	42.3	Y	Y	Y	80	75	90	12	17	30
FR	64.4	30.9				78	78	84	25	25	25
DE	51.4	25.7				70	70	70	25	25	30
EL	73.3	15.7	Y	Y		75	75	75	20	20	20
HU	85.2	16.0	Y	Y		70	70	80	35	35	30
IE	69.5	31.8	Y	Y		90	100	80	20	20	30
IT	72.4	13.6	Y	Y	Y	55	55	71	15	15	20
LV	81.5	10.8				n.a.	90	90	n.a.	20	20
LT	89.7	11.1		Y		n.a.	90	85	n.a.	25	30
LU	74.7	42.7	Y	Y	Y	80	80	80	25	25	25
MT	81.3	22.1				n.a.	70	70	n.a.	30	30
NL	69.4	60.7	Y	Y	Y	100	125	101	30	30	30
PL	84.2	11.1		Y		90	90	80	n.a.	30	35
PT	74.7	37.3	Y	Y		80	80	90	30	30	40
RO	96.8	1.1				n.a.	70	85	n.a.	30	30
SK	90.1	16.1				n.a.	80	100	n.a.	15	30
SI	75.6	12.0		Y		n.a.	80	80	n.a.	20	30
ES	77.1	29.5		Y		70	70	70	20	20	23
SE	65.2	52.2	Y	Y	Y	80	80	85	60	60	60
UK	65.0	38.0	Y			90	90	75	25	25	25

Source: European Commission, Joint Research Centre based on experts' survey for MITR; various sources with assumptions for LTV ratio and loan maturity (consult Appendix 3).

*EUROSTAT for tenure status [ilc_lvho02].

** Since 2009 Bulgaria applies the MITR, which is very limited in the scope, therefore it is not included in the database.

All but four countries – Cyprus, Malta⁴, Lithuania and Slovakia – applied transaction taxes on transfer of a primary residential property in 2017. More than half of the EU countries had a transfer tax rate below 5%. The rate is smaller than 1% in Bulgaria, Denmark, Estonia and the UK, but can go up to 9% in Italy or 10% in Belgium (Table 2). Some countries use a progressive rate schedule (e.g. Cyprus, Portugal and the UK)⁵. The transfer tax rates remained relatively stable across the years for most countries with some exceptions. Over the 1996-2017 period the transfer rate has substantially increased in some countries such as Germany (from 2 to 5.3%), Sweden (from 0.5 to 1.5%) and the UK (from 0 to 0.9%), but it has more than halved in Hungary, Greece, the Netherlands, Poland, Portugal, Ireland and Bulgaria. Despite making up almost the same share of revenues as recurrent property taxes, transfer taxes are more volatile as the volume and the price of transactions tend to follow the housing market cycle. Housing transfer taxes have sometimes been considered detrimental to efficiency. This type of tax tends to discourage transactions that would otherwise

⁴ Although exempt from the transfer tax on main residential property, Malta has a stamp tax which is not currently covered in the database (for more information on transfer tax please consult Appendix 2).

⁵ For these countries the effective transfer tax rate is calculated by applying tax schedule on house price.

allow a more efficient allocation of the housing stock, thus resulting in lower labour mobility (individuals might forgo better job offers or prefer longer commutes), mismatched housing situations, and inefficient shifts from owner occupancy towards rental housing (Fritzsche, Vandrei, 2019; EC 2012). Best and Kleven (2018) showed that a temporary transaction tax cut is an effective form of fiscal stimulus on housing market activity. In the same vein, studies have found that a one percentage point increase in transaction tax rate can lower transactions by 7-9% (Fritzsche, Vandrei, 2019; Best, Kleven, 2018). Housing transaction taxes have also been responsible to large tax revenues windfall in some EU countries prior to 2008, leading to large budgetary imbalances once the housing bubble burst, see Barrios and Rizza (2010). It should be noted however that housing transaction taxes can also be used to tax excessive capital gains or to tax short-time tenure in order to fight speculation, see for instance Case (1992) and Tse and Webb (1999). Transaction taxes can therefore dampen house price increases as shown recently for instance by Dolls et al. (2019) in the German case.

Although both owners and renters consume housing services, in virtually all EU countries income tax systems treat implicit returns on the asset value of the main residence favourably compared to income generated from rental housing, thus creating a bias towards homeownership. The only exceptions to this are the Netherlands, where imputed rent income on main residences is taxed, Luxembourg where it was taxed until 2016 and Denmark during the period 1995-1999⁶. The argument for taxing imputed rents relates to the need to ensure neutrality vis-à-vis rental housing, but also tax neutrality with respect to other investments including equity investment. The bias exerted by the absence of taxes on imputed rents effects is amplified in presence of mortgage interest deductibility, with studies showing that taxation of imputed rent would be progressive and have a (small) inequality reduction effect (Callan, 2000; Figari et al, 2017, Bourassa, Hendershott, 2010). Absent a tax on imputed rents, countries most often levy recurrent property tax, which is often considered as one of the least distortionary form of taxation, see Arnold et al (2011). Recurrent property taxes continue to play a relatively minor in the EU in terms of revenue collected, not least due to their unpopularity.

Housing investment is, for most households, the main lifetime investment, particularly so in countries with the least generous pension systems, see in particular Eckardt et al. (2018). Recurrent housing tax systems are also often based on outdated cadastral values and their revision process lack of transparency and is often not aligned to housing prices changes. Recurrent property taxes can be quite an important source of revenues for local governments. Usually local governments have some autonomy in setting tax rates or granting tax exemptions⁷. Currently all EU countries levy recurrent property taxes with the notable exception of Croatia, Estonia, Malta and Italy. The latter had no property taxes on owner occupied housing in 2007-2010; 2012 and 2016-2017 respectively. In Hungary only a few municipalities effectively apply recurrent property taxes on buildings. In 1996 recurrent property taxes were not levied in all Baltic countries, Croatia, Denmark, Hungary and Malta (Table 2).

⁶ In Belgium, Spain and Italy imputed rents on residences other than the main residence are taxed.

⁷ Heterogeneity of recurrent property taxation rules within countries prevents us from using statutory tax rates for our calculations. More on the calculation in the next section.

Additional income tax provisions favouring homeownership stem from the exemption of capital gains. In theory capital gains on selling a property should be taxed at the same level as other financial assets. In practice, most of the EU countries exempt capital gains on owner-occupied housing if it was kept as the main residence for a specific period of time or if the gains were reinvested. Capital gains were taxed for all years only in Sweden and Cyprus (after the exemption applied), and for some years in Romania (taxed in 2007-2016) and Hungary (in 1995-1997) (Table 2). The existence of capital gains on selling a property might be justified to guarantee investment neutrality and as a way to prevent speculation on the housing market as discussed earlier.

Table 2. Tax rates on primary residence in the EU countries since 1996

Country	Transfer tax (%)*			Capital gains tax (%)			Imputed rent taxed			Recurrent property tax**		
	1996	2006	2017	1996	2006	2017	1996	2006	2017	1996	2006	2017
AT	3.5	3.5	3.5	0	0	0				Y	Y	Y
BE	12.5	10	10	0	0	0				Y	Y	Y
BG	2	2	0.1	0	0	0				Y	Y	Y
HR	5	5	4	0	0	0						
CY	n.a.	6	6	0	15	14				Y	Y	
CZ	5	3	4	0	0	0				Y	Y	Y
DK	0.8	0.7	0.7	0	0	0	Y				Y	Y
EE	n.a.	0.3	0.1	0	0	0						
FI	6	4	4	0	0	0				Y	Y	Y
FR	6.4	5.0	5.9	0	0	0				Y	Y	Y
DE	2	3.5	5.3	0	0	0				Y	Y	Y
EL	9	9	3	0	0	0				Y	Y	Y
HU	10	10	4	10	0	0						***
IE	4.1	3.7	1	0	0	0				Y		Y
IT	7	7	9	0	0	0				Y	Y	
LV	2	2	2	0	0	0						Y
LT	0	0	0	0	0	0					Y	Y
LU	7	7	7	0	0	0	Y	Y		Y	Y	Y
MT	0	0	0	0	0	0						
NL	6	6	2	0	0	0	Y	Y	Y	Y	Y	Y
PL	5	2	2	0	0	0				Y	Y	Y
PT	7.3	2.3	2.5	0	0	0				Y	Y	Y
RO	n.a.	2	0	0	0	0				Y	Y	Y
SK	n.a.	0	0	0	0	0				Y	Y	Y
SI	2	2	2	0	0	0				Y	Y	Y
ES	6	6	6	0	0	0				Y	Y	Y
SE	0.5	1.5	1.5	9	20	22				Y	Y	Y
UK	0	0.2	0.9	0	0	0				Y	Y	Y

Source: European Commission, Joint Research Centre based on experts' survey.

Note: * In case a country has both a transfer and a stamp tax, only a transfer tax is recorded in the database. The effective transfer tax rate is calculated by applying tax rules on house value for CY, DK, EE, FR, IE, PT, RO, SK and UK.

** If a country only had a land tax but not a residential property tax, we consider that the recurrent property tax is not levied (e.g., in Estonia in all years or in Denmark until 1999). The database provides implicit recurrent property tax rates (see Appendix 2 for more information).

***There is no property tax levied in HU. However since 2015 it is at the discretion of the municipalities to introduce a local tax (building or land tax). As in 2016-2017 only around 17% of municipalities' had a building tax, the recurrent property tax is not calculated.

2 The user costs of owner-occupied housing (UCOH) indicator

2.1 Estimation methodology

Our housing taxation database provides relevant information for the analysis of the distortionary effect of tax systems on housing ownership. More specifically we rely on the user cost of owner-occupied housing (UCOH) indicator, which has become a standard indicator in order to measure the tax burden on owner-occupied housing. This indicator, based on the approach developed by Poterba (1992) and Poterba and Sinai (2008) and first reported for all EU countries in European Commission (2014), measures the annual cost of owning the main dwelling per additional euro of house value. Fatica and Prammer (2018) made use of the same indicator to provide a comprehensive analysis for 15 euro area countries, covering one single year for each country, using information from the Household Finance and Consumption Survey (HFCS) released by the European Central Bank. Our approach here is similar to Fatica and Prammer (2018) although our database allows us to cover all EU countries (including the UK at the time of writing this paper) over a long time period, namely 1995-2017, which allows to track the impact of policy changes, house prices and other relevant determinants of the user cost of owner-occupied housing.

As home ownership is an investment decision, the theoretical framework assumes an equilibrium relationship between the homeowner's return on housing investment and returns on other assets. This requires the marginal value of imputed rental income accruing to homeowners to be equal the marginal user cost of purchasing additional housing capital. The following expression takes into account the specific tax rules that apply to owner-occupied housing in order to calculate the UCOH indicator. This concerns the recurrent property taxes, taxes on the flow of services from ownership (imputed rents), tax reliefs on debt financed housing, transfer taxes on house sale and capital gains taxes. Following Poterba (1992) the UCOH indicator can be expressed as:

$$UCOH = (i(1 - t_M\varphi)\lambda + t_p + \beta(1 - t_y) + m + \delta - \pi(1 - t_{capgain}) + (1 - \lambda)i(1 - t_y))(1 + t_{trans}) + t_{ir}$$

Whereas:

i is the interest rate paid on mortgage and also forgone on equity investment

$(1 - t_M\varphi)$ denotes the after-tax nominal cost of debt, with t_M being the rate at which the relief is granted and φ the fraction of interest benefitting from the tax subsidy.

λ denotes the maximum loan to value ratio to reflect the requirement of a down payment

t_p is the recurrent property tax rate

β is the pre-tax risk premium term to reflect the different risk for housing relative to other (risk-free) assets

t_y is the tax rate on interest income, i.e., the tax on risk-free saving investment.

m is the estimated annual maintenance costs

δ is the economic depreciation rate

$\pi(1-t_{\text{cappgain}})$ is the after-tax revaluation term, with the tax rate on the capital gains $t_{\text{cappgains}}$ and π -consumer price index.

The fraction of the house purchase that is equity-financed is $(1-\lambda)$ foregoes earned interest at the unit yield of i , which is taxed at a rate t_y ;

t_{trans} is the minimum statutory transfer tax rate.

t_r is the tax on imputed rent

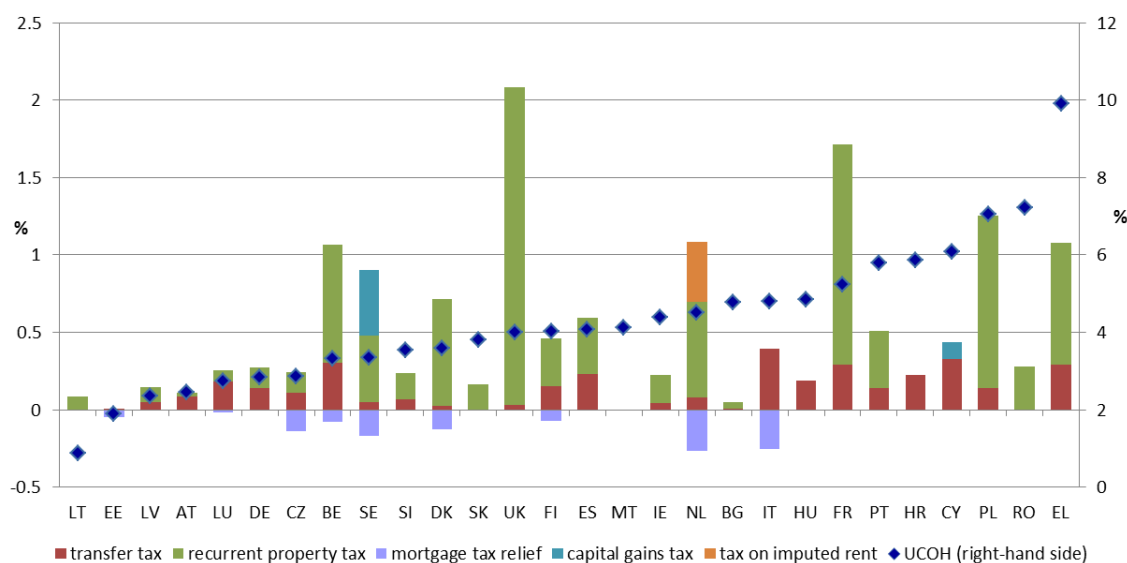
The user cost of housing is a relatively simple measure of the size of the preferential tax-treatment of owner occupied housing. This normalised measure estimates the annual tax-adjusted cost of owning and operating the main residence per additional euro invested in housing capital. Based on this methodological framework and using assumptions detailed in Appendix 1, the UCOH indicator can be calculated for all EU countries and for almost half of them during the entire 1996-2017 period. Due to data limitations, the user cost indicator is calculated since 2001 for thirteen countries, namely Bulgaria, Czechia, Estonia, Croatia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia and Slovakia, since 2005 for Belgium and since 1997 for the Netherlands.

2.2 Estimates of the user cost of housing indicator

In 2017, the user cost of housing varied from less than 1% of the house value in Lithuania up to almost 10% in Greece. Graph 1 shows the contributions of different taxes to the user cost across the EU in 2017⁸. The recurrent property taxes represent by large the biggest component of the user cost of housing in most countries. In some cases transaction taxes also add substantially to the user cost of housing as in the cases of Italy, Cyprus, Belgium, Greece, France and Luxembourg. The mortgage interest tax relief in turn reduces the user cost of housing in a number of countries, notably in the Netherlands, Italy, Sweden, Czech Republic, Denmark, Belgium, Finland and Estonia.

⁸ Contributions of taxes to UCOH indicator by country for other years are shown in the Appendix 4.

Graph 1. Contribution of taxes to the user cost of owner-occupied housing, 2017



Source: European Commission, Joint Research Centre

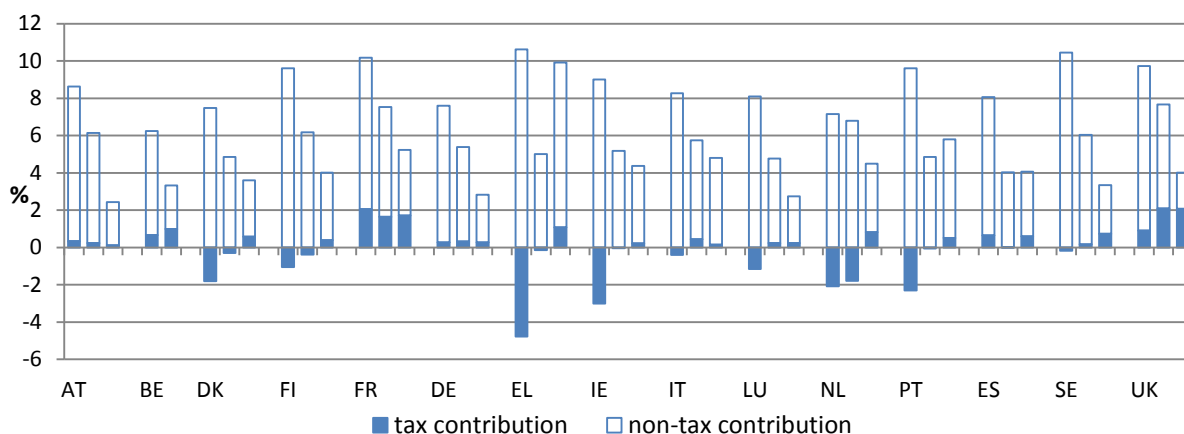
Graphs 2a and 2b show the level of the tax-adjusted user cost of owner-occupied housing and its breakdown into the tax and non-tax elements for two groups of countries. Group I countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden and the UK. The UCOH indicator is calculated for 1996- 2017 (with the exception of the Netherlands and Belgium for which UCOH starts in 1997 and 2005 respectively). Group II countries are: Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia. For Group II countries data is available between 2001 and 2017.

In order to distinguish the non-tax elements of the user cost, all housing specific tax components⁹ are set to zero, while keeping the other non-tax parameters¹⁰ as described in Section 3.1. Non-tax elements contribute more significantly to the UCOH than tax elements in almost all the EU countries. However, there has been a general fall in the non-tax component of UCOH over the past decade. By contrast, in some cases the tax-related components changed their contribution from negative to positive between 2006 and 2017 (DK, FI, NL, HR, CZ, EE, HU, LT and PL). For other countries the picture is mixed: the tax-related part increased slightly in AT, BE, SE, ES and RO; decreased in IT and CY; and remained relatively unchanged in the rest of countries.

⁹ Such as mortgage interest tax relief, transfer tax, imputed rent taxation, recurrent property tax and capital gains tax.

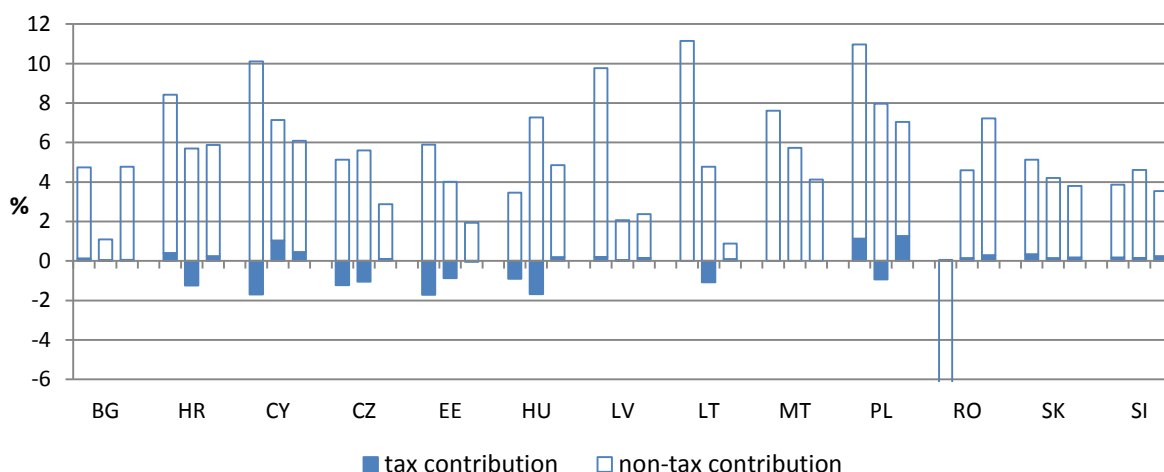
¹⁰ Long term interest rate, loan to value ratio, CPI, maintenance and depreciation costs, risk premium.

Graph 2a. The user cost of housing and its tax and non-tax components for Group I countries, in 1996, 2006 and 2017



Source: European Commission, Joint Research Centre
 Note: 1997 for the Netherlands

Graph 2b. The user cost of housing and its tax and non-tax components for Group II countries, in 2001, 2006 and 2017

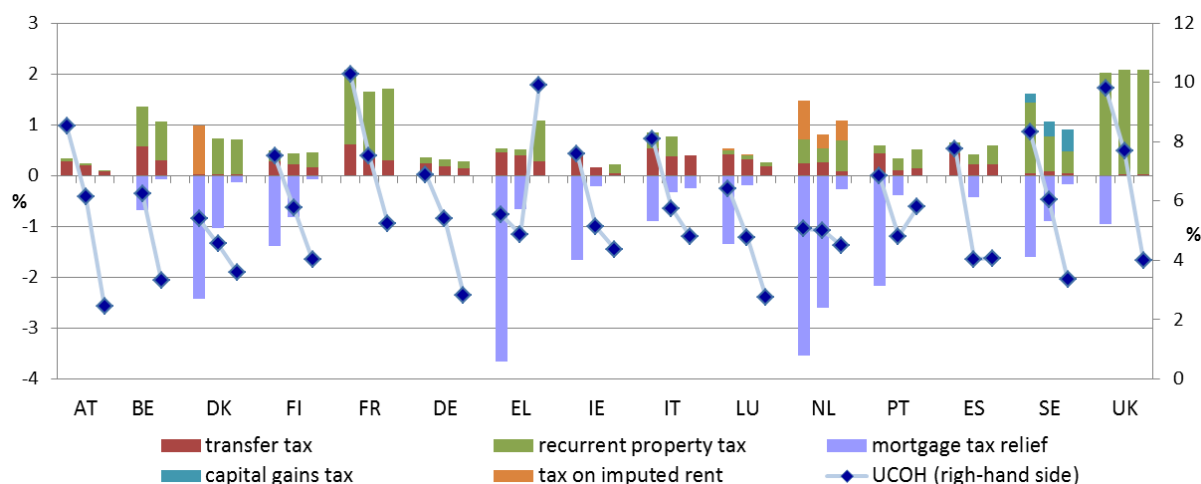


Source: European Commission, Joint Research Centre

2.3 The evolution over time of the user cost of housing indicator

The user cost of housing has followed a decreasing trend over the last two decades in most countries. Graphs 3a and 3b show the evolution of the tax-adjusted user cost for mortgage-financed housing and of the contribution of the various tax elements. Graph 3a and 3b show the developments in the user costs for Group I and Group II countries respectively. Between 1996 and 2017, the user cost of housing has been decreasing for most countries, most significantly in Austria, Sweden, the UK, Latvia and Lithuania. Increases in the user cost of housing were experienced in Hungary and Romania, as well as in Greece particularly after the global financial crisis. A relatively stable pattern of the user cost can be observed in the Netherlands, Denmark, Czech Republic, Slovenia and Slovakia.

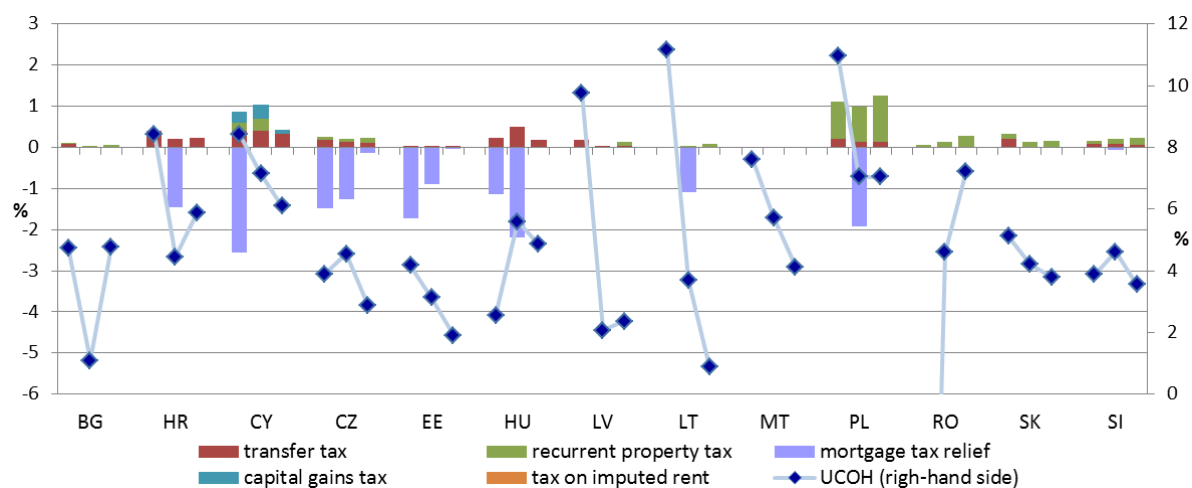
Graph 3a. User cost of housing and its tax components for Group I countries, in 1996, 2006 and 2017



Source: European Commission, Joint Research Centre

Note: 1996 for the Netherlands

Graph 3b. User cost of housing and its tax components for Group II countries, in 2001, 2006 and 2017



Source: European Commission, Joint Research Centre

The contributions of the various tax elements to the change in the UCOH indicator have also evolved substantially over time. Overall, Graphs 3a and 3b show that the use of mortgage tax relief for new loans has decreased, while recurrent property taxes have increased, indicating a shift towards a more growth-friendly tax structure. Transfer taxes remained a sizeable component of the user cost in many EU countries. Malta is the only Member State not taxing housing property¹¹ and the contribution of housing taxation is therefore null for all years and all tax elements.

Overall, the tax system reduced the user cost for households buying owner-occupied housing in many Member States for the greater part of the past two decades. However, as a result of the

¹¹ Although exempt from a transfer tax on main residential property, Malta has a stamp tax which is not currently covered in the database.

current economic conditions, notably the historically low interest rates, and housing tax reforms in some countries, the overall contribution from all tax elements was positive for all countries in 2017. In the past, some countries displayed a negative user cost of housing, indicating that the negative contribution from the mortgage tax relief was more important than the positive contribution from other property taxes.¹² Over the last two decades, many countries lowered the generosity of their mortgage tax relief by either abolishing it for the new loans (e.g., Ireland, Spain, Portugal, Croatia, France, Greece, Hungary, Lithuania, Poland) or decreasing the importance of the subsidy (e.g., the Netherlands, Finland), especially since the onset of the financial crisis. This is likely to have had an impact on households' investment decisions and therefore also on the demand side of the housing market.

In approximately half of the countries, the contribution of recurrent property taxes has increased. The mostly used housing tax is recurrent property taxation, which in 2017 was levied by all Member States but Malta, Cyprus, Estonia, Italy, Croatia and Hungary. The importance of recurrent property taxation especially increased in Czechia, Greece, Spain, the Netherlands, Portugal, Slovenia and Finland. In other countries, the contribution from recurrent property taxes remained fairly constant. However, in a few countries like Sweden a decrease in the implicit recurrent property tax rate and in the contribution of this tax to the user cost of housing can be observed.

The contribution of transfer taxes on immovable property remains important in many European countries. Most EU countries tax property both when the property is acquired and recurrently during the lifetime of the housing investment. While the relative weight of recurrent taxation over transfer taxation has increased over time, in a few countries the contribution of transfer taxes to the cost of housing is still dominant.

3 Summary and conclusions

Housing taxation has become prominent in policy recommendations, especially so following the housing bubble boom and burst observed witnessed during the global financial crisis. In some instances housing tax policy has been blamed for fuelling house price increases through generous tax breaks and exemptions. As a result, many countries have removed or reduced mortgage interest tax reliefs. Housing tax reforms, especially in the form of recurrent property tax, are also often recommended given their expected low distortionary effect compared to the taxation of, for instance, labour or capital investment. Empirical research on these issues from a cross-country perspective is often hampered by the lack of comprehensive data, however. This can to some extent be explained by the difficulty to gather sufficiently detailed information on housing tax regimes, in particular due to the complexity of the tax code which usually grants numerous exemptions and exceptions. In the present paper we aimed to contribute to the research and policy analysis of housing taxation by assembling a comprehensive database on housing-related tax parameters for all EU countries. This database is novel in that it contains information on the tax codes and other parameters affecting the user cost of homeownership during the period 1995-2017. Such data can serve the purpose of analysing the distortionary effect of the preferential tax treatment given to homeownership, as illustrated in this paper through the use of the UCOH indicator. It could also be

¹² including where it applies the taxation of imputed rents and of capital gains.

useful for policy analysts and researchers in order to assess the impact of housing taxation on the economy, including for instance house prices, housing demand, households' indebtedness among others, as well as to track the impact of tax reforms affecting housing acquisition, considering in particular its interaction with the personal income tax system.

References

- Alpanda, S., and S. Zubairy (2017), "Addressing household indebtedness: Monetary, fiscal or macroprudential policy?", *European Economic Review*, no. 92, p.47-73.
- Andrews, A. and A. C. Sánchez (2011), "Drivers of homeownership rates in selected OECD countries", OECD, Economics Department Working Papers No. 849.
- Andrews, D. (2010), "Real House Prices in OECD Countries: the Role of Demand Shocks and Structural and Policy Factors", OECD: Economics Department Working Paper No. 831, ECO/WKP(2010)87.
- Arnold, J. M., B. Brys, C. Heady, Å. Johansson, C. Schwellnus and L. Vartia (2011). "Tax policy for economic recovery and growth", *The Economic Journal*, 121(550), pp. F59-F80.
- Barrios, S. and P. Rizza, (2010), "Unexpected changes in tax revenues and the stabilisation function of fiscal policy. Evidence for the EU", *European Economy - Economic Papers 404*, Directorate General Economic and Financial Affairs, European Commission.
- Berkovec, J. and D. Fullerton (1992), "A General Equilibrium Model of Housing, Taxes, and Portfolio Choices", *Journal of Political Economy*, Vol. 100, No. 2, pp. 390-429.
- Best, M. C. and H. J. Kleven (2018), "Housing Market Responses to Transaction Taxes: Evidence From Notches and Stimulus in the U.K", *The Review of Economic Studies*, Volume 85, Issue 1, 1 January 2018, pp. 157–193.
- Binner, A. and B. Day (2015), "Exploring mortgage interest deduction reforms: an equilibrium sorting model with endogenous tenure choice", *Journal of Public Economics* 122, pp. 40-54.
- Blackley D. M. and J. R. Follain (1996), "In search of empirical evidence that links rent and user cost", *Regional Science and Urban Economics*, Vol 26, Issues 3-4, June 1996, pp. 409-431.
- Bourassa, S. C. and P. H. Hendershott (2010), "On the equity effects of taxing imputed rent: Evidence from Australia", *Housing Policy Debate*, pp. 73-95.
- Braude, J., Z. Eckstein, S. Fischer and K. Flug (Eds.) (2013), "The great recession: Lessons for central bankers", MIT Press.
- Bricongne J.C., A. Turrini and P. Pontuch (2019), "Assessing house prices: insights from HouseLev, a new dataset of prices in levels", *European Economy Discussion paper 101*, Directorate General for Economic and Financial Affairs, European Commission.
- Browne, F., Conefey, T. and G. Kennedy (2013), "Understanding Irish House Price Movements – a User Cost of Capital Approach", *Central Bank of Ireland, Research Technical Paper, 04/RT/13*.
- Callan T. (1992), "Taxing Imputed Income from Owner-Occupation: Distributional Implications of Alternative Packages", *Fiscal Studies* vol. 13, no. 1, pp. 58-70.
- Case, K.E. (1992), "Taxes and Speculative Behavior in Land and Real Estate Markets," *Review of Urban & Regional Development Studies*, Wiley Blackwell, vol. 4(2), July 1992, pp. 226-239.

Chambers, M., C. Garriga, and Don E. Schlagenhauf (2009), "Housing policy and the progressivity of income taxation", *Journal of Monetary Economics*, no. 56, pp. 116-1134.

Cirman, A. and R. Sendi (2016), "Housing Market in Slovenia: From a National Housing Fund to a Bank-Driven System", *Milestones in European Housing Financing*, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 341-357.

Diaz, A. and M. J. Luengo-Prado (2008), "On the User Cost and Homeownership", *Review of Economic Dynamics* 11, pp. 584–613.

DiPasquale, D. and W. C. Wheaton (1992), "The Cost of Capital, Tax Reform, and the Future of the Rental Housing Market", *Journal of Urban Economics* 31, pp. 337-359.

Dolls, M., C. Fuest, C. Krolage and F. Neumeier (2019), "Who Bears the Burden of Real Estate Transfer Taxes? Evidence from the German Housing Market", IFO Working Paper 308, IFO Institute - Leibniz Institute for Economic Research at the University of Munich.

Eckardt, M., J. Dötsch and S. Okruch (2018), "Old-Age Provision and Homeownership-Fiscal Incentives and Other Public Policy Options", Springer International Publishing.

Elsinga, M., H. Priemus and P. Boelhouwer (2016), "Milestones in Housing Finance in the Netherlands, 1998-2013", *Milestones in European Housing Financing*, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, p. 255-272.

Englund, P. (2003), "Taxing Residential Housing Capital", *Urban Studies*, Vol. 40 (5-6), pp. 937 – 952.

Englund, P. (2016), "Milestones in Swedish Housing Finance", *Milestones in European Housing Financing*, (eds. Lunde J. and C. Whitehead), Wiley Blackwell, pp. 375-391.

European Central Bank (2009), "Housing Finance in the Euro Area", *Structural Issues Report*, March 2009, p. 27.

European Commission (2014), "Tax Reforms in EU Member States", 2014 *European Economy* 6|2014, Directorate General for Economic and Financial Affairs, European Commission.

European Systemic Risk Board (2014), "The ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector", ESRB Report, March 2014.

European Systemic Risk Board (2015), "Report on residential real estate and financial stability in the EU", ESRB Report.

European Systemic Risk Board (2016), "Vulnerabilities in the EU residential real estate sector", ESRB Report, November 2016.

European Systemic Risk Board (2018), "National measures of macroprudential interest in the EU/EEA", ESRB Excel spreadsheet, 9 February, 2018.

Fatica, S. and D. Prammer (2018), "Housing and the tax system: how large are the distortions in the euro area?", *Fiscal Studies*, 39(2), pp. 299-342.

Figari, F., Paulus, A., Sutherland H., Tsakoglou, P., Verbist, G. and F. Zantomio (2017) “Removing Homeownership Bias in Taxation: The Distributional Effects of Including Net Imputed Rent in Taxable Income”, *Fiscal Studies*, vol. 38, no. 4, pp. 525–557.

Fritzsche C. and L. Vandreii (2019), “The German real estate transfer: Evidence for single-family home transactions”, *Regional Science and Urban Economics*, Vol. 71, pp. 131-143.

Gervais, M. (2002), “Housing taxation and capital accumulation”, *Journal of Monetary Economics* 49, pp. 1461-1489.

Grinstein-Weiss, M, T R. Williams Shanks, K.R. Manturuk, C.C.Key, J.Paik and J.K.P. Greeson (2010), “Homeownership and Parenting Practices: Evidence from the Community Advantage Panel”, *Children and Youth Services Review* 32, pp. 774-782.

Hall, R. E. and D. W. Jorgenson (1969), “Tax policy and investment behavior: Reply and further results”, *The American Economic Review*, 59(3), pp. 388-401.

Hegedus, J. and E. Somogyi (2016), “Moving from an Authoritarian State System to an Authoritarian Market System: Housing Financing Milestones in Hungary between 1979 and 2014”, *Milestones in European Housing Financing*, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 201-218.

Hendershott, P. H. and J. Slemrod (1982), “Taxes and the User Cost of Capital for Owner-occupied Housing”, *Real Estate Economics*, *American Real Estate and Urban Economics Association*, vol. 10(4), pp. 375-393.

Heylen, K. (2013), “The distributional impact of housing subsidies in Flanders”, *International Journal of Housing Policy*, 13:1, pp.37-54.

Heylen, K. and M. Haffner (2015), “The Effect of Housing Expenses and Subsidies on the Income Distribution in Flanders and the Netherlands”, *Housing Studies*, 27:8, pp. 1142-1161.

Himmelberg, C., C. Mayer and T. Sinai (2005), “Assessing House Prices: Bubbles, Fundamentals and Misperceptions”, Working Paper 11643, National Bureau of Economic Research.

IMF (2018), “Macprudential Policies and House Prices in Europe: An Overview of recent Experiences”, *Regional Economic Outlook: Domestic Expansion Running into External Turbulence*, International Monetary Fund, pp.9-21.

Jácome, L. I. and M. Srobona (2015), “LTV and DTI Limits—Going Granular”, IMF Working Paper, WP/15/154. IMF, July 2015.

Kalyva, A, C. Astarita, L. Bauger, S. Fatica, G. Mourre, G. and F. Wöhlbier, F. (2014), “Tax expenditures in Direct Taxation in EU Member States“ *European Economy Occasional Papers 207*, Directorate General for Economic and Financial Affairs, European Commission.

Kelly J., J Le Blanc and R. Lydon (2019), “Pockets or risk in European housing markets: then and now”, *ESRB Working Paper Series no 87/ February 2019*, European Systemic Risk Board.

Kelly, R., F. McCann and C. O’Toole (2017), "Credit conditions, macroprudential policy and house prices," *ESRB Working Paper Series 36*, European Systemic Risk Board.

- Kenna, P. (2016), "Milestones in 25 Years of Housing Finance since in Ireland", *Milestones in European Housing Financing*, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 239-254.
- Kivistö, J. (2012), "An Assessment of Housing Price Developments Against Various Measures", *Bank of Finland Bulletin*, 2012(3), pp. 49-58.
- Lunde J. and C. Whitehead (Eds.) (2016), "Milestones in European Housing Financing", Wiley Blackwell.
- Lunde, J. (2016), "Milestones in Danish Housing Finance since 1990", *Milestones in European Housing Financing*, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, p. 109-126.
- McCarthy, J. and R. W. Peach (2004), "Are Home Prices the Next "Bubble?"", *Federal Reserve Bank of New York Economic Policy Review*, 10 (3).
- Mirrlees, J., A. Stuart, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles and J.M. Poterba (2011), "Tax by design", Oxford University Press.
- Mundt, A. and E. Springler (2016), "Milestones in Housing Finance in Austria over the Last 25 years", *Milestones in European Housing Financing*, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 55-74.
- OECD (2005), "Housing Finance Markets in Transition Economies: Trends and Challenges", OECD Publishing.
- OECD (2013), "The role of housing, financial wealth, and public services for adequate living standards in old age", *OECD: Pensions at glance 2013: OECD and G20 indicators*, Organisation for Economic Cooperation and Development, pp. 59-118.
- Oswald, A. (1999), "The housing market and Europe's unemployment: a non-technical paper", *Homeownership and the labour Market in Europe*, University of Warwick, mimeo.
- Poterba, J. and T. Sinai (2008), "Tax expenditures for owner-occupied housing: deductions for property taxation and mortgage interest and exclusion of imputed rental income", *American Economic Review*, Vol. 98, No. 2, pp. 84-89.
- Poterba, J. M. (1984), "Tax Subsidies to Owner-occupied Housing: an Asset-market Approach", *The Quarterly Journal of Economics*, Vol. 99, No. 4, pp. 729-752.
- Poterba, J. M. (1992), "Poterba, James M., Taxation and Housing: Old Questions, New Answers", *American Economic Review*, 82(2), pp.84-89.
- Sang-Wook (Stanley), C. and J. L. Francis (2011), "Tax treatment of owner occupied housing and wealth inequality", *Journal of Macroeconomics*, Vol. 33, pp. 42-60.
- Skinner, J. (1996), "The Dynamic Efficiency Cost of not Taxing Housing", *Journal of Public Economics* 59, Issue 3, pp. 397 – 417.
- Slack, E. and R. M. Bird (2014), "The Political Economy of Property Tax reform", *OECD Working Papers on Fiscal Federalism* 18, Organisation for Economic Cooperation and Development, Paris.

Spengel, C., D. Endres, K. Finke and J. Heckemeyer (2014), "Effective Tax Levels Using the Devereux/Griffith Methodology", Final Report 2014 Project for the EU Commission TAXUD/2013/CC/120, pp. A-25 – A-28.

Sunega, P. and M. Lux (2016) "Milestones in Housing Finance in the Czech Republic since 1990", Milestones in European Housing Financing, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 93-108.

Swank, J., J. Kakes and A. F. Tieman (2002), "The Housing Ladder, Taxation, and Borrowing constraints," WO Research Memoranda 688, Netherlands Central Bank, Research Department.

Tahtinen, T and T. Laanti (2016), "Milestones in Housing Finance in Finland", Milestones in European Housing Financing, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 147-163.

Tse, R. Y. and J. R. Webb (1999), "Property tax and housing returns", Review of Urban & Regional Development Studies, 11(2), pp. 114-126.

Vandenbussche, J., Vogel, U. and E. Detragiache (2015), "Macprudential Policies and Housing Prices—A New Database and Empirical Evidence for Central, Eastern, and South-Eastern Europe", Journal of Money, Credit and Banking, Volume 47, Issue 1, pp. 343-377.

Verbrugge, R. (2008), "The Puzzling Divergence of Rents and User Costs", The Review of Income and Wealth, Series 54, No. 4, pp. 671-699.

Winters, S. and K. Van den Broeck (2016) "Milestones in 25 Years of Housing Finance in Belgium", Milestones in European Housing Financing, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp.75-92.

Xerez, R. and J. R. S. Fronseca (2016), "The Housing Finance System in Portugal since the 1980s", Milestones in European Housing Financing, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 309-324.

Xerez, R. and J.R.S. Fronseca (2016), "The Housing Finance System in Portugal since the 1980s", Milestones in European Housing Financing, eds. Lunde J. and Whitehead C., UK: Wiley Blackwell, pp. 309-324.

Appendix 1: Housing tax database and UCOH indicators for EU countries: 1995-2017

List of tables:

	<i>Indicator</i>	<i>Unit</i>
Table A.1.1.	Existence of the mortgage interest tax relief (MITR)	"Y" if exists
Table A.1.2.	Limit for the mortgage interest tax relief	Euros
Table A.1.3.	Maximum rate for the mortgage interest tax relief	Rate (between 0 and 1)
Table A.1.4.	Marginal personal income tax rate (applied to mortgage interest tax relief if maximum rate is not specified)	Rate (between 0 and 1)
Table A.1.5.	Loan to value (LTV) ratio (maximum)	Rate (between 0 and 1)
Table A.1.6.	Duration (maturity) of mortgage loan (maximum)	Years
Table A.1.7.	Interest rate for long-term government bonds	Rate (between 0 and 1)
Table A.1.8.	Tax rate on transfer of property (minimum)	Rate (between 0 and 1)
Table A.1.9.	Existence of imputed rent taxation	"Y" if exists
Table A.1.10.	Existence of the recurrent property tax on dwellings	"Y" if exists
Table A.1.11.	Revenues from the recurrent property tax	Millions of current national currency
Table A.1.12.	Net stock of dwellings	Millions of current national currency
Table A.1.13.	Implicit recurrent property tax rate	Rate (between 0 and 1)
Table A.1.14.	Average size of property in 2012	Square meters
Table A.1.15.	House price per square meter	Euros
Table A.1.16.	House price	Euros
Table A.1.17.	Capital gains tax on selling property (minimum)	Rate (between 0 and 1)
Table A.1.18.	Tax rate on interest income	Rate (between 0 and 1)
Table A.1.19.	Harmonised consumer price index (CPI)	Rate (between 0 and 1)
Table A.1.20.	Maintenance costs (m), beta (b) and economic depreciation (depr)	Rate (between 0 and 1)
Table A.1.21.	User cost of housing indicator (UCOH)	Rate (between 0 and 1)

Table A1.1. Existence of the mortgage interest tax relief (MITR)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT																							
BE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BG																							
HR									Y	Y	Y	Y	Y	Y	Y	Y							
CY	Y	Y	Y	Y	Y	Y	Y	Y	Y														
CZ				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EE		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FR	Y												Y	Y	Y	Y	Y						
DE																							
EL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
HU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y											
IE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
IT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LV																							
LT									Y	Y	Y	Y	Y	Y									
LU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MT																							
NL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PL								Y	Y	Y	Y	Y											
PT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y							
RO																							
SK																							
SI											Y	Y											
ES				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
SE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UK	Y	Y	Y	Y	Y																		

Table A1.2. Limit for the mortgage interest tax relief (in euros)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT																							
BE											2490	2560	2600	2740	2770	2770	2830	2930	3010	3040	2280	2280	2280
BG																							
HR									1585	1601	1621	1638	1635	1661	1635	823							
CY	2563	2535	2534	2575	2589	2591	2614	2605	869														
CZ				8322	8134	8427	8806	9739	9420	9407	10073	10585	10805	12026	11349	11865	12200	11929	11547	10895	10997	11097	11376
DK																							
EE								4109	4452	4778	5264	6225	7464	8387	7925	8110	8657	9188	9796	10302	10892	11389	300
FI																							
FR	3049												3750	3750	3750	3750	3750						
DE																							
EL																							
HU	213	181	165	145	138	135	136	988	946	477	484	454											
IE	2330	2395	2542	2417	2413	2413	2539	2540	2540	2540	2540	2540	3000	3000	3000	3000	3000	3000					
IT	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615	3615	4000	4000	4000	4000	4000	4000	4000	4000	4000
LV																							
LT									1354	1657	1830	2149	2640	3089									
LU	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	2000
MT																							
NL																							
PL								3665	3213	3123	3382	2864											
PT	1464	1517	1536	1527	470	480	504	518	528	539	549	562	574	586	586	591	591						
RO																							
SK																							
SI											6815	7119											
ES				9015	9015	9015	9015	9015	9015	9015	9015	9015	9015	9015	9015	9015	9040	9040					
SE	10716	11744	11559	11216	11354	11841	10805	10916	10960	10960	10773	10806	10811	10400	9417	10485	11074	11489	11559	10991	10691	10561	10441
UK	36197	36864	43334	44350	45542																		

Comments:

As the MITR was abolished from mid year, only half of ceiling amount is used.

The ceiling is set as a percent of annual tax liability (25% for LT and 2% for SI). The tax liability is calculated based on the 167% of gross average wage for single person assumption and applying existing PIT rules.

The limit is calculated based on assumptions on maximum loan taken for which interests can be deducted and using interest rates for house purchase from the PL national bank.

Table A1.3. Maximum rate for the mortgage interest tax relief

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
AT																								
BE																						0.4	0.4	0.4
BG																								
HR																								
CY																								
CZ				0.4	0.4	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	
DK																								
EE																								
FI	0.25	0.28	0.28	0.28	0.28	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.255	0.24	0.225	0.195	0.165	0.135	
FR	0.25												0.4	0.4	0.4	0.4	0.4							
DE																								
EL										0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.1	0.1						
HU	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4												
IE			0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.225	0.225	0.225						
IT	0.22	0.22	0.22	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
LV																								
LT																								
LU																								
MT																								
NL																					0.515	0.51	0.505	0.5
PL																								
PT																								
RO																								
SK																								
SI																								
ES				0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15						
SE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
UK	0.15	0.15	0.15	0.1	0.1																			

Comments:

Effective tax rate for FI is calculated using 0.3 maximum tax rate and taking into account the share of the loan for which deduction can be applied:

- 2012: 0.85
- 2013: 0.8
- 2014: 0.75
- 2015: 0.65
- 2016: 0.55
- 2017: 0.45

Table A1.4. Marginal PIT rate (applied to mortgage interest tax relief if maximum rate is not specified)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT																							
BE	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.525	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			
BG																							
HR									0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.4							
CY	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3														
CZ																							
DK	0.49	0.49	0.48	0.48	0.46	0.36	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.34	0.34	0.34	0.34	0.33	0.32	0.31	0.30	0.29	0.28
EE		0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.2	0.2	0.2
FI																							
FR																							
DE																							
EL	0.45	0.45	0.45	0.45	0.45	0.45	0.425	0.425	0.425														
HU																							
IE	0.48	0.48																					
IT																							
LV																							
LT									0.33	0.33	0.33	0.3	0.27	0.24									
LU	0.5	0.5	0.5	0.46	0.46	0.46	0.42	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.39	0.39	0.4	0.4	0.4	0.4	0.42
MT																							
NL	0.6	0.6	0.6	0.6	0.6	0.6	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
PL								0.4	0.4	0.4	0.4	0.4											
PT	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.42	0.42	0.42	0.42	0.4588	0.465						
RO																							
SK																							
SI											0.02	0.02											
ES																							
SE																							
UK																							

Note:

Top PIT rates are provided only for the countries and years for which either mortgage interest tax relief or imputed rent was in place and 'mitr_max_rate' was not used.

Table A1.5. Loan to value (LTV) ratio (maximum)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
BE	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.85	0.85	0.85	0.85	0.85	0.9	0.9	0.9	0.9	0.9
BG							0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.84	0.84	0.85	0.85	0.85	0.84	0.84
HR							0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
CY							0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
CZ	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1	1	1	1	1	1	0.95	0.95	0.9
DK	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.95	0.95	0.95
EE							0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
FI	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.75	0.75	0.75	0.75	0.75	0.75	0.8	0.9	1	1	1	1	1	1	0.9	0.9
FR	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
DE	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
EL	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
HU	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8
IE	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1	1	1	1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
IT	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
LV							0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.95	0.95	0.9	0.9
LT							0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.85	0.85	0.85	0.85	0.85	0.85	0.85
LU	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
MT							0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
NL	1	1	1	1	1	1	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.2	1.2	1.2	1.2	1.06	1.05	1.04	1.03	1.02	1.01
PL	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.95	0.9	0.85	0.8
PT	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9
RO							0.6	0.6	0.6	0.6	0.6	0.7	0.9	1.1	0.85	0.9	0.85	0.85	0.85	0.85	0.85	0.85	0.85
SK							0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1	1	1	1
SI							0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
ES	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
SE	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
UK	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.75	0.75	0.75	0.75	0.75

Comments:

Median is used

ECRB & ECB reports mainly. Some numbers for 2008 are from the European Mortgage Federation study on the Cost of Housing in Europe.

Lunde J. & C. Whitehead (eds.) (2016) "Milestones in European Housing Finance". UK, Wiley Blackwell.

[National measures of macroprudential interest in the EU/EEA \(ECRB excel tables\)](#)

[Imputation between the data points](#)

[Jácome, L. I. and M. Srobona, 2015, IMF report \(for RO and PL\)](#)

Table A1.6. Duration (maturity) of mortgage loan (maximum)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	30	30	30	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	30	30	30	30
BE	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30
BG							25	25	25	25	25	25	25	30	30	30	30	30	30	30	30	30	30
HR							25	25	25	25	25	25	25	30	30	30	30	30	30	30	30	30	30
CY							25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
CZ	20	20	20	20	20	20	20	20	20	30	30	30	30	30	30	30	30	30	30	30	30	30	30
DK	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
EE							30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
FI	12	12	12	12	15	15	15	15	15	17	17	17	25	30	30	30	30	30	30	30	30	30	30
FR	25	25	25	25	25	25	25	25	25	25	25	25	20	20	20	20	20	20	20	25	25	25	25
DE	25	25	25	25	25	25	25	25	25	25	25	25	30	30	30	30	30	30	30	30	30	30	30
EL	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
HU	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	30	30	30	30
IE	20	20	20	20	20	20	20	20	20	20	20	20	35	35	35	35	35	35	35	30	30	30	30
IT	15	15	15	15	15	15	15	15	15	15	15	15	20	20	20	20	20	20	20	20	20	20	20
LV							20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
LT							25	25	25	25	25	25	25	25	25	25	40	40	40	40	30	30	30
LU	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
MT							30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
NL	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
PL							30	30	30	30	30	30	30	30	30	30	30	30	35	35	35	35	35
PT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	40	40	40	40	40	40	40	40
RO							30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
SK							15	15	15	15	15	15	15	15	15	15	15	15	15	15	30	30	30
SI					20	20	20	20	20	20	20	20	25	30	30	30	30	30	30	30	30	30	30
ES	20	20	20	20	20	20	20	20	20	20	20	20	20	24	24	24	24	24	23	23	23	23	23
SE	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
UK	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Comments:

Median is used

ECRB & ECB reports mainly. Some numbers for 2008 are from the European Mortgage Federation study on the Cost of Housing in Europe.

Lunde J. & C. Whitehead (eds.) (2016) "Milestones in European Housing Finance".UK, Wiley Blackwell.

[National measures of macroprudential interest in the EU/EEA \(ECRB excel tables\)](#)

Imputation between the data points

Table A1.7. Interest rate for long-term government bonds

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	0.071	0.063	0.057	0.047	0.047	0.056	0.051	0.050	0.041	0.041	0.034	0.038	0.043	0.044	0.039	0.032	0.033	0.024	0.020	0.015	0.008	0.004	0.006
BE	0.075	0.065	0.058	0.048	0.048	0.056	0.051	0.050	0.042	0.042	0.034	0.038	0.043	0.044	0.039	0.035	0.042	0.030	0.024	0.017	0.008	0.005	0.007
BG							0.078	0.064	0.065	0.054	0.039	0.042	0.045	0.054	0.072	0.060	0.054	0.045	0.035	0.034	0.025	0.023	0.016
HR							0.078	0.064	0.055	0.055	0.044	0.044	0.049	0.060	0.078	0.063	0.065	0.061	0.047	0.041	0.036	0.035	0.028
CY							0.076	0.057	0.047	0.058	0.052	0.041	0.045	0.046	0.046	0.046	0.058	0.070	0.065	0.060	0.045	0.038	0.026
CZ							0.063	0.049	0.041	0.048	0.035	0.038	0.043	0.046	0.048	0.039	0.037	0.028	0.021	0.016	0.006	0.004	0.010
DK	0.083	0.072	0.063	0.049	0.049	0.056	0.051	0.051	0.043	0.043	0.034	0.038	0.043	0.043	0.036	0.029	0.027	0.014	0.018	0.013	0.007	0.003	0.005
EE							0.078	0.064	0.055	0.055	0.044	0.045	0.049	0.055	0.072	0.055	0.053	0.051	0.042	0.033	0.020	0.017	0.016
FI	0.088	0.071	0.060	0.048	0.047	0.055	0.050	0.050	0.041	0.041	0.034	0.038	0.043	0.043	0.037	0.030	0.030	0.019	0.019	0.015	0.007	0.004	0.006
FR	0.075	0.063	0.056	0.046	0.046	0.054	0.049	0.049	0.041	0.041	0.034	0.038	0.043	0.042	0.037	0.031	0.033	0.025	0.022	0.017	0.008	0.005	0.008
DE	0.069	0.062	0.056	0.046	0.045	0.053	0.048	0.048	0.041	0.040	0.034	0.038	0.042	0.040	0.032	0.027	0.026	0.015	0.016	0.012	0.005	0.001	0.003
EL	0.170	0.144	0.099	0.085	0.063	0.061	0.053	0.051	0.043	0.043	0.036	0.041	0.045	0.048	0.052	0.091	0.158	0.225	0.101	0.069	0.097	0.084	0.060
HU							0.080	0.071	0.068	0.082	0.066	0.071	0.067	0.082	0.091	0.073	0.076	0.079	0.059	0.048	0.034	0.031	0.030
IE	0.083	0.073	0.063	0.048	0.047	0.055	0.050	0.050	0.041	0.041	0.033	0.038	0.043	0.045	0.052	0.057	0.096	0.062	0.038	0.024	0.012	0.007	0.008
IT	0.122	0.094	0.069	0.049	0.047	0.056	0.052	0.050	0.043	0.043	0.036	0.041	0.045	0.047	0.043	0.040	0.054	0.055	0.043	0.029	0.017	0.015	0.021
LV							0.076	0.054	0.049	0.049	0.039	0.041	0.053	0.064	0.124	0.103	0.059	0.046	0.033	0.025	0.010	0.005	0.008
LT							0.082	0.061	0.053	0.045	0.037	0.041	0.045	0.056	0.140	0.056	0.052	0.048	0.038	0.028	0.014	0.009	0.003
LU	0.072	0.063	0.056	0.047	0.047	0.055	0.049	0.047	0.033	0.028	0.024	0.033	0.045	0.046	0.042	0.032	0.029	0.018	0.019	0.013	0.004	0.003	0.005
MT							0.062	0.058	0.050	0.047	0.046	0.043	0.047	0.048	0.045	0.042	0.045	0.041	0.034	0.026	0.015	0.009	0.013
NL	0.069	0.062	0.056	0.046	0.046	0.054	0.050	0.049	0.041	0.041	0.034	0.038	0.043	0.042	0.037	0.030	0.030	0.019	0.020	0.015	0.007	0.003	0.005
PL							0.107	0.074	0.058	0.069	0.052	0.052	0.055	0.061	0.061	0.058	0.060	0.050	0.040	0.035	0.027	0.030	0.034
PT	0.115	0.086	0.064	0.049	0.048	0.056	0.052	0.050	0.042	0.041	0.034	0.039	0.044	0.045	0.042	0.054	0.102	0.106	0.063	0.038	0.024	0.032	0.031
RO							0.078	0.064	0.055	0.055	0.070	0.072	0.071	0.077	0.097	0.073	0.073	0.067	0.054	0.045	0.035	0.033	0.040
SK							0.080	0.069	0.050	0.050	0.035	0.044	0.045	0.047	0.047	0.039	0.045	0.046	0.032	0.021	0.009	0.005	0.009
SI							0.078	0.087	0.064	0.047	0.038	0.039	0.045	0.046	0.044	0.038	0.050	0.058	0.058	0.033	0.017	0.012	0.010
ES	0.113	0.087	0.064	0.048	0.047	0.055	0.051	0.050	0.041	0.041	0.034	0.038	0.043	0.044	0.040	0.043	0.054	0.059	0.046	0.027	0.017	0.014	0.016
SE	0.102	0.080	0.066	0.050	0.050	0.054	0.051	0.053	0.046	0.044	0.034	0.037	0.042	0.039	0.033	0.029	0.026	0.016	0.021	0.017	0.007	0.005	0.007
UK	0.083	0.079	0.071	0.056	0.050	0.053	0.050	0.049	0.046	0.049	0.045	0.044	0.051	0.045	0.034	0.034	0.029	0.017	0.020	0.021	0.018	0.012	0.012

Comments:

Missing values were calculated as average from Group II countries.

Table A1.8. Tax rate on transfer of property (minimum)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
BE	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
BG	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.013	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
HR	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04
CY							0.051	0.052	0.052	0.055	0.056	0.059	0.061	0.062	0.061	0.059	0.059	0.058	0.058	0.057	0.057	0.057	0.057
CZ	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04
DK	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
EE							0.003	0.003	0.003	0.003	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
FI	0.06	0.06	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
FR	0.116	0.064	0.064	0.064	0.064	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.052	0.052	0.052	0.052	0.059	0.059
DE	0.02	0.02	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.036	0.036	0.038	0.045	0.046	0.048	0.052	0.052	0.053
EL	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.03	0.03	0.03	0.03
HU	0.09	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
IE	0.038	0.050	0.054	0.016	0.020	0.014	0.017	0.018	0.022	0.026	0.029	0.034	0.051	0.049	0.044	0.040	0.010	0.010	0.010	0.010	0.010	0.010	0.010
IT	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.09	0.09	0.09	0.09
LV	0.15	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LU	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NL	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.02	0.02	0.02	0.02	0.02	0.02
PL	0.05	0.05	0.05	0.05	0.05	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
PT	0.076	0.073	0.069	0.075	0.087	0.096	0.100	0.093	0.023	0.023	0.023	0.023	0.022	0.023	0.022	0.022	0.018	0.014	0.013	0.015	0.017	0.020	0.025
RO							0	0	0	0	0	0	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.00
SK							0.04	0.04	0.03	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0
SI	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
ES	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
SE	0.015	0.005	0.005	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
UK	0.000	0.000	0.000	0.001	0.002	0.003	0.004	0.004	0.005	0.005	0.002	0.003	0.003	0.001	0.000	0.002	0.003	0.002	0.003	0.003	0.007	0.007	0.008

Comments:

Effective tax rate was calculated by applying tax rules on the house value.

As the tax rate was changed in the middle of the year, the average is used.

Table A1.9. Existence of imputed rent taxation

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	
AT																								
BE																								
BG																								
HR																								
CY																								
CZ																								
DK	Y	Y	Y	Y	Y																			
EE																								
FI																								
FR																								
DE																								
EL																								
HU																								
IE																								
IT																								
LV																								
LT																								
LU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MT																								
NL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PL																								
PT																								
RO																								
SK																								
SI																								
ES																								
SE																								
UK																								

Table A1.10. Existence of the recurrent property tax on dwellings

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
BG	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HR																							
CY	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
CZ	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DK						Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EE																							
FI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
FR	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
DE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
EL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
HU																							
IE	Y	Y																	Y	Y	Y	Y	Y
IT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					Y		Y	Y		
LV																Y	Y	Y	Y	Y	Y	Y	Y
LT												Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
LU	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
MT																							
NL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PL	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
PT	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
RO	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SI	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
ES	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
UK	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table A1.11 Revenues from the recurrent property tax (million of current national currency)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	83	83	84	85	85	87	88	87	88	87	89	91	92	93	94	93	93	96	105	110	107	107	118
BE	86	114	113	101	98	102	54	75	64	77	2538	2677	2779	2904	2981	3115	3252	3289	3478	3590	3651	3784	3848
BG							10	14	16	17	19	25	32	41	52	58	68	84	91	94	97	107	113
HR																							
CY							21	23	28	34	37	57	103	79	44	51	45	43	37	35	39	37	
CZ							1522	1568	1759	1840	2091	2158	2228	2347	2912	4302	4344	4837	5387	5128	5433	5545	5681
DK						8399	9501	10155	10161	10502	10933	11330	11715	12123	12360	12623	12814	13014	13223	13390	13597	13899	14233
EE																							
FI	146	145	210	221	250	273	290	307	320	328	354	378	405	437	462	576	592	628	623	691	733	764	811
FR	19173	20756	21678	22469	23305	22276	23020	24392	25742	27868	29818	31402	32824	34230	36918	38936	40699	42639	44662	45362	46849	48348	49524
DE	2811	3005	3171	3319	3454	3540	3630	3704	3863	3976	4099	4159	4285	4323	4374	4526	4670	4807	4951	5076	5286	5462	5586
EL	55	82	137	118	134	145	149	172	186	189	268	362	378	418	422	268	445	484	471	1801	1991	2088	2095
HU																							
IE	15	18																	318	491	469	463	477
IT	3364	3587	3837	3968	4130	4218	4372	4791	4976	5209	6530	6863	7187					13728		14533	14753		
LV																0	18	21	22	23	24	32	35
LT												5	6	6	6	7	7	7	8	10	17	17	25
LU	8	8	9	9	9	10	10	10	10	11	14	14	15	15	16	16	17	18	18	19	20	20	21
MT																							
NL	1315	1389	1478	1594	1655	1806	1940	2069	2255	2427	2575	1568	1642	1780	1972	2058	2173	2192	2802	4002	3741	3929	4143
PL	988	1327	1675	1960	2179	2348	2833	3071	2891	3051	4014	3337	3613	4233	4553	4555	4925	5878	6289	6444	6549	6785	6894
PT	188	191	210	251	288	319	335	429	580	472	502	568	635	695	688	696	741	697	849	881	935	926	966
RO							106	131	177	215	257	346	492	586	625	670	699	814	845	1439	1267	1250	1018
SK							56	62	68	75	77	77	76	79	84	88	91	101	105	106	107	111	115
SI							20	23	26	30	35	38	38	40	46	46	46	54	61	56	56	63	64
ES	1380	1424	1580	1753	1881	1995	2155	2281	2459	2725	3643	4035	4381	4781	5344	5811	6130	6730	7107	7436	7574	7717	7897
SE	10835	15077	14900	13273	13265	13321	12058	13420	13589	14151	14805	13239	13474	10017	11571	11593	11866	13071	13422	13048	13320	13548	14046
UK	9281	10044	10906	12029	12997	14205	15342	16668	18693	20125	21306	22456	23609	24713	25412	25919	26272	26635	27640	28526	29358	30598	32306

Comments:

OECD data

EUROSTAT with correcting coefficient: Group I countries: 0.5 (1995 - 2004), 0.6 (2005 - 2017). Group II countries: 0.3 (2001 - 2011), 0.35 (2012 - 2017).

EUROSTAT with country specific coefficients: 0.5 for DK and 0.6 for PT.

Provided by an expert from national sources.

Updated with CPI.

Note:

Data is provided and assumptions are made only for the countries which had the property tax and only for the years for which the UCOH indicator is calculated.

Table A1.12 Net stock of dwellings (million of current national currency)

Country/ Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	181,967	190,375	198,528	206,324	214,493	223,320	231,509	239,158	248,325	258,939	270,152	284,262	301,890	317,628	328,518	340,461	354,418	367,959	380,854	392,803	404,169	417,112	432,092
BE	230,187	236,085	244,835	252,370	262,582	275,188	286,772	296,278	307,651	328,457	350,421	376,679	400,958	438,098	449,781	463,422	476,009	496,259	508,992	516,509	524,172	533,231	553,743
BG							48250	49250	55385	81916	112349	129417	167823	211059	167064	150882	195990	191242	188248	189586	195249	209353	239220
HR	388,422	389,565	390,334	390,431	390,645	391,070	391,466	392,065	392,489	392,779	393,361	394,058	395,045	395,831	397,876	393,210	395,797	399,917	403,087	404,733	405,972	408,478	424122.2
CY	7,795	8,623	9,371	10,022	10,702	11,268	12,179	13,124	14,296	15,983	18,693	21,065	23,801	27,549	28,107	29,078	27,863	27,259	33,353	33,247	33,030	33,403	34151.0
CZ	1,492,555	1,681,247	1,895,143	2,097,269	2,228,156	2,386,911	2,499,022	2,598,169	2,678,576	2,822,373	2,950,881	3,131,943	3,556,223	3,934,765	3,876,227	3,899,959	4,015,652	3,983,816	3,999,321	4,091,430	4,223,211	4,343,285	4,483,217
DK	992,246	1,042,862	1,094,523	1,138,167	1,214,397	1,227,451	1,303,988	1,334,416	1,388,939	1,412,527	1,484,164	1,641,465	1,732,305	1,795,738	1,533,672	1,610,181	1,691,550	1,752,533	1,792,088	1,853,010	1,918,312	2,020,433	2,083,165
EE	4,680	7,698	9,307	9,195	10,078	9,182	11,339	10,673	11,091	12,458	13,130	14,815	17,363	17,496	16,676	16,379	17,152	17,289	18,425	18,877	19,385	19,755	20841.9
FI	101,141	101,505	107,773	117,080	124,901	137,548	146,021	145,745	149,398	157,527	170,742	182,790	200,523	215,428	211,640	208,657	220,792	236,604	243,735	249,464	254,855	265,539	277,321
FR	1,475,174	1,533,950	1,587,556	1,631,745	1,678,371	1,753,244	1,850,187	1,949,025	2,075,956	2,220,571	2,382,859	2,563,571	2,762,865	2,901,752	2,956,276	3,073,655	3,210,482	3,296,253	3,378,029	3,452,150	3,506,992	3,596,604	3,681,528
DE	2,299,949	2,367,080	2,435,783	2,503,243	2,562,295	2,632,267	2,684,237	2,727,981	2,772,001	2,844,511	2,902,811	3,002,439	3,215,387	3,344,375	3,408,118	3,482,708	3,620,502	3,766,293	3,913,514	4,044,117	4,155,039	4,289,644	4,467,076
EL	157,154	170,917	183,366	198,604	211,763	224,921	237,030	253,366	268,361	286,115	294,344	324,378	343,830	360,366	359,014	350,910	338,509	331,949	329,492	303,596	287,507	275,214	272462.3
HU	6,418,000	8,337,000	10,339,000	11,649,000	13,747,000	15,479,000	17,331,000	18,594,000	20,048,000	21,495,000	22,790,000	24,813,000	26,806,000	28,802,000	29,928,000	30,513,000	31,108,000	31,718,000	32,094,000	32,553,000	33,308,000	34,312,000	36353564.0
IE	81673.0	91449.3	107416.3	131348.7	155805.8	177431.6	204188.3	213274.7	243837.0	271073.6	297286.4	341492.9	367002.4	341532.4	276129.0	238879.2	198078.6	171437.0	173,580	202272.8	225453.2	242272.0	268703.9
IT	1,178,778	1,232,957	1,287,918	1,331,219	1,368,921	1,440,218	1,491,102	1,566,768	1,629,574	1,718,593	1,828,419	1,912,898	2,027,697	2,140,095	2,212,904	2,294,248	2,408,506	2,468,225	2,494,082	2,510,419	2,536,833	2,553,405	2,572,430
LV	4,314	4,492	4,811	5,376	5,600	5,599	5,651	9,742	12,167	12,666	16,983	28,141	36,961	38,490	23,604	21,618	28,148	31,591	32,461	34,783	31,845	33,678	36635.1
LT	12,269	13,798	14,735	15,056	15,120	15,005	14,869	14,891	15,479	16,821	18,539	21,258	24,259	24,023	22,017	22,019	22,920	23,964	25,138	25,963	26,952	28,202	30717.2
LU	12,171	12,479	12,802	13,227	13,694	14,293	15,027	15,556	16,059	16,753	17,499	18,401	19,783	21,386	22,242	22,791	23,967	25,145	26,340	27,644	28,481	29,436	30,597
MT	6,093	6,277	6,496	6,724	6,920	7,110	7,361	7,864	8,109	8,241	8,479	8,701	9,440	9,870	10,177	10,683	11,212	11,439	11,840	12,038	11,969	11,834	12,217
NL	294,829	314,559	332,853	353,451	381,101	416,591	456,325	495,482	531,723	562,045	591,570	630,271	661,017	697,547	732,083	746,294	729,253	716,344	703,730	685,797	671,723	676,176	686,111
PL	150,500	191,768	223,006	258,532	284,193	309,615	321,234	333,254	341,795	371,112	385,081	400,153	434,970	471,355	478,913	517,302	526,935	538,377	575,041	585,373	594,441	606,588	629941.6
PT	140,953	147,427	157,271	166,057	175,876	188,279	198,841	210,062	218,899	229,617	240,703	253,662	262,118	275,293	272,092	274,990	256,180	236,023	227,436	231,550	234,991	245,525	268211.2
RO	13,442	20,848	46,395	71,101	104,167	153,509	178,082	204,978	218,743	233,797	247,112	258,918	259,901	268,844	269,304	282,908	336,490	324,383	302,229	305,976	323,875	345,057	365932.6
SK	25,677	27,861	30,319	33,134	37,119	40,992	43,801	46,416	49,298	52,204	54,888	57,100	59,679	63,176	64,781	64,841	65,355	65,369	65,768	66,793	67,710	68,592	70,685
SI	14,605	16,618	18,322	19,817	21,099	22,348	23,760	24,985	26,324	28,625	30,469	31,862	33,765	35,818	36,276	37,277	38,195	38,489	38,620	38,426	38,343	38,427	38,781
ES	764385.1	778679.1	791060.1	827844.4	913774.7	992085.2	1089111.1	1256725.3	1472630.7	1724008.8	1957612.0	2220127.8	2437922.3	2,403,060	2,350,260	2,297,460	2,244,660	2,191,860	1991962.4	1998137.5	2069670.8	2165289.6	2299321.0
SE	882,753	934,545	1,068,602	1,155,615	1,193,172	1,395,514	1,509,776	1,570,306	1,634,022	1,787,762	1,858,614	1,993,772	2,163,831	2,354,056	2,442,019	2,503,462	2,554,356	2,603,604	2,664,425	2,820,800	2,913,887	3,226,616	3,309,346
UK	481,265	506,446	539,103	581,019	629,916	663,817	712,211	779,378	856,044	927,194	1,026,535	1,090,671	1,176,254	1,262,802	1,273,182	1,284,194	1,336,683	1,375,978	1,434,533	1,462,229	1,486,373	1,539,047	1,589,945

Comments:

Provided by an expert from national sources.

HFCS with 0.66 correction.

Incremental average change between two HFCS waves (for ES).

Updated with the residential Property Price Index (RPPI).

Note:

Estimated data

Provisional data

Table A1.13 Implicit recurrent property tax rate

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
BE	0.0004	0.0005	0.0005	0.0004	0.0004	0.0004	0.0002	0.0003	0.0002	0.0002	0.0072	0.0071	0.0069	0.0066	0.0066	0.0067	0.0068	0.0066	0.0068	0.0070	0.0070	0.0071	0.0069
BG							0.0002	0.0003	0.0003	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0004	0.0003	0.0004	0.0005	0.0005	0.0005	0.0005	0.0005
HR																							
CY							0.0017	0.0017	0.0020	0.0021	0.0020	0.0027	0.0043	0.0028	0.0016	0.0018	0.0016	0.0016	0.0011	0.0011	0.0012	0.0011	
CZ							0.0006	0.0006	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0008	0.0011	0.0011	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013
DK						0.0068	0.0073	0.0076	0.0073	0.0074	0.0074	0.0069	0.0068	0.0068	0.0081	0.0078	0.0076	0.0074	0.0074	0.0072	0.0071	0.0069	0.0068
EE																							
FI	0.0014	0.0014	0.0019	0.0019	0.0020	0.0020	0.0020	0.0021	0.0021	0.0021	0.0021	0.0021	0.0020	0.0020	0.0022	0.0028	0.0027	0.0027	0.0026	0.0028	0.0029	0.0029	0.0029
FR	0.0130	0.0135	0.0137	0.0138	0.0139	0.0127	0.0124	0.0125	0.0124	0.0125	0.0125	0.0122	0.0119	0.0118	0.0125	0.0127	0.0127	0.0129	0.0132	0.0131	0.0134	0.0134	0.0135
DE	0.0012	0.0013	0.0013	0.0013	0.0013	0.0013	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013
EL	0.0004	0.0005	0.0007	0.0006	0.0006	0.0006	0.0006	0.0007	0.0007	0.0007	0.0009	0.0011	0.0011	0.0012	0.0012	0.0008	0.0013	0.0015	0.0014	0.0059	0.0069	0.0076	0.0077
HU																							
IE	0.0002	0.0002																	0.0018	0.0024	0.0021	0.0019	0.0018
IT	0.0029	0.0029	0.0030	0.0030	0.0030	0.0029	0.0029	0.0031	0.0031	0.0030	0.0036	0.0036	0.0035					0.0056		0.0058	0.0058		
LV																0.0000	0.0006	0.0007	0.0007	0.0007	0.0008	0.0010	0.0010
LT												0.0002	0.0002	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0006	0.0006	0.0008
LU	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0006	0.0006	0.0007	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
MT																							
NL	0.0045	0.0044	0.0044	0.0045	0.0043	0.0043	0.0043	0.0042	0.0042	0.0043	0.0044	0.0025	0.0025	0.0026	0.0027	0.0028	0.0030	0.0031	0.0040	0.0058	0.0056	0.0058	0.0060
PL	0.0066	0.0069	0.0075	0.0076	0.0077	0.0076	0.0088	0.0092	0.0085	0.0082	0.0104	0.0083	0.0083	0.0090	0.0095	0.0088	0.0093	0.0109	0.0109	0.0110	0.0110	0.0112	0.0109
PT	0.0013	0.0013	0.0013	0.0015	0.0016	0.0017	0.0017	0.0020	0.0027	0.0021	0.0021	0.0022	0.0024	0.0025	0.0025	0.0025	0.0029	0.0030	0.0037	0.0038	0.0040	0.0038	0.0036
RO							0.0006	0.0006	0.0008	0.0009	0.0010	0.0013	0.0019	0.0022	0.0023	0.0024	0.0021	0.0025	0.0028	0.0047	0.0039	0.0036	0.0028
SK							0.0013	0.0013	0.0014	0.0014	0.0014	0.0013	0.0013	0.0012	0.0013	0.0014	0.0014	0.0015	0.0016	0.0016	0.0016	0.0016	0.0016
SI							0.0008	0.0009	0.0010	0.0011	0.0011	0.0012	0.0011	0.0011	0.0013	0.0012	0.0012	0.0014	0.0016	0.0015	0.0015	0.0016	0.0016
ES	0.0018	0.0018	0.0020	0.0021	0.0021	0.0020	0.0020	0.0018	0.0017	0.0016	0.0019	0.0018	0.0018	0.0020	0.0023	0.0025	0.0027	0.0031	0.0036	0.0037	0.0037	0.0036	0.0034
SE	0.0123	0.0161	0.0139	0.0115	0.0111	0.0095	0.0080	0.0085	0.0083	0.0079	0.0080	0.0066	0.0062	0.0043	0.0047	0.0046	0.0046	0.0050	0.0050	0.0046	0.0046	0.0042	0.0042
UK	0.0193	0.0198	0.0202	0.0207	0.0206	0.0214	0.0215	0.0214	0.0218	0.0217	0.0208	0.0206	0.0201	0.0196	0.0200	0.0202	0.0197	0.0194	0.0193	0.0195	0.0198	0.0199	0.0203

Note:

Implicit recurrent property tax is not calculated for years for which it did not exist.

Table A1.14 Average size of property in 2012 (square metres)

Country/Year	2012
AT	130.2
BE	145.5
BG	76.3
HR	87.6
CY	177.6
CZ	92.9
DK	147.9
EE	83.4
FI	109.8
FR	108.9
DE	127.7
EL	100.3
HU	81.2
IE	98.9
IT	98.6
LV	85.1
LT	70.9
LU	147.6
MT	160
NL	127.8
PL	88.1
PT	123.5
RO	44.3
SK	95.4
SI	93.6
ES	101.4
SE	125.3
UK	96.8

Comments:

Provided by an expert from national sources.

Provided by an expert from HFCS data for 2013

Table A1.15. House price per square meter (Euros)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	1305.3	1328.8	1344.7	1355.5	1362.3	1389.5	1400.1	1409.1	1412.6	1386.1	1455.1	1515.2	1585.9	1601.8	1665.3	1768.0	1878.5	2015.9	2120.2	2194.6	2302.1	2498.5	2630.4
BE	834.5	822.7	828.7	890.7	954.0	1005.8	1054.2	1121.3	1199.5	1303.6	1468.8	1612.0	1737.6	1814.2	1805.7	1862.4	1937.2	1980.6	2003.9	1992.7	2026.1	2079.6	2156.0
BG			90.9	104.5	105.4	104.6	105.4	95.6	106.6	157.1	214.5	246.1	317.3	396.5	315.6	283.5	267.9	262.8	257.0	260.7	267.9	286.7	311.6
HR						736.9	773.9	802.9	810.5	897.6	1038.5	1226.3	1377.7	1412.8	1352.3	1252.5	1229.0	1206.5	1148.4	1125.7	1095.9	1117.2	1178.6
CY							1338.9	1376.4	1362.2	1519.9	1633.4	1812.2	2000.6	2113.5	1974.8	1861.7	1831.9	1776.0	1703.3	1673.2	1649.0	1653.5	1690.6
CZ						247.2	296.8	338.4	363.2	388.0	413.9	470.2	579.2	647.6	632.0	655.9	638.1	644.7	591.2	598.9	639.0	685.0	809.4
DK	765.1	829.6	915.3	1008.1	1076.9	1143.9	1215.2	1260.3	1297.4	1414.8	1658.8	2059.2	2113.8	2006.6	1768.4	1815.1	1788.9	1734.2	1802.3	1873.8	1999.6	2101.1	2190.8
EE							354.2	366.9	372.0	383.2	508.5	760.2	918.1	829.8	521.1	550.6	597.4	640.9	709.1	806.4	861.7	902.7	952.3
FI	617.6	640.3	730.8	811.1	883.6	934.2	919.4	977.7	1039.0	1122.6	1214.1	1298.7	1375.3	1386.2	1406.1	1494.8	1542.4	1579.7	1597.9	1592.3	1592.3	1602.0	1625.2
FR	1033.8	1023.5	1011.0	1040.7	1111.3	1209.5	1303.7	1417.7	1586.2	1826.7	2106.7	2362.0	2498.3	2518.7	2362.8	2476.3	2620.0	2605.9	2555.6	2515.7	2478.5	2503.5	2585.6
DE	1680.9	1605.1	1552.9	1555.0	1556.6	1563.8	1565.3	1543.6	1549.7	1526.3	1544.3	1538.8	1505.4	1525.8	1538.8	1555.4	1609.2	1664.8	1716.7	1770.5	1853.9	1965.2	2043.0
EL	762.9	823.1	867.6	939.0	1020.7	1093.9	1251.4	1424.7	1501.6	1536.4	1703.8	1929.3	2044.1	2078.5	2001.2	1908.1	1803.8	1593.5	1420.6	1314.5	1248.9	1218.4	1206.2
HU							489.8	515.3	539.5	576.2	596.3	620.2	669.2	651.8	609.1	578.4	493.6	511.5	490.5	481.1	543.3	628.2	680.7
IE	931.2	1113.0	1232.6	1499.8	1822.3	2198.5	2530.0	2642.5	3021.2	3358.6	3683.4	4231.0	4546.9	4231.3	3420.9	2959.2	2453.7	2123.6	2150.2	2505.7	2792.8	3001.1	3328.4
IT	1055.9	1193.3	1215.9	1219.0	1231.8	1280.0	1354.5	1515.8	1609.0	1708.2	1838.5	1944.0	2041.0	2094.9	2084.6	2067.9	2083.9	2025.2	1909.6	1826.1	1778.1	1763.8	1756.7
LV						213.8	222.1	295.3	330.3	327.0	406.3	629.6	859.0	853.9	534.6	475.9	533.0	550.2	583.6	618.6	597.8	648.6	705.9
LT					211.4	206.0	245.1	264.1	289.8	313.2	393.6	505.2	638.2	695.5	487.3	451.3	481.2	480.0	485.9	517.1	536.0	565.0	615.3
LU	1178.9	1213.1	1236.2	1293.9	1377.1	1477.0	1685.3	1827.5	2032.5	2316.6	2580.9	2868.3	3068.7	3171.4	3134.7	3304.6	3426.2	3570.1	3747.9	3912.4	4123.5	4371.3	4617.5
MT						374.3	418.5	450.1	507.6	589.6	642.3	770.0	931.7	1034.9	990.1	1000.8	987.2	1017.3	1013.1	1039.0	1099.3	1159.2	1215.7
NL	928.3	992.5	1089.1	1221.3	1420.4	1679.0	1839.4	1956.2	2004.3	2084.4	2183.7	2277.0	2387.2	2439.6	2330.9	2290.6	2245.4	2094.5	1968.9	1984.9	2055.6	2164.0	2338.5
PL							653.4	665.8	670.5	694.6	709.9	719.1	737.8	768.8	756.2	751.6	670.7	708.3	664.2	652.0	663.4	653.3	716.4
PT	780.2	795.1	798.8	841.3	916.9	987.9	1041.7	1047.6	1059.2	1066.3	1090.8	1113.0	1128.3	1171.0	1160.2	1169.1	1111.7	1033.1	1013.7	1056.7	1089.0	1166.5	1274.3
RO							439.7	538.7	621.1	695.0	758.3	808.3	847.9	914.9	662.1	608.5	526.0	485.7	481.6	470.5	479.5	506.4	523.3
SK							277.5	287.2	311.4	334.7	344.1	441.8	584.2	767.9	670.0	643.2	633.5	616.4	622.0	630.7	664.6	709.1	750.9
SI							654.8	703.9	743.3	804.7	921.7	1076.1	1330.3	1423.5	1288.6	1290.3	1325.3	1233.9	1169.2	1092.0	1100.8	1136.6	1228.1
ES	697.3	690.3	687.8	724.1	799.2	867.8	952.6	1099.2	1288.1	1508.0	1712.3	1941.9	2132.4	2101.8	1963.0	1928.3	1781.0	1517.7	1379.3	1383.6	1433.1	1499.4	1592.2
SE	607.6	617.5	650.5	655.6	794.5	856.8	878.1	949.3	1019.6	1122.6	1182.9	1381.3	1488.4	1306.8	1426.8	1762.1	1817.0	1909.1	1950.8	2012.7	2327.2	2432.0	2511.0
UK	641.1	763.7	918.7	967.8	1217.7	1394.0	1545.9	1679.3	1794.4	2006.4	2306.0	2537.9	2554.2	1877.9	1835.1	2001.8	2032.8	2089.0	2097.4	2425.1	2726.9	2500.8	2526.0

Comments:

Updated using CPI.

Table A1.16. House price (Euros)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	169947	173006	175083	176483	177366	180913	182293	183465	183921	180470	189454	197279	206484	208554	216822	230194	244581	262470	276050	285737	299733	325305	342478
BE	121420	119703	120576	129597	138807	146344	153386	163149	174527	189674	213710	234546	252821	263966	262729	270979	281863	288177	291567	289938	294798	302582	313698
BG			6936	7973	8042	7981	8042	7294	8134	11987	16366	18777	24210	30253	24080	21631	20441	20052	19609	19891	20441	21875	23775
HR						64552	67794	70334	71000	78630	90973	107424	120687	123761	118461	109719	107660	105689	100600	98611	96001	97867	103245
CY							237791	244449	241927	269934	290092	321847	355307	375358	350724	330638	325345	315418	302506	297160	292862	293662	300251
CZ						22965	27573	31437	33741	36045	38451	43682	53808	60162	58713	60933	59279	59893	54922	55638	59363	63637	75193
DK	113158	122698	135373	149098	159274	169183	179728	186398	191885	209249	245337	304556	312631	296776	261546	268453	264578	256488	266560	277135	295741	310753	324019
EE							29536	30600	31028	31959	42409	63401	76570	69205	43460	45920	49823	53451	59139	67254	71866	75285	79422
FI	67812	70305	80242	89059	97019	102575	100950	107351	114082	123261	133308	142597	151008	152205	154390	164129	169356	173451	175449	174835	174835	175900	178447
FR	112581	111459	110098	113332	121021	131715	141973	154388	172737	198928	229420	257222	272065	274286	257309	269669	285318	283783	278305	273960	269909	272631	281572
DE	214651	204971	198305	198574	198778	199697	199889	197118	197897	194909	197207	196505	192240	194845	196505	198625	205495	212595	219223	226093	236743	250956	260891
EL	76517	82562	87020	94182	102376	109718	125515	142897	150610	154101	170891	193509	205023	208474	200720	191382	180921	159828	142486	131844	125265	122206	120982
HU							39773	41841	43807	46786	48424	50361	54339	52926	49459	46966	40080	41534	39829	39065	44116	51010	55273
IE	92096	110076	121904	148330	180225	217432	250217	261343	298797	332166	364288	418446	449688	418476	338327	292665	242671	210024	212655	247814	276208	296809	329179
IT	104112	117659	119888	120193	121455	126208	133554	149458	158647	168429	181276	191678	201243	206557	205542	203895	205473	199685	188287	180053	175321	173911	173211
LV						18194	18901	25130	28109	27828	34576	53579	73101	72667	45494	40499	45358	46822	49664	52643	50873	55196	60072
LT				14988	14605	17378	18725	20547	22206	27906	35819	45248	49311	34550	31997	34117	34032	34450	36662	38002	40059	43625	
LU	174006	179054	182463	190980	203260	218005	248750	269739	299997	341930	380941	423361	452940	468099	462682	487759	505707	526947	553190	577470	608629	645204	681543
MT						59888	66960	72016	81216	94336	102768	123200	149072	165584	158416	160128	157952	162768	162096	166240	175888	185472	194512
NL	118637	126842	139187	156082	181527	214576	235075	250002	256150	266386	279077	291001	305084	311781	297889	292739	286962	267677	251625	253670	262706	276559	298860
PL							57564	58658	59068	61195	62541	63354	65001	67731	66621	66216	59089	62401	58516	57441	58446	57556	63115
PT	96355	98195	98652	103901	113237	122006	128650	129379	130811	131688	134714	137456	139345	144619	143285	144384	137295	127588	125192	130502	134492	144063	157376
RO							19481	23864	27515	30789	33591	35808	37563	40530	29331	26957	23302	21517	21335	20843	21242	22434	23182
SK							26477	27403	29705	31933	32827	42148	55733	73258	63918	61361	60436	58805	59339	60169	63403	67648	71636
SI							61287	65883	69573	75320	86271	100723	124516	133240	120613	120772	124048	115493	109437	102211	103035	106386	114950
ES	70706	69996	69743	73424	81039	87995	96594	111459	130613	152911	173627	196909	216225	213123	199048	195530	180593	153895	139861	140297	145316	152039	161449
SE	76132	77373	81508	82147	99551	107357	110026	118947	127756	140662	148217	173077	186497	163742	178778	220791	227670	239210	244435	252191	291598	304730	314628
UK	62058	73926	88930	93683	117873	134939	149643	162556	173698	194220	223221	245669	247247	181781	177638	193774	196775	202215	203028	234750	263964	242077	244517

Comments:

Updated using CPI.

Table A1.17. Capital gains tax on selling property (minimum)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CY	0	0	0	0	0	0	0.13	0.13	0.13	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14
CZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HU	0.1	0.1	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0.09	0.09	0.09	0.09	0.09	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
UK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Comments:

Effective tax rate was calculated by applying existing tax rules on the house value.

Table A1.18 Tax rate on interest income

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT	0.22	0.22	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.2625	0.2625
BE	0.13	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.21	0.25	0.25	0.25	0.27	0.3
BG	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
HR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	0.12	0.12
CY	0.03	0.03	0.03	0.036	0.04	0.0375	0.03	0.03	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.133	0.15	0.2	0.3	0.3	0.3	0.3
CZ	0.43	0.4	0.4	0.4	0.4	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
DK	0.6175	0.6209	0.627	0.607	0.5871	0.5972	0.5973	0.5974	0.5973	0.5973	0.5974	0.5974	0.5973	0.5973	0.5959	0.5024	0.4824	0.4623	0.4422	0.4272	0.4271	0.427	0.4269
EE	0.1	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.24	0.23	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.2	0.2	0.2
FI	0.25	0.28	0.28	0.28	0.28	0.29	0.29	0.29	0.29	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.3	0.3	0.3	0.3	0.3	0.3
FR	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.18	0.18	0.18	0.19	0.24	0.24	0.24	0.24	0.24	0.24
DE	0.56975	0.56975	0.56975	0.5592	0.5592	0.5381	0.5117	0.5117	0.517	0.4748	0.4431	0.4431	0.4748	0.4748	0.2638	0.2638	0.2638	0.2638	0.2638	0.2638	0.2638	0.2638	0.2638
EL	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.15	0.15	0.15	0.15	0.15
HU	0	0	0	0	0	0	0	0	0	0	0	0.133	0.2	0.2	0.2	0.2	0.16	0.16	0.16	0.16	0.16	0.15	0.15
IE	0.27	0.27	0.27	0.26	0.24	0.22	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.23	0.25	0.27	0.3	0.33	0.41	0.41	0.41	0.39
IT	0.3	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.2	0.2	0.26	0.26	0.26	0.26
LV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15	0.15	0.15	0.15
LU	0.5	0.5	0.5	0.4715	0.4715	0.4715	0.4305	0.3895	0.3895	0.3895	0.3895	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MT	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
NL	0.6	0.6	0.6	0.6	0.6	0.6	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
PL	0	0	0	0	0	0	0	0.2	0.2	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
PT	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.215	0.25	0.28	0.28	0.28	0.28	0.28
RO	0	0	0	0.01	0	0.01	0.01	0.01	0.01	0.01	0.1	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
SK	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
SI	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.15	0.2	0.2	0.2	0.25	0.2	0.25	0.25	0.25	0.25	0.25
ES	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.45	0.21	0.18	0.18	0.18	0.21	0.21	0.27	0.27	0.27	0.24	0.23	0.23
SE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
UK	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45

Comments:

Interest income from cash deposits and non-securitized assets is taxed at the rate of 25%. The tax rate on interest income from all other assets (shares, stocks, etc.) is taxed at 27.5%. The average (26.25%) is used.

When there was a change in the tax rate in the course of the year, the weighted average is used (taking into account the number of months).

Income from investment, interest and royalties is not taxed directly, but instead the effective tax rate is calculated based on the assessment of the imputed returns/weighted notional yield on net assets (the Box 3 of the tax code).

Table A1.19. Harmonised consumer price index (CPI)

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT		0.018	0.012	0.008	0.005	0.02	0.023	0.017	0.013	0.02	0.021	0.017	0.022	0.032	0.004	0.017	0.036	0.026	0.021	0.015	0.008	0.01	0.022
BE		0.018	0.015	0.009	0.011	0.027	0.024	0.015	0.015	0.019	0.025	0.023	0.018	0.045	0	0.023	0.034	0.026	0.012	0.005	0.006	0.018	0.022
BG				0.187	0.026	0.103	0.074	0.058	0.023	0.061	0.06	0.074	0.076	0.12	0.025	0.03	0.034	0.024	0.004	-0.016	-0.011	-0.013	0.012
HR					0.037	0.045	0.043	0.025	0.024	0.021	0.03	0.033	0.027	0.058	0.022	0.011	0.022	0.034	0.023	0.002	-0.003	-0.006	0.013
CY			0.033	0.023	0.011	0.049	0.02	0.028	0.04	0.019	0.02	0.022	0.022	0.044	0.002	0.026	0.035	0.031	0.004	-0.003	-0.015	-0.012	0.007
CZ		0.091	0.08	0.097	0.018	0.039	0.045	0.014	-0.001	0.026	0.016	0.021	0.029	0.063	0.006	0.012	0.022	0.035	0.014	0.004	0.003	0.006	0.024
DK		0.021	0.019	0.013	0.02	0.028	0.023	0.024	0.02	0.009	0.017	0.018	0.017	0.036	0.01	0.022	0.027	0.024	0.005	0.004	0.002	0	0.011
EE		0.198	0.093	0.088	0.031	0.039	0.056	0.036	0.014	0.03	0.041	0.044	0.067	0.106	0.002	0.027	0.051	0.042	0.032	0.005	0.001	0.008	0.037
FI		0.011	0.012	0.013	0.013	0.03	0.027	0.02	0.013	0.001	0.008	0.013	0.016	0.039	0.016	0.017	0.033	0.032	0.022	0.012	-0.002	0.004	0.008
FR		0.021	0.013	0.007	0.006	0.018	0.018	0.019	0.022	0.023	0.019	0.019	0.016	0.032	0.001	0.017	0.023	0.022	0.01	0.006	0.001	0.003	0.012
DE		0.012	0.015	0.006	0.006	0.014	0.019	0.014	0.01	0.018	0.019	0.018	0.023	0.028	0.002	0.011	0.025	0.021	0.016	0.008	0.001	0.004	0.017
EL		0.079	0.054	0.045	0.021	0.029	0.036	0.039	0.034	0.03	0.035	0.033	0.03	0.042	0.013	0.047	0.031	0.01	-0.009	-0.014	-0.011	0	0.011
HU		0.235	0.185	0.142	0.1	0.1	0.091	0.052	0.047	0.068	0.035	0.04	0.079	0.06	0.04	0.047	0.039	0.057	0.017	0	0.001	0.004	0.024
IE		0.022	0.013	0.021	0.024	0.053	0.04	0.047	0.04	0.023	0.022	0.027	0.029	0.031	-0.017	-0.016	0.012	0.019	0.005	0.003	0	-0.002	0.003
IT		0.04	0.019	0.019	0.016	0.026	0.023	0.026	0.028	0.023	0.022	0.022	0.02	0.035	0.008	0.016	0.029	0.033	0.012	0.002	0.001	-0.001	0.013
LV			0.081	0.043	0.021	0.026	0.025	0.02	0.029	0.062	0.069	0.066	0.101	0.153	0.033	-0.012	0.042	0.023	0	0.007	0.002	0.001	0.029
LT		0.247	0.103	0.054	0.014	0.011	0.015	0.003	-0.011	0.012	0.027	0.038	0.058	0.111	0.042	0.012	0.041	0.032	0.012	0.002	-0.007	0.007	0.037
LU		0.012	0.014	0.01	0.01	0.038	0.024	0.021	0.025	0.032	0.038	0.03	0.027	0.041	0	0.028	0.037	0.029	0.017	0.007	0.001	0	0.021
MT			0.039	0.037	0.023	0.03	0.025	0.026	0.019	0.027	0.025	0.026	0.007	0.047	0.018	0.02	0.025	0.032	0.01	0.008	0.012	0.009	0.013
NL			0.019	0.018	0.02	0.023	0.051	0.039	0.022	0.014	0.015	0.016	0.016	0.022	0.01	0.009	0.025	0.028	0.026	0.003	0.002	0.001	0.013
PL			0.15	0.118	0.072	0.101	0.053	0.019	0.007	0.036	0.022	0.013	0.026	0.042	0.04	0.026	0.039	0.037	0.008	0.001	-0.007	-0.002	0.016
PT		0.029	0.019	0.022	0.022	0.028	0.044	0.037	0.032	0.025	0.021	0.03	0.024	0.027	-0.009	0.014	0.036	0.028	0.004	-0.002	0.005	0.006	0.016
RO		0.388	1.549	0.591	0.458	0.457	0.345	0.225	0.153	0.119	0.091	0.066	0.049	0.079	0.056	0.061	0.058	0.034	0.032	0.014	-0.004	-0.011	0.011
SK		0.058	0.06	0.067	0.104	0.122	0.072	0.035	0.084	0.075	0.028	0.043	0.019	0.039	0.009	0.007	0.041	0.037	0.015	-0.001	-0.003	-0.005	0.014
SI		0.099	0.083	0.079	0.061	0.09	0.086	0.075	0.056	0.037	0.024	0.025	0.038	0.055	0.008	0.021	0.021	0.028	0.019	0.004	-0.008	-0.002	0.016
ES		0.036	0.019	0.018	0.022	0.035	0.028	0.036	0.031	0.031	0.034	0.036	0.028	0.041	-0.002	0.02	0.03	0.024	0.015	-0.002	-0.006	-0.003	0.02
SE		0.01	0.018	0.01	0.006	0.013	0.027	0.019	0.023	0.01	0.008	0.015	0.017	0.033	0.019	0.019	0.014	0.009	0.004	0.002	0.007	0.011	0.019
UK		0.025	0.018	0.016	0.013	0.008	0.012	0.013	0.014	0.013	0.021	0.023	0.023	0.036	0.022	0.033	0.045	0.028	0.026	0.015	0	0.007	0.027

Note:

d: definition differs, see metadata on EUROSTAT website

Table A1.20. Maintenance costs (m), beta (b) and economic depreciation (depr)

Country/Parameter	m	B	depr
AT	0.015	0.02	0.01
BE	0.015	0.02	0.01
BG	0.015	0.02	0.01
HR	0.015	0.02	0.01
CY	0.015	0.02	0.01
CZ	0.015	0.02	0.01
DK	0.015	0.02	0.01
EE	0.015	0.02	0.01
FI	0.015	0.02	0.01
FR	0.015	0.02	0.01
DE	0.015	0.02	0.01
EL	0.015	0.02	0.01
HU	0.015	0.02	0.01
IE	0.015	0.02	0.01
IT	0.015	0.02	0.01
LV	0.015	0.02	0.01
LT	0.015	0.02	0.01
LU	0.015	0.02	0.01
MT	0.015	0.02	0.01
NL	0.015	0.02	0.01
PL	0.015	0.02	0.01
PT	0.015	0.02	0.01
RO	0.015	0.02	0.01
SK	0.015	0.02	0.01
SI	0.015	0.02	0.01
ES	0.015	0.02	0.01
SE	0.015	0.02	0.01
UK	0.015	0.02	0.01

Comments:
For all years.

Table A1.21. UCOH indicator

Country/Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
AT		8.64	8.53	7.99	8.27	7.58	6.79	7.30	6.90	6.17	5.33	6.15	6.12	5.20	7.68	5.63	3.75	3.84	4.00	4.10	4.09	3.48	2.44
BE											5.70	6.25	7.25	4.34	8.86	5.99	5.45	5.09	6.07	6.06	5.31	3.62	3.33
BG							4.74	5.00	8.58	3.61	2.21	1.09	1.25	-2.39	9.09	7.30	6.27	6.43	7.42	9.31	7.96	7.94	4.77
HR							8.41	8.86	6.00	6.33	4.65	4.46	5.52	2.84	7.86	8.42	9.28	7.59	7.22	8.77	8.40	8.66	5.87
CY							8.41	6.84	5.70	9.02	8.28	7.14	7.70	5.70	9.33	7.17	7.46	9.00	10.69	10.47	10.12	9.07	6.09
CZ							3.90	6.13	7.17	4.74	4.88	4.55	4.07	1.95	8.02	6.60	5.42	3.28	4.92	5.48	4.70	4.26	2.87
DK		5.67	5.40	5.42	4.79	4.55	4.89	4.81	4.72	5.83	4.46	4.56	4.95	3.02	5.35	3.95	3.35	2.84	5.04	4.89	4.67	4.59	3.60
EE							4.17	5.16	6.64	5.05	3.26	3.13	1.19	-2.17	9.57	5.76	3.20	3.92	4.17	6.15	5.62	4.64	1.90
FI		8.57	7.52	6.53	6.49	5.21	5.20	5.89	6.00	7.22	5.99	5.79	5.86	3.46	5.46	4.87	3.20	2.47	3.50	4.26	5.17	4.26	4.01
FR		10.17	10.28	9.97	10.05	9.33	8.84	8.66	7.59	7.44	7.16	7.53	7.52	5.73	8.58	6.57	6.10	5.84	6.79	6.67	6.38	5.84	5.24
DE		7.59	6.90	6.95	6.89	6.80	5.98	6.48	6.26	5.54	4.93	5.39	5.18	4.44	7.11	5.72	4.16	3.53	4.13	4.57	4.69	3.98	2.83
EL		5.85	5.53	5.51	6.65	5.64	4.44	3.99	3.94	5.15	4.20	4.87	5.58	4.55	7.20	7.75	16.75	25.59	16.11	13.25	15.76	13.40	9.91
HU							2.55	4.85	5.18	3.96	6.33	5.58	2.79	6.43	9.54	6.49	7.85	6.23	8.44	9.11	7.70	7.12	4.86
IE		6.01	7.60	5.86	5.70	3.53	4.56	3.88	3.91	5.73	5.18	5.13	5.05	4.83	9.88	10.44	10.26	6.80	7.26	5.95	5.07	4.80	4.38
IT		7.89	8.08	6.56	6.77	6.39	6.39	5.96	5.15	5.72	5.33	5.75	6.20	4.50	7.09	6.01	5.71	6.19	6.87	7.30	6.39	5.78	4.80
LV							9.76	8.07	6.63	3.22	1.51	2.07	-0.33	-4.46	13.83	16.05	6.13	6.72	7.83	6.29	5.23	4.92	2.36
LT							11.15	10.26	9.34	6.46	4.40	3.70	2.16	-2.18	14.33	8.90	5.59	6.16	7.16	6.76	6.31	4.44	0.89
LU		6.94	6.42	6.56	6.56	4.19	5.53	5.96	4.41	3.27	2.27	4.78	6.22	4.87	8.89	4.88	3.68	3.45	4.76	5.32	4.98	4.96	2.75
MT							7.61	7.16	7.11	5.98	6.05	5.73	8.01	4.09	6.74	6.20	5.99	4.94	6.41	5.89	4.42	4.15	4.12
NL			5.07	4.78	4.55	4.56	2.06	3.30	4.82	5.69	5.19	5.01	5.20	4.67	5.74	5.57	3.90	3.22	3.54	5.91	5.65	5.59	4.50
PL							10.98	7.84	7.99	5.74	6.33	7.04	7.88	6.91	7.22	8.23	7.14	6.55	8.53	8.78	8.74	8.56	7.04
PT		7.31	6.85	5.56	6.65	6.75	4.67	5.31	4.88	5.50	5.34	4.80	5.84	5.63	8.73	6.85	6.87	11.95	10.16	8.29	6.29	6.94	5.80
RO							-22.18	-11.54	-5.30	-1.87	2.01	4.60	6.62	4.41	8.43	5.65	5.82	7.70	6.67	7.79	8.53	9.06	7.22
SK							5.12	7.86	0.80	1.65	4.85	4.20	6.67	4.89	7.88	7.28	4.44	4.95	5.85	6.45	5.47	5.32	3.80
SI							3.87	5.92	5.51	5.70	4.67	4.61	5.00	3.20	7.78	5.92	6.88	7.16	7.93	6.99	6.70	5.56	3.55
ES		8.06	7.76	5.91	5.40	4.66	5.07	4.08	3.92	3.90	3.14	4.04	5.45	4.15	8.39	6.22	6.23	7.03	7.43	7.45	6.99	6.35	4.07
SE		10.28	8.33	7.75	8.07	7.69	6.21	7.05	6.23	7.10	6.52	6.04	6.17	4.54	5.24	4.98	5.18	4.89	5.66	5.49	4.38	3.90	3.35
UK		9.73	9.81	9.05	8.84	10.18	9.50	9.29	8.92	9.35	7.97	7.67	8.08	6.21	6.59	5.39	3.69	4.33	4.74	5.97	7.21	6.02	4.01

Appendix 2: The calculation of the UCOH indicator: hypotheses and data sources

The descriptions below provide a general overview of each of the variable used to calculate the user cost of owner-occupied housing (UCOH). Country-specific information is included in the Appendix 3.

The tax parameters for the UCOH indicator were collected from the experts' survey (national experts provided time-series) and crosschecked against the IBFD database for the latest year (<https://www.ibfd.org/>).

Tax parameters

The **mortgage interest tax relief (MITR) rules** and **personal income tax (PIT) rates** were provided by national experts. Where several PIT rates were applicable, the top rate was used. For the countries having mortgage interest deduction ceilings, values expressed in national currency are converted into euros using AMECO currency exchange rates (as the house value is also expressed in euros). In some cases personal income tax dues have to be calculated. For this, a salary of a single person earning 167% of gross average wage¹³ is used.

Together with the tax rules information, the calculation of the mortgage interest tax relief includes number of assumptions, which are explained in detail below:

$$\text{Loan} = \text{House price} * \text{LTV ratio}$$

Constant payment amount per period (A) (A= principal + interest):

$$A = P \frac{r(1+r)^n}{(1+r)^n - 1}$$

where A is the constant payment amount per period (capital and interest), P is the loan, r is the interest rate, and n is the total number of payments per period (i.e. n=12*loan duration = x payments)

$$\text{Monthly interest payment} = [A * 12 * \text{loan duration} - \text{Loan}] / (12 * \text{loan duration})$$

$$\text{Annual interest payment} = \text{Monthly interest payment} * 12$$

Mortgage finance variables such as **loan to value (LTV) ratio** and **loan maturity** are taken from various sources, as there is no comprehensive database covering all the countries and years of interest. Information collected from the European Systemic Risk Board (ESRB) reports is complemented with other sources.¹⁴ The focus is on maximum LTV limits and loan duration (whenever this information is available) as the assumption is that an individual interested in purchasing a dwelling would aim to benefit from the biggest loan and longest loan duration possible.

Interest rates for long-term government bonds were collected from Eurostat (EMU convergence criterion bond yields). Ideally, the information on the interest rates on long-term mortgages should have been used. However, due to data limitations (primary due to limited geographical coverage)

¹³ The assumption is that higher income individuals are more likely to take a loan or mortgage, so the calculated MID would also be higher for that level of wages.

¹⁴ e.g., for historical information for some countries: Lunde J. and Whitehead C. (Eds.), 2016

this indicator is substituted by the 10 year government bond yields rates. Time series for Group I countries start in 1995 and for Group II countries - in 2001. For the missing data points the average for remaining Group II countries is used. The average rates for the Group II countries are constantly slightly higher than for Group I countries.

Transfer tax rates were provided by national experts. The most favourable transfer tax rate for a homeowner of a main residence is used. When a progressive tax schedule is applied, the effective tax rate based on the house value is calculated. It has to be noted that some countries have a transfer tax, while others - a stamp duty, or both - a transfer tax and a stamp duty. In most, if not all, cases countries have some form of a registration tax which can be either substantial or very minor. In the housing database only one tax rate – of a transfer tax or a stamp duty if a transfer tax does not exist - is recorded. It is clearly a limitation, as in some cases a stamp duty or registration tax can be as substantial as a transfer tax (i.e., in Bulgaria) or even more important than a transfer tax (i.e., in Malta)¹⁵.

The rules of **imputed rent taxation** were provided by national experts.

Recurrent property tax is one of the tax policy related parameters which, because of heterogeneity and complexity of the tax rules and numerous exceptions, is not taken from the tax code, but is a proxy calculated using the external aggregated data.

t_p is the implicit recurrent property tax rate

$$t_p = \frac{\text{revenues from property taxes}_{\text{households}}}{\text{net stock of dwellings}_{\text{households}}}$$

As denominator we use information on the **net stock of dwellings in the household sector** from the Eurostat database with the exception of BG where information was provided by the expert, and SE and IE, where this information is taken from the first and second waves of the Household Finance and Consumption Survey (HFCS)¹⁶. Ideally the numerator and denominator should cover only households¹⁷. In the nominator we use **revenues from recurrent taxes on immovable property collected from households**. This information is available in the OECD database, but not for all EU countries. For Denmark, Ireland and Portugal national sources were used. For the remaining seven

¹⁵ For completeness, all substantial taxes paid at point of the acquisition of a property should be included under the “transfer tax” label. Currently, the database is lacking historical information on a stamp duty if it co-exists with a transfer tax.

¹⁶ Net dwelling stock (from households) estimates coming from the HFCS were validated using Eurostat’s data for the countries available in both databases. For both waves the HFCS estimates were constantly higher than the ones from the EUROSTAT, therefore the correcting coefficient of 0.66 was applied (which is the average difference between two dataset, excluding countries with very low ratios: LU, MT and CY) to bring HFCS net dwelling values for IE and ES closer to the Eurostat’s estimates. As HFCS had only two waves, the net dwelling stock had to be updated for other years using the house price yearly change information calculated using the house price index.

¹⁷ However the revenues from the recurrent property taxes reported in the Eurostat database covers not only households. Given that the share of taxes collected from the households and the other entities vary across countries, this leads to over-estimation of the property tax rate for all countries, the more so for the countries, where the actual share of taxes collected from the households is very small. Therefore we had to disregard this option even though it covers all countries of interest.

countries the information on the taxes collected for the whole economy from Eurostat was adjusted using the share of taxes paid by the households over total taxes¹⁸.

Capital gains tax rates on selling the main residential property were provided by national experts. The minimum capital gains tax rate is used as it is assumed that the owner occupied property is sold after the required legal period of time and/or money is later reinvested in a new property. When allowance is applied, the effective tax rate based on the house value is calculated.

Interest income tax rates were provided by national experts. When interest income is subject to a progressive schedule, the top rate is used. When possible, the information received from the experts was validated with data from the ZEW institute (<https://www.zew.de/>)¹⁹.

Non-tax parameters

Nominal **house prices** are very different across Member States. Until very recently, there were no comprehensive time series on the house price levels for European countries. In 2019 the “Houselev” dataset was published (see Bricongne J. C, A. Turrini and P. Pontuch, 2019) providing time-series for house price estimates per square meter expressed in euro, which is used in our calculations.

In order to calculate the house price per typical size dwelling, the information on the **average dwelling size** which is bought with a loan or mortgage is used from the Eurostat database. As the information is available only for 2012, we assume that the dwelling size remains the same throughout years. The exception is Malta, for which data comes from the second wave of the Household Financial and Consumption Survey (HFCS). The house price is mainly used for the calculation of the mortgage interest tax relief. In some cases it is also used to derive the effective tax rates (e.g., for transfer tax, when a progressive schedule is used or when there is a constant component and a rate; for imputed rent tax).

Harmonised consumer price index (CPI) is a country specific indicator which is taken from the Eurostat database. Time series on the yearly change is available from 1996 for most EU Member States, except the NL where CPI starts from 1997. CPI is sometimes used to update other indicators to bring it to the year of interest (e.g., 2017 tax revenues from recurrent property tax for Poland; house prices for 1995-2006 for some countries).

Other parameters: in line with previous work by Poterba and Sinai (2008) we assume that **maintenance cost (m)** is 0.015, **pre-tax risk premium (β)** is 0.02 and **economic depreciation rate (δ)** is 0.01 for all years for all countries.

¹⁸ The assumption on these shares was drawn from the OECD for the countries having information both on the property taxes collected from whole economy and only from households. The share of recurrent property taxes collected from the households among the total taxes on property is 0.5 (1995-2004) and 0.6 (2005-2017) for the Group I countries and 0.3 (2001-2011) and 0.35 (2012-2017) for Group II countries. For Denmark and Portugal country specific coefficients (0.5 and 0.6 respectively) used only to update to 2017. These shares remained rather stable across the years. Therefore these ratios were used to get a proxy of the recurrent property taxes paid by households for the countries where this information was missing from the OECD database.

¹⁹ See Spengel et al. (2014).

Appendix 3: Country-specific information and assumptions

List of tables:

Table A3.1. Mortgage interest tax relief (MITR)

Table A3.2. Loan-to-value (LTV) ratio

Table A3.3. Maximum or typical loan duration/maturity (in years)

Table A3.4. Interest rates for long-term government bonds

Table A3.5. Transfer tax rates

Table A3.6. Taxation of imputed rent

Table A3.7. Existence of the recurrent property tax

Table A3.8. Revenues from the recurrent property tax collected from households (for the calculation of the implicit recurrent property tax)

Table A3.9. Net dwelling stock (for the calculation of the implicit recurrent property tax)

Table A3.10. Capital gains tax rates

Table A3.11. Interest income tax rates

Table A3.12. Nominal house price

Table A3.13. Data sources

Table A3.1. Mortgage interest tax relief (MITR)

Country	Country-specific comments
For all countries	'N' – does not exist, 'Y' – mortgage interest can be deducted'. When there are several tax rates applicable, the top rate is used. As house value is expressed in EUR, the MITR ceilings (if applicable) are also converted into EUR using AMECO currency exchange rates ²⁰ . If the tax liability has to be calculated, a salary of a single person earning 167% of gross average wage ²¹ is used
BE	'Y' all years. Since 2005 for the ceiling of the MITR, the maximum amount is used (a standard deduction plus an increase applied during the first 10 years of the mortgage). Until 2005 the rules of the MITR were quite complex as there were 4 possibilities of tax relief an owner could cumulatively apply for: (a) the normal interest deduction, (b) the housing deduction: ordinary and additional, (c) the additional interest deduction, and (d) the tax credit for capital redemption payments. The mortgage deduction was restricted to the eligible loan amount and depended on a family composition. Given the complexity of the rules in place, it has not been possible to calculate a ceiling for that period. Due to this restriction, the user cost of housing investment indicator for BE covers only 13 years period from 2005 to 2017.
BG	'N' all years. Even though the MITR is in place since 2009, it affects only a very minor share of households with house mortgage because of the requirements: one has to be under 35 years old and in civil marriage, the mortgage housing has to be the only house of the family during the tax year. According to the expert, some 5500 families used the MITR in 2015, therefore it was decided not to include it in the calculations.
CZ	'Y' since 1998. The ceiling for all the years when the MITR was in place is 300.000 CZK, with the exception for 2006 (from 1.1.2006 until 7.3.2006 it was 150,000 CZK). As it was valid for only two months, the previous ceiling is applied.
DK	'Y' all years. The rate for the negative capital income is used: the highest marginal tax rate until 1999 and after the lowest tax-bracket rate (as per expert's explanations).
DE	'N' all years.
EE	'Y' since 1996. Since 2002 the MITR is limited to a ceiling, but not more than 50% of taxable income. The latter is calculated based on the 167% of gross average wage for single person ²² assumption and later compared to the statutory limit. The latter is used as the calculated ceiling is lower than the statutory limit provided for all years except 2017. Only since 2017 the ceiling is provided only for the MITR (and not for other expenses) and is lower than 50% of assumed taxable income.
IE	'Y' until 2010. The MITR ceiling for a single person, non-first time buyer is used. Top PIT rate is used for 1995-1996.
EL	'Y' until 2012. A deduction until 2002 (top PIT rate is used) and a credit since 2003. Since 1999 interest repayments were exempted in full for housing units of up to 120 square meters and for housing units above the limit, the exemption/credit was calculated on a pro

²⁰ European Commission, Economic and Financial Affairs, AMECO : 13 Monetary variables: 13.1 Exchange rates and purchasing power parities: ECU-EUR exchange rates (annual averages): Units of national currency per EUR/ECU; Conversion rates between euro and former euro-zone national currencies.
http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm

²¹ Eurostat: Annual net earnings [earn_nt_net].

²² From EUROSTAT [earn_nt_net]:Gross earnings, single person without children 167% of AW (in national currency/EUR)

Country	Country-specific comments
	rata basis. Since 2004 tax relief is provided for mortgages up to €200,000 (€350,000 in 2009). The assumption is that a property fully satisfies eligibility conditions.
ES	'Y' in 1998-2012.
FR	'Y' in 1995 and 2007-2011.
HR	'Y' in 2003-mid 2010. MITR was in place until July 1, 2010. Therefore half of the nominal amount for the MITR ceiling is used for 2010.
IT	'Y' all years.
CY	'Y' until 2003. Top PIT rate is used.
LV	'N' all years.
LT	'Y' in 2003-2008. The MITR was limited to 25% of the taxable income. The tax liability is calculated based on the 167% of gross average wage for a single person ²³ assumption and applying existing PIT rules.
LU	'Y' all years. Top PIT rate used. The ceiling is different depending on the years: we use the highest ceiling used to deduct interest for the first 1-5 years (based on the assumption that the reduction is applied immediately, for the year of purchase).
HU	'Y' until 2006.
MT	'N' all years.
NL	'Y' all years. Top PIT rate used.
AT	'N' all years.
PL	'Y' in 2002-2006. The MITR ceiling is calculated based on the assumption that the maximum deductible amount provided is the same as the loan taken and then using the interest rates applicable for households taking loans for a house purchase (5y+; yearly averages ²⁴). Information on interest rates was missing for 2002 and 2003 therefore the same rate as for 2004 is used. Top PIT rate is used.
PT	'Y' until 2006. Top PIT rate is used.
RO	'N' all years.
SI	'Y' in 2005-2006. The MITR ceiling is 2 % of annual tax liability. The tax liability is calculated based on the 167% of gross average wage for a single person ²⁵ assumption and applying existing PIT rules.
SK	'N' all years.
FI	'Y' all years. Since 2012 only a share of mortgage interest can be deducted. Therefore an effective tax rate is calculated using 0.3 maximum tax rate and taking into account the share of the loan for which deduction can be applied: - 2012: 0.85 - 2013: 0.8

²³ Ibid

²⁴ The National Bank of Poland: http://www.nbp.pl/en/statystyka/oproc/mir_new/stopy_proc_en_srdW.xlsx and http://www.nbp.pl/en/statystyka/oproc/mir_new/sw_oprocentowanie_n_2004_en.xls

²⁵ EUROSTAT [earn_nt_net]:Gross earnings, single person without children 167% of AW (in national currency/EUR)

Country	Country-specific comments
	- 2014: 0.75 - 2015: 0.65 - 2016: 0.55 - 2017: 0.45
SE	'Y' all years.
UK	'Y' until 1999.

Table A3.2. Loan-to-value (LTV) ratio

Country	Country-specific comments
For all countries	Information comes from the ESRB reports ²⁶ (mainly for 2004, 2008 and 2015 for most countries; except CY, IE, LV, LT, MT, NL, PL, RO, SE where more data points are available), ECB ²⁷ , OECD ²⁸ , IMF ²⁹ or designated ESRB excel spreadsheet ³⁰ (information since 2013 or 2015 in most of the cases). Therefore, either information is complemented by information from Lunde J. and Whitehead C. (Eds.), 2016, "Milestones in European Housing Financing" or, if not available, assuming that up until the new change, LTV ratio is kept the same. The latest available LTV ratio is also used for the most recent years. Country specific information is provided below.
BE	Information on the maximum LTV ratios for the years 1995-1999 and 2013 is taken from Lunde J. and Whitehead C. (2016). Winters S., Van den Broeck K., 2016, Milestones in 25 Years of Housing Finance in Belgium. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p.75-92.
BG	Information is missing. Median (for all countries) is used.
CZ	Information on the maximum LTV ratios for the years 1995-2007 (it was mentioned that later the LTV were lowered) is taken from Lunde J. and Whitehead C. (2016). Sunega P., Lux M., 2016, Milestones in Housing Finance in the Czech Republic since 1990. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 93-108.
DK	Information on the LTV ratios for the years 1995-2003 and 2008-2014 is taken from Lunde J. and Whitehead C. (2016). Lunde J., 2016, Milestones in Danish Housing Finance since 1990. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 109-126.
DE	No country-specific comments.
EE	No country-specific comments.
IE	Information on the maximum LTV ratio for the years 2004-2007 and 2014 is taken from Lunde J. and Whitehead C. (2016). Kenna P., 2016, Milestones in 25 Years of Housing Finance since in Ireland. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 239-254.
EL	No country-specific comments.

²⁶ European Systemic Risk Board (ESRB), 2014, The ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector, March 2014.

European Systemic Risk Board (ESRB), 2015, Report on residential real estate and financial stability in the EU. December 2015, p.28, 33-34, 50.

European Systemic Risk Board (ESRB), 2016, A Review of Macroprudential Policy in the EU in 2015. May 2016, p.11.

European Systemic Risk Board (ESRB), 2016, Vulnerabilities in the EU residential real estate sector. November 2016, p. 33.

²⁷ ECB, 2009, Housing Finance in the Euro Area. March 2009, p. 27.

<https://www.ecb.europa.eu/pub/pdf/other/housingfinanceeuroarea0309en.pdf?2aff929716c20859ea899c00d8f2ccf>

²⁸ OECD, 2005, Housing Finance Markets in Transition Economies: Trends and Challenges.

Andrews Dan, 2010, Real House Prices in OECD Countries: the Role of Demand Shocks and Structural and Policy Factors, OECD: Economics Department Working Paper No. 831, ECO/WKP(2010)87, p. 29.

²⁹ Jácome Luis I. and Mitra Srobona (IMF), 2015, LTV and DTI Limits—Going Granular. WP/15/154. IMF, July 2015 (for Poland and Romania).

³⁰ European Systemic Risk Board (ESRB)- Dierick Frank, 2018, National measures of macroprudential interest in the EU/EEA (excel spreadsheet), 9 February, 2018.

https://www.esrb.europa.eu/national_policy/shared/pdf/overview_macroprudential_measures.xlsx

Country	Country-specific comments
ES	No country-specific comments.
FR	No country-specific comments.
HR	No country-specific comments.
IT	No country-specific comments.
CY	No country-specific comments.
LV	No country-specific comments.
LT	No country-specific comments.
LU	No country-specific comments.
HU	Information on the LTV ratio for the years 1995-1998 is taken from Lunde J. and Whitehead C. (2016). Hegedus J., Somogyi E., 2016, Moving from an Authoritarian State System to an Authoritarian Market System: Housing Financing Milestones in Hungary between 1979 and 2014. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 201-218.
MT	No country-specific comments.
NL	Information on the LTV ratio for the years 1997-2018 is taken from Lunde J. and Whitehead C. (2016). Elsinga M., Priemus H., Boelhouwer P., 2016, Milestones in Housing Finance in the Netherlands, 1998-2013. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 255-272.
AT	Information on the maximum LTV ratios for the years 1998-2003 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Mundt A., Springler E., 2016, Milestones in Housing Finance in Austria over the Last 25 years. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 55-74.
PL	No country-specific comments.
PT	Information on the maximum LTV ratios for the year 2012 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Xerez R., Fronseca J. R. S., 2016, The Housing Finance System in Portugal since the 1980s. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 309-324.
RO	No country-specific comments.
SI	No country-specific comments.
SK	No country-specific comments.
FI	Information on the maximum LTV ratio for the years 1995 and 2009-2015 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Tahtinen T., Laanti T., 2016, Milestones in Housing Finance in Finland. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 147-163.
SE	Information on the maximum LTV ratio for the years 2009-2014 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Englund P., 2016, Milestones in Swedish Housing Finance. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 375-391.
UK	No country-specific comments.

Table A3.3. Maximum or typical loan duration/maturity (in years)

Country	Country-specific comments
For all countries	Information comes from the ESRB reports ³¹ (mostly available only for few years: 2002, 2004, 2007 and 2008), ECB ³² , OECD ³³ , IMF ³⁴ or designated ESRB excel spreadsheet ³⁵ (information since 2013 or 2015 in most of the cases). Therefore, either information is complemented by the qualitative information from the book (Lunde J. and Whitehead C. (Eds.), 2016, "Milestones in European Housing Financing") or, if not available, assuming that up until the new change, loan duration is kept the same. The latest available loan duration is also used for the most recent years. Country specific information is provided below.
BE	Information on the loan duration for the years 1995-2006 and 2013 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Winters S., Van den Broeck K., 2016, Milestones in 25 Years of Housing Finance in Belgium. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p.75-92.
BG	Information is missing. Median (for all countries) is used.
CZ	Information on the loan duration for the years 1995-2008 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Sunega P., Lux M., 2016, Milestones in Housing Finance in the Czech Republic since 1990. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 93-108.
DK	Information on the loan duration for the years 1995-2003 and 2009-2015 is taken from Lunde J. and Whitehead C. (Eds.), 2016. Lunde J., 2016, Milestones in Danish Housing Finance since 1990. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 109-126.
DE	No country-specific comments.
EE	No country-specific comments.
IE	No country-specific comments.
EL	No country-specific comments.
ES	No country-specific comments.
FR	No country-specific comments.
HR	Information is missing. Median (for all countries) is used.
IT	No country-specific comments.

³¹ European Systemic Risk Board (ESRB), 2014, The ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector, March 2014.

European Systemic Risk Board (ESRB), 2015, Report on residential real estate and financial stability in the EU. December 2015, p.28, 33-34, 50.

European Systemic Risk Board (ESRB), 2016, Vulnerabilities in the EU residential real estate sector. November 2016, p. 33.

³² ECB, 2009, Housing Finance in the Euro Area. March 2009, p. 27.

<https://www.ecb.europa.eu/pub/pdf/other/housingfinanceeuroarea0309en.pdf?f2aff929716c20859ea899c00d8f2ccf>

³³ OECD, 2005, Housing Finance Markets in Transition Economies: Trends and Challenges.

Andrews Dan, 2010, Real House Prices in OECD Countries: the Role of Demand Shocks and Structural and Policy Factors, OECD: Economics Department Working Paper No. 831, ECO/WKP(2010)87, p. 29.

³⁴ Jácome Luis I. and Mitra Srobona (IMF), 2015, LTV and DTI Limits—Going Granular. WP/15/154. IMF, July 2015 (for Poland and Romania).

³⁵ European Systemic Risk Board (ESRB), 2018, National measures of macroprudential interest in the EU/EEA (excel spreadsheet), 9 February, 2018.

https://www.esrb.europa.eu/national_policy/shared/pdf/overview_macroprudential_measures.xlsx

Country	Country-specific comments
CY	No country-specific comments.
LV	No country-specific comments.
LT	No country-specific comments.
LU	No country-specific comments.
HU	Information on the loan duration for the years 1995-1998 is taken from Lunde J. and Whitehead C. (2016). Hegedus J., Somogyi E., 2016, Moving from an Authoritarian State System to an Authoritarian Market System: Housing Financing Milestones in Hungary between 1979 and 2014. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 201-218.
MT	No country-specific comments.
NL	No country-specific comments.
AT	Information on the loan duration for the years 1995-2012 is taken from Lunde J. and Whitehead C. (2016). Mundt A., Springler E., 2016, Milestones in Housing Finance in Austria over the Last 25 years. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 55-74.
PL	No country-specific comments.
PT	Information on the loan duration for the years 1999-2003 and 2008 is taken from Lunde J. and Whitehead C. (2016). Xerez R., Fronseca J. R. S., 2016, The Housing Finance System in Portugal since the 1980s. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 309-324.
RO	No country-specific comments.
SI	Information on the loan duration for the years 2000-2006 and 2009-2013 is taken from Lunde J. and Whitehead C. (2016).. Cirman A., Sendi R., 2016, Housing Market in Slovenia: From a National Housing Fund to a Bank-Driven System. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 341-357.
SK	No country-specific comments.
FI	Information on the loan duration for the years 1995, 1999, 2008, 2014 is taken from Lunde J. and Whitehead C. (2016).. Tahtinen T, Laanti T., 2016, Milestones in Housing Finance in Finland. In Milestones in European Housing Financing, eds. Lunde J. and Whitehead C. UK: Wiley Blackwell, p. 147-163.
SE	No country-specific comments.
UK	No country-specific comments.

Table A3.4. Interest rates for long-term government bonds

Country	Period available	Country-specific comments
For all countries		From EUROSTAT: EMU convergence criterion series - annual data [irt_lt_mcby_a]. For the missing data points the average of remaining Group II countries* is used. The average rates for the Group II countries are constantly slightly higher than for the Group I countries.
BE	1995 - 2017	
BG	2003 - 2017	The missing rates for 2001 and 2002 were replaced by the average for Group II countries.
CZ	2001 - 2017	
DK	1995 - 2017	
DE	1995 - 2017	
EE	-	Information is missing for all the years. ECB indicated that there are no Estonian sovereign debt securities that comply with the definition of long-term interest rates for convergence purposes and no suitable proxy indicator has been identified. The average for the Group II countries is used instead.
IE	1995 - 2017	
EL	1995 - 2017	
ES	1995 - 2017	
FR	1995 - 2017	
HR	2005 - 2017	The missing rates for 2001-2004 were replaced by the average for the Group II countries.
IT	1995 - 2017	
CY	2001 - 2017	
LV	2001 - 2017	
LT	2001 - 2017	
LU	1995 - 2017	
HU	2001 - 2017	
MT	2001 - 2017	
NL	1995 - 2017	
AT	1995 - 2017	
PL	2001 - 2017	
PT	1995 - 2017	
RO	2005 - 2017	The missing rates for 2001-2004 were replaced by the average for the Group II countries.
SI	2002 - 2017	The missing rate for 2001 was replaced by the average for the Group II countries.
SK	2001 - 2017	
FI	1995 - 2017	
SE	1995 - 2017	
UK	1995 - 2017	

* Group I countries are: AT, BE, DK, FI, FR, DE, EL, IE, IT, LU, NL, PT, ES, SE and the UK.

Group II countries are: BG, CZ, EE, HR, CY, LV, LT, HU, MT, PL, RO, SI and SK.

Table A3.5. Transfer tax rates

Country	Country-specific comments
For all countries	The most favourable transfer tax rate for owner occupied dwelling is used. When a progressive tax schedule is applied, the effective tax rate based on the house value is calculated ³⁶ .
BE	No country-specific comments.
BG	Registration fees (around 0.1%) are not included here.
CZ	No country-specific comments.
DK	The tax rate is calculated by applying tax rules on the average house value (as the transfer tax consists of a constant part and a rate).
DE	Registration fees (0.8-1.2%) and notary fees (1.2-1.5%) are not included here.
EE	The tax rate is calculated by applying tax rules (specific fee) on the average house value. Notary fees are not included here.
IE	The tax rate is calculated by applying tax rules on the average house value.
EL	No country-specific comments.
ES	The rates differ depending on the region, therefore the general tax of 6% is used (as it is established in the Article 11 of the Real Decreto Legislativo 1/1993")
FR	For sale of existing property comprises of four components: - county land registration tax (<i>taxe départementale de publicité foncière</i>): from 3.80% to 4.5% depending on the county (<i>département</i>); [note: we use the maximum rate in the calculation of the total transfer tax rates] - municipal tax (<i>taxe communale</i>): 1.20% - collection and recovery costs, paid to the state (<i>frais d'assiette et de recouvrement au profit de l'Etat</i>): 2.37% of the county land registration tax - land security contribution, paid to the state (<i>contribution de sécurité immobilière, cf. article 879 du Code général des impôts</i>): 0.10%
HR	No country-specific comments.
IT	The minimum tax rate for all dwellings is used (not only the first dwelling).
CY	The tax rate is calculated by applying tax rules on the average house value. A stamp duty (0.15-0.2%) is not included here.
LV	In 1995 there were two different statutory minimum tax rates. As the rate was changed in the middle of the year, the average tax rate is used.
LT	No country-specific comments.
LU	No country-specific comments.
HU	In 1995 there were two different statutory minimum tax rates. As the rate was changed in the middle of the year, the average rate is used. Since 2010 there are two rates, depending on the house value. Only the main rate is used for the dwellings below HUF 1 billion.
MT	A stamp duty (3.5%-5%) is not included here.
NL	No country-specific comments.
AT	A stamp duty (0.8-2%) is not included here.
PL	No country-specific comments.
PT	The tax rate is calculated by applying tax rules on the average house value. A stamp duty (0.8%) is not included here.
RO	The transfer tax rate is calculated by applying tax rules on the average house value. For all years it is the lower transfer tax rate – 2%.

³⁶ Some countries have a transfer tax, while others - a stamp duty, or both - a transfer tax and a stamp duty. In the database only one tax rate – of a transfer tax or a stamp duty if a transfer tax does not exist - is recorded. The provided information on other than transfer taxes at point of acquisition is not exhaustive for most countries.

Country	Country-specific comments
	Registration fees (0.5%) and notary fees (1.1%), are not included here.
SI	No country-specific comments.
SK	The tax rate is calculated by applying tax rules on the average house value. Since 2005 the tax has been abolished.
FI	No country-specific comments.
SE	No country-specific comments.
UK	The tax rate is calculated by applying tax rules on the average house value.

Table A3.6. Taxation of imputed rent

Country	Country-specific comments
For all countries	'N' – does not exist, 'Y' – imputed rent is taxed Imputed rent is taxed under the PIT. For the calculation of the effective imputed rent tax rate in relation to the property value, the share of taxed imputed rent is then divided by the house value.
BE	'N' all years for owner occupied dwellings. Only imputed rent (cadastral income) of properties rented to private persons or not rented was (is) taxed.
BG	'N'
CZ	'N'
DK	'Y' for 1995-1999. The imputed rent is calculated by applying the tax rules (for people under 65) on the house value and then the top PIT rate is applied.
DE	'N'
EE	'N'
IE	'N'
EL	'N'
ES	'N' all years for owner occupied dwellings. Tax on imputed rent does not include neither the main residence of the individual nor rented properties.
FR	'N'
HR	'N'
IT	'N' all years for owner occupied dwellings. Owner occupied dwellings effectively are not taxed (formally it was included in taxable income and then fully deducted).
CY	'N'
LV	'N'
LT	'N'
LU	'Y' until 2016. The imputed rent is calculated by applying the tax rules on the adjusted house value. The adjustment is needed as imputed rent is calculated on the "unit value" which was set in 1941 and according Delloite estimations it is generally less than 1-2% of the private dwelling market value. In our calculations we use the adjustment of 1.5% in house market value. Top PIT rate is applied on the imputed rent.
HU	'N'
MT	'N'
NL	'Y' for all years. As for the most years the average house price falls within the maximum rate band, the imputed rent is calculated by applying top rate on the total house value. Top PIT rate is applied on the imputed rent.
AT	'N'
PL	'N'
PT	'N'
RO	'N'
SI	'N'
SK	'N'
FI	'N'
SE	'N'
UK	'N'

Table A3.7. Existence of the recurrent property tax

Country	Country-specific comments
For all countries	'N' – recurrent property tax does not exist, 'Y' – property is taxed
BE	'Y' all years
BG	'Y' all years
CZ	'Y' all years
DK	'Y' since 2000. Property taxes are divided into <i>property value tax</i> levied by the state and <i>land taxes</i> levied by the county and municipal councils. Although the land tax was in already place since 1995, the property value tax (which is of our interest) was introduced only in 2000.
DE	'Y' all years
EE	'N' all years. Property tax in Estonia is levied exclusively on land.
IE	'Y' all years, except 'N' for 1997-2012.
EL	'Y' all years
ES	'Y' all years
FR	'Y' all years
HR	'N' all years
IT	'Y' all years, except 'N' for 2008-2011, 2013, 2016-2017.
CY	'Y' until 2016
LV	'Y' since 2010
LT	'Y' since 2006
LU	'Y' all years
HU	'N' all years. There is no property tax levied. However since 2015 it is at the discretion of the municipalities to introduce a local tax (building or land tax) ³⁷ . As in 2016-2017 only around 17% of municipalities' had a building tax, the recurrent property tax is not calculated.
MT	'N' all years
NL	'Y' all years
AT	'Y' all years
PL	'Y' all years
PT	'Y' all years
RO	'Y' all years
SI	'Y' all years
SK	'Y' all years
FI	'Y' all years
SE	'Y' all years
UK	'Y' all years

³⁷ Information is double-checked in the IBDF (International Bureau of Fiscal Documentation) database (5.3.3. Property tax): <https://www.ibfd.org/>

Table A3.8. Revenues from the recurrent property tax collected from households_(for the calculation of the implicit recurrent property tax)

Country	Country-specific comments
For all countries	The main source is the OECD: 4110 Households recurrent taxes on immovable property. For other countries either the information collected by the national sources are provided or EUROSTAT's data on 'Taxes on land, buildings and other structures for general government, institutions of the EU' [gov_10a_taxag] is used by applying the correcting coefficient of 0.5 (1995-2004) and 0.6 (2005-2017) for the group I countries and the coefficient of 0.3 (2001-2011) and 0.35 (2012-2017) for the group II countries. This coefficient should reflect the share of taxes paid only by households over the total taxes collected), in millions units of national currency.
BE	OECD
BG	EUROSTAT with the correcting coefficient 0.3 (2001-2011) and 0.35 (2012-2017).
CZ	OECD
DK	Expert from national sources (property value tax since 2000) for 2000-2016. Value updated to 2017 using EUROSTAT data with the correcting coefficient of 0.5.
DE	OECD
EE	'N' all years* (see the explanation on the recurrent property tax table)
IE	Expert from national sources for 1995-1997; 2013-2016. Same source was used for 2017: Irish Tax and Customs statistics on Local Property Tax - https://www.revenue.ie/en/corporate/information-about-revenue/statistics/local-property-tax/index.aspx
EL	OECD (1995-1997), EUROSTAT with the correcting coefficient 0.5 (1998-2004) and 0.6 (2005-2017)
ES	EUROSTAT with the correcting coefficient 0.5 (1995-2004) and 0.6 (2005-2017).
FR	OECD
HR	'N' all years (there is no recurrent property tax).
IT	EUROSTAT with the correcting coefficient 0.5 (1995-2004) and 0.6 (2005-2007; 2012; 2014-2015).
CY	EUROSTAT with the correcting coefficient of 0.3 (2001-2011) and 0.35 (2012-2017).
LV	OECD (although the tax was introduced in 2010, taxes were collected since 2011).
LT	OECD
LU	EUROSTAT with the correcting coefficient 0.5 (1995-2004) and 0.6 (2005-2017)
HU	'N' all years* (see the explanation on the recurrent property tax table)
MT	'N' all years (there is no a recurrent property tax)
NL	OECD
AT	OECD
PL	OECD. CPI to update to 2017.
PT	Expert from national sources (proxy: the values in this time series include other taxes than the property taxes paid by households - e.g., taxes on vehicle circulation (IUC) - but most of the amount belongs to property tax) for 1995-20016. EUROSTAT with correcting coefficient 0.6 for 2017.
RO	EUROSTAT with the correcting coefficient of 0.3 (2001-2011) and 0.35 (2012-2017)
SI	OECD
SK	OECD
FI	OECD
SE	OECD
UK	OECD

Table A3.9. Net dwelling stock (for the calculation of the implicit recurrent property tax)

Country	Country-specific comments
For all countries	The main source is EUROSTAT: Dwellings (net): Households; non-profit institutions serving households [nama_10_nfa_bs], in million units of national currency. The exceptions are: BG (experts), IE (HFCS) and ES (HFCS). The Residential Property Price Index (RPPI) is used to update net dwelling stock to 2017 for all some countries.
BE	No country-specific comments.
BG	Expert from national sources. Market capitalization (aggregate) calculated by multiplying housing area (thousand square meters) by the house price national averages (price per square meter).
CZ	No country-specific comments.
DK	No country-specific comments.
DE	No country-specific comments.
EE	RPPI is used to update to 2017.
IE	Net dwelling stock from Household Finance and Consumption Survey (HFCS) 2 wave is used for 2013. It is first corrected by applying 0.66 (which is the average share between the net dwelling stock from the HFCS ³⁸ when compared to EUROSTAT information). It is updated for other years using the RPPI.
EL	RPPI is used to update to 2017.
ES	Net dwelling stock from the first (2008-2009) and second (2011-2012) waves of the HFCS is used. It is first corrected by applying 0.66 (which is the average share between the dwelling stock from the HFCS when compared to EUROSTAT information). For the year in between the two HFCS waves the average is used, while for other years it is updated using the RPPI.
FR	No country-specific comments. Data for 2016 and 2017 labelled as provisional by Eurostat.
HR	RPPI is used to update to 2017. Eurostat labels the data for HR as estimated.
IT	No country-specific comments.
CY	RPPI is used to update to 2017.
LV	RPPI is used to update to 2017.
LT	RPPI is used to update to 2017.
LU	No country-specific comments.
HU	RPPI is used to update to 2017.
MT	No country-specific comments.
NL	No country-specific comments.
AT	No country-specific comments.
PL	RPPI is used to update to 2017.
PT	RPPI is used to update to 2017.
RO	Eurostat labels the data for RO as estimated. RPPI is used to update to 2017.
SI	No country-specific comments.
SK	No country-specific comments.
FI	No country-specific comments.
SE	No country-specific comments.
UK	No country-specific comments.

³⁸ https://www.ecb.europa.eu/stats/ecb_surveys/hfcs/html/index.en.html

Table A3.10. Capital gains tax rates

Country	Country-specific comments
For all countries	Minimum capital gains tax rate is used as it is assumed that the owner occupied property is sold after the required legal period of time and/or money is later reinvested in a new property.
BE	No country-specific comments.
BG	No country-specific comments.
CZ	No country-specific comments.
DK	No country-specific comments.
DE	No country-specific comments.
EE	No country-specific comments.
IE	No country-specific comments.
EL	The capital gains tax was legislated in 2013 (law 4172/2013) but its application has been suspended several times and has not been applied so far. Thus 0% is used for all years.
ES	The rates are missing for 1995-1997. Assumed to be 0% as for later years.
FR	No country-specific comments.
HR	No country-specific comments.
IT	No country-specific comments.
CY	The tax rate is calculated by applying tax rules (tax allowance) on the house value.
LV	No country-specific comments.
LT	No country-specific comments.
LU	No country-specific comments.
HU	No country-specific comments.
MT	No country-specific comments.
NL	No country-specific comments.
AT	No country-specific comments.
PL	No country-specific comments.
PT	No country-specific comments.
RO	No country-specific comments.
SI	No country-specific comments.
SK	No country-specific comments.
FI	No country-specific comments.
SE	No country-specific comments.
UK	No country-specific comments.

Table A3.11. Interest income tax rates

Country	Country-specific comments
For all countries	When interest income is subject to a progressive schedule, the top rate is used. When possible, the information received from the experts is compared to ZEW estimates ³⁹
BE	No country-specific comments.
BG	No country-specific comments.
CZ	Top tax rate is used when progressive system was in place (1995-2007).
DK	Top tax rate for positive capital income is used (roughly in line with ZEW estimates).
DE	Until 2008 the top PIT rate is used (also in line with ZEW estimates).
EE	No country-specific comments.
IE	No country-specific comments.
EL	No country-specific comments.
ES	In 1995-2005 top PIT rates are used (in line with ZEW estimates).
FR	Tax on interest incomes from bank saving accounts comprises of three components (in line with ZEW estimates): - the PFL (PLF: <i>prélèvement forfaitaire libératoire</i>), a flat tax withheld at source on fixed-rate interest income, operating as a levy in discharge until 2013 - the CSG/CRDS rate - the rate of other social contributions.
HR	No country-specific comments.
IT	The rate for loans, deposits and current accounts is used (and not for interest on Italian bonds and similar bonds).
CY	When there was a change in the tax rate in the course of the year, the weighted average is used (taking into account the number of months). For 1998, 200, 2011 and 2013.
LV	No country-specific comments.
LT	No country-specific comments.
LU	Until 2005 the top PIT rate is used. Since 2006, taxpayers have the option to pay a withholding tax (e.g., when the annual interest rate is greater than 0.75%; annual interest exceed 250 EUR; etc.) or to declare interest income under the PIT (otherwise). The assumption is that annual interest income exceeds the limit therefore the withholding tax rate is used (also in line with ZEW estimates).
HU	When there was a change in the tax rate in the course of the year, the weighted average is used (taking into account the number of months). For 2006.
MT	Taxpayers have the option of declaring interest income in their income tax return (paying the tax rates found under the PIT) or at source (paying a final withholding tax rate of 15%). Therefore, taxpayers whose marginal tax rate is below 15%, would generally declare interest income in their income tax return, with the lowest applicable tax rate being 0%, whereas taxpayers with a marginal tax rate above 15% would generally declare interest income at source and be taxed at the final withholding tax rate of 15%. As we are focusing on higher earnings people, we use the final withholding tax rate of 15%.
NL	Until 2000 income from investments was taxed progressively and regarded part of the personal income: top PIT rate for the years 1995-2000 (in line with ZEW estimates). Since 2001 income from investment (other than substantial shareholdings ⁴⁰), interest and royalties is not taxed directly, but instead the effective tax rate is calculated based on the

³⁹ ZEW (Christoph Spengel, Dieter Endres, Katharina Finke, Jost Heckemeye), 2014. Effective Tax Levels Using the Devereux/Griffith Methodology. Final Report 2014 Project for the EU Commission TAXUD/2013/CC/120, pp. A-25 – A-28.

⁴⁰ Dividends, other profit distributions, interest and capital gains in connection with a substantial shareholding are subject to tax at a flat rate of 25% (the Box 2 of the tax code); however it is out of our scope of analysis.

	assessment of the imputed returns/weighted notional yield on net assets (the Box 3 of the tax code) ⁴¹ .
AT	As of 2016, interest income from cash deposits and non-securitized assets is taxed at the rate of 25%. The tax rate on interest income from all other assets (shares, stocks, etc.) is taxed at 27.5%. The average (26.25%) is used in our database for 2016 and 2017.
PL	No country-specific comments.
PT	No country-specific comments.
RO	No country-specific comments.
SI	No country-specific comments.
SK	No country-specific comments.
FI	No country-specific comments.
SE	No country-specific comments.
UK	The top tax rate is used.

⁴¹The effective tax rates provided by the expert are also compared with the ones from the IBFD (International Bureau of Fiscal Documentation) database: <https://www.ibfd.org/>

Table A3.12. Nominal house price⁴²

Country	Period available	Country-specific comments
For all countries		The house price is derived multiplying price per square meter by the average dwelling size (bought with a mortgage or a loan). Time series expressed in EUR per square meter used from HouseLev dataset ⁴³ . Information on the dwelling size used from the Eurostat ⁴⁴ and available only for 2012. We assume that the property size remains constant throughout the years. Information for Malta is from HFCS. CPI is used for missing data points (specified below).
BE	1995 - 2017	No country-specific comments.
BG	1997 - 2017	No country-specific comments.
CZ	2001 - 2017	No country-specific comments.
DK	1995 - 2017	No country-specific comments.
DE	1995 - 2017	No country-specific comments.
EE	2004 - 2017	The price is uprated using CPI for 2001-2003.
IE	1995 - 2017	No country-specific comments.
EL	1997 - 2017	The price is uprated using CPI for 1996.
ES	1995 - 2017	No country-specific comments.
FR	1995 - 2017	No country-specific comments.
HR	2001 - 2017	No country-specific comments.
IT	1995 - 2017	No country-specific comments.
CY	2002 - 2017	The price is uprated using CPI for 2001.
LV	2001 - 2017	No country-specific comments.
LT	2001 - 2017	No country-specific comments.
LU	1995 - 2017	No country-specific comments.
HU	2007 - 2017	The price is uprated using CPI for 2001-2006.
MT	2001 - 2017	No country-specific comments.
NL	1995 - 2017	No country-specific comments.
AT	2000 - 2017	The price is uprated using CPI for 1996-1999.
PL	2008 - 2017	The price is uprated using CPI for 2001-2007.
PT	1995 - 2017	No country-specific comments.
RO	2008 - 2017	The price is uprated using CPI for 2001-2007.
SI	2003 - 2017	The price is uprated using CPI for 2001-2002.
SK	2005 - 2017	The price is uprated using CPI for 2001-2004.
FI	1995 - 2017	No country-specific comments.
SE	1995 - 2017	No country-specific comments.
UK	1995 - 2017	No country-specific comments.

⁴² House value is used not for all countries and mainly for the calculation of the mortgage interest tax relief and, sometimes, for calculating the effective transfer tax rate or imputed rent.

⁴³ Bricongne et al., 2019.

⁴⁴ Average size of dwelling by income quintile and tenure status [ilc_hcmh01]: tenure: Owner, with mortgage or loan.

Table A3.13. Data sources

Indicator	Sources
Mortgage interest tax relief (MITR)	<p><i>Experts</i></p> <p>Complementary information: The National Bank of Poland: http://www.nbp.pl/en/statystyka/oproc/mir_new/stopy_proc_en_srdW.xlsx and http://www.nbp.pl/en/statystyka/oproc/mir_new/sw_oprocentowanie_n_2004_en.xls</p> <p>For double checking: - The IBFD (International Bureau of Fiscal Documentation) database: https://www.ibfd.org/</p>
Maximum loan-to-value (LTV) ratio	<p>ESRB reports⁴⁵, ECB⁴⁶, OECD⁴⁷, IMF⁴⁸ or designated ESRB excel spreadsheet⁴⁹ Book: Eds. Lunde J. and Whitehead C., 2016, "Milestones in European Housing Financing" (for specific chapters for different countries please consult table 'Loan-to-value (LTV) ratio' in the Appendix 2).</p>
Maximum or typical loan duration (maturity)	<p>Same as above (for LTV ratio). Book: Eds. Lunde J. and Whitehead C., 2016, "Milestones in European Housing Financing" (for specific chapters for different countries please consult table 'Maximum or typical loan duration/maturity (in years)' in the Appendix 2).</p>
Interest rates for long-term government bonds	<p><i>EUROSTAT: EMU convergence criterion series - annual data [irt_lt_mcbby_a]</i> <i>EMU convergence criterion bond yields</i></p>
Transfer tax rates	<p><i>Experts</i></p> <p>For double checking: - The IBFD (International Bureau of Fiscal Documentation) database: https://www.ibfd.org/</p>
Taxation of imputed rent	<p><i>Experts and</i> The IBFD (International Bureau of Fiscal Documentation) database: https://www.ibfd.org/</p>
Existence of the recurrent property tax	<p><i>Experts</i></p>
Revenues from the recurrent property tax	<p><i>OECD for AT, BE, CZ, FI, FR, DE, EL (1995-1997), LV, LT, NL, PL, SK, SI, SE, UK.</i> <i>LEVEL OF GOVERNMENT: Total</i></p>

⁴⁵ European Systemic Risk Board (ESRB), 2014, The ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector, March 2014.

European Systemic Risk Board (ESRB), 2015, Report on residential real estate and financial stability in the EU. December 2015, p.28, 33-34, 50.

European Systemic Risk Board (ESRB), 2016, Vulnerabilities in the EU residential real estate sector. November 2016, p. 33.

⁴⁶ ECB, 2009, Housing Finance in the Euro Area. March 2009, p. 27.

<https://www.ecb.europa.eu/pub/pdf/other/housingfinanceeuroarea0309en.pdf?2aff929716c20859ea899c00d8f2ccf>

⁴⁷ OECD, 2005, Housing Finance Markets in Transition Economies: Trends and Challenges.

Andrews Dan, 2010, Real House Prices in OECD Countries: the Role of Demand Shocks and Structural and Policy Factors, OECD: Economics Department Working Paper No. 831, ECO/WKP(2010)87, p. 29.

⁴⁸ Jácome Luis I. and Mitra Srobona (IMF), 2015, LTV and DTI Limits—Going Granular. WP/15/154. IMF, July 2015 (for Poland and Romania).

⁴⁹ European Systemic Risk Board (ESRB)- Dierick Frank, 2018, National measures of macroprudential interest in the EU/EEA (excel spreadsheet), 9 February, 2018.

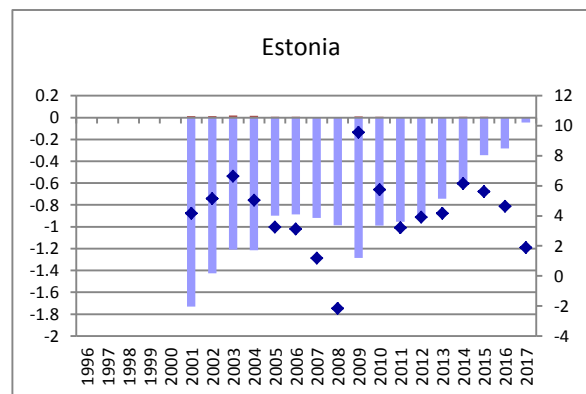
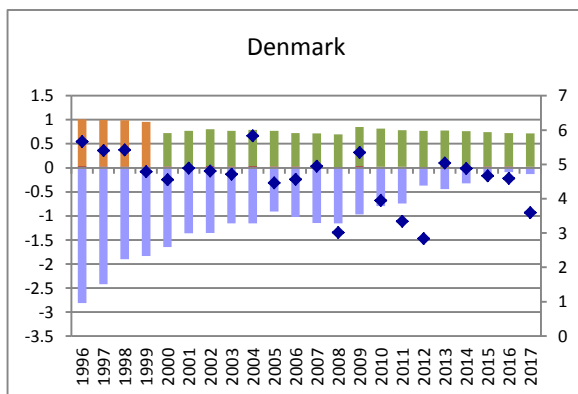
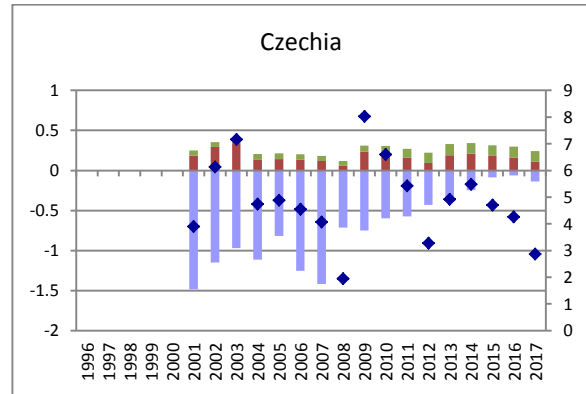
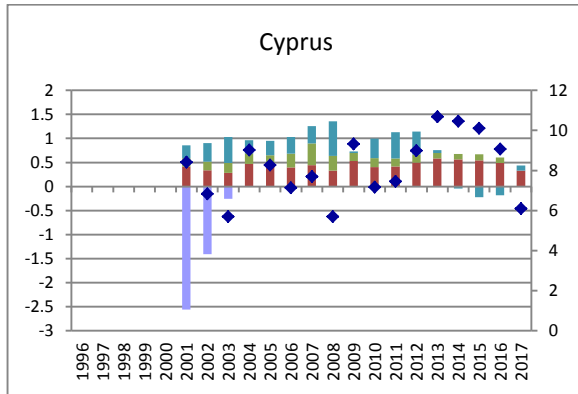
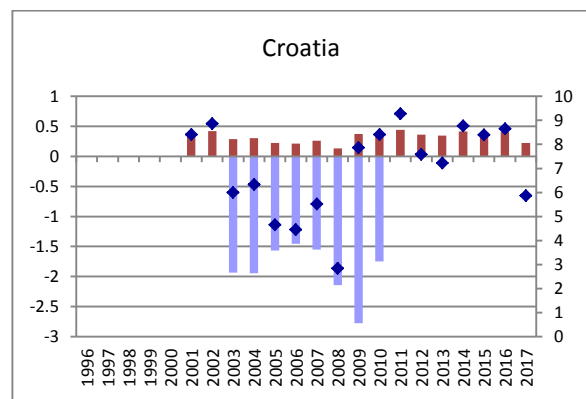
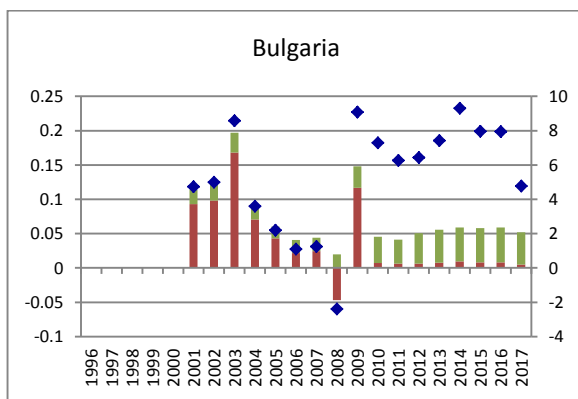
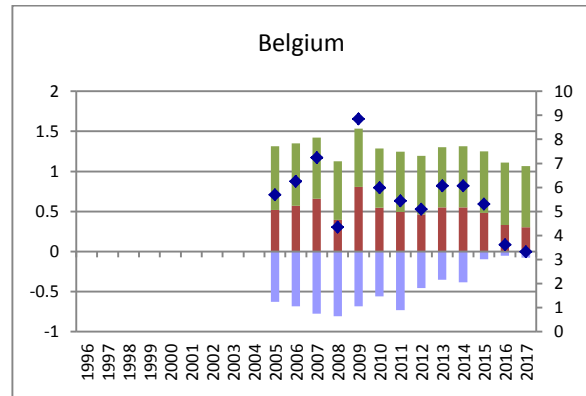
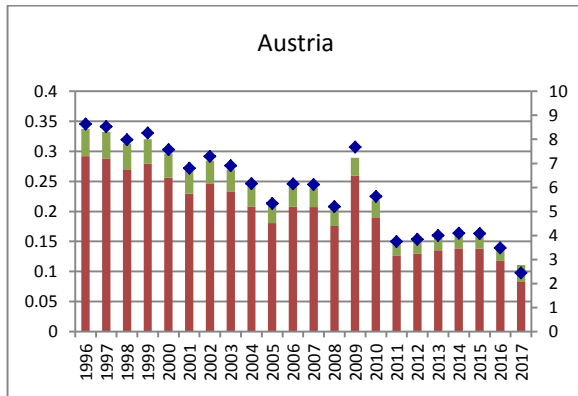
https://www.esrb.europa.eu/national_policy/shared/pdf/overview_macroprudential_measures.xlsx

Indicator	Sources
collected from households	<p><i>TAX REVENUE: 4110 Households recurrent taxes on immovable property</i> <i>INDICATOR: Tax revenue in national currency</i> <i>EUROSTAT for BG, CY, EL (since 1998), IT, LU, RO, ES: Main national accounts tax aggregates [gov_10a_taxag], (applying correcting coefficient)</i> <i>UNIT: Million units of national currency</i> <i>SECTOR: General government; institutions of the EU/</i> <i>NA_ITEM: Taxes on land, buildings and other structures (D29A)</i></p> <p><i>DK, IE and PT: provided by experts from national sources.</i> For IE: Irish Tax and Customs statistics on Local Property Tax - https://www.revenue.ie/en/corporate/information-about-revenue/statistics/local-property-tax/index.aspx</p>
Net dwelling stock	<p><i>EUROSTAT for all MS except IE, ES, BG and RO: Balance sheets for non-financial assets [nama_10_nfa_bs].</i> <i>UNIT: Current prices, million units of national currency;</i> <i>SECTOR: Households; non-profit institutions serving households</i> <i>ASSET10: Dwellings (net)</i></p> <p><i>HFCS for IE and ES (applying correcting coefficient):</i> https://www.ecb.europa.eu/stats/ecb_surveys/hfcs/html/index.en.html</p> <p><i>BG: Provided by an expert from national sources.</i></p>
Capital gains tax	<p><i>Experts</i></p> <p>For double checking: - The IBFD (International Bureau of Fiscal Documentation) database: https://www.ibfd.org/</p>
Interest income tax	<p><i>Experts</i></p> <p>For double checking: - ZEW (Christoph Spengel, Dieter Endres, Katharina Finke, Jost Heckemeyer), 2014. Effective Tax Levels Using the Devereux/Griffith Methodology. Final Report 2014 Project for the EU Commission TAXUD/2013/CC/120, pp. A-25 – A-28. - The IBFD (International Bureau of Fiscal Documentation) database: https://www.ibfd.org/</p>
Nominal house price (per square meter)	<p>Jean-Charles Bricongne, Alessandro Turrini and Peter Pontuch (2019) Assessing House Prices: Insights from “Houselev”, a Dataset of Price Level Estimates in Discussion Paper 101, European Commission.</p> <p><i>UNIT: Euros per square meter (p. 41)</i></p>
Average dwelling size (square meters)	<p><i>EUROSTAT: Average size of dwelling by income quintile and tenure status [ilc_hcmh01]</i> <i>UNIT: Average.</i> <i>TENURE: Owner with mortgage or loan</i> <i>QUANTILE: Total</i> <i>YEAR: 2012</i></p> <p><i>UK: Provided by an expert from the national source (year 2013)</i> (http://webarchive.nationalarchives.gov.uk/20110118111538/http://www.cabe.org.uk/files/dwelling-size-survey.pdf) <i>MT: provided by an expert from the HFCS</i></p>
Harmonised consumer price index (CPI)	<p><i>EUROSTAT: HICP - annual data (average index and rate of change)[prc_hicp_aind]</i> <i>UNIT: Annual average rate of change COICOP: All-items HICP</i></p>
AMECO currency exchange rates	<p>European Commission, Economic and Financial Affairs, AMECO : 13 Monetary variables: 13.1 Exchange rates and purchasing power parities:</p>

Indicator	Sources
	<p><i>ECU-EUR exchange rates (annual averages): Units of national currency per EUR/ECU; Conversion rates between euro and former euro-zone national currencies.</i></p> <p>http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm</p>
167% of gross average earnings	<p><i>EUROSTAT: Annual net earnings [earn_nt_net]</i></p> <p><i>ESTRUCT: Gross earning</i></p> <p><i>ECASE: Single person without children, 167% of gross average wage</i></p> <p><i>UNIT: EUR or national currency</i></p>

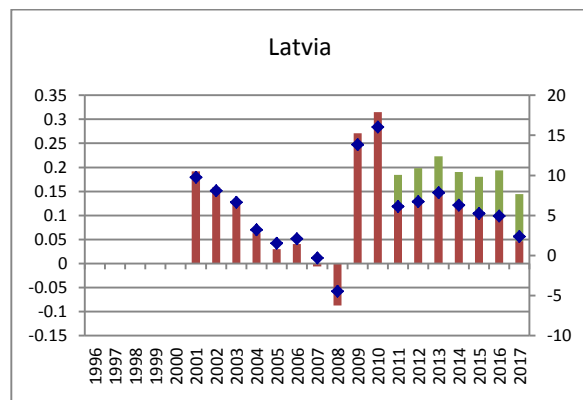
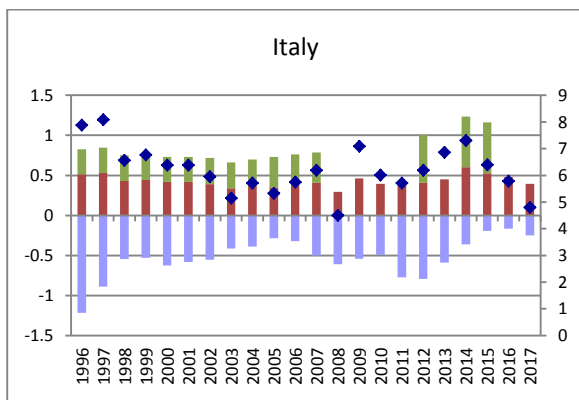
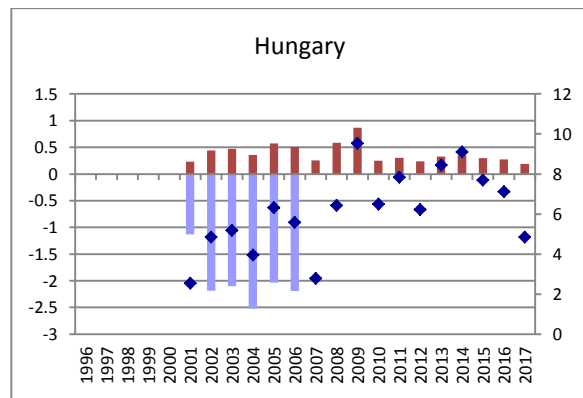
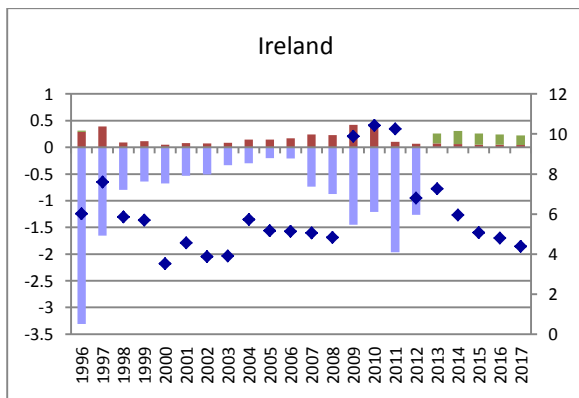
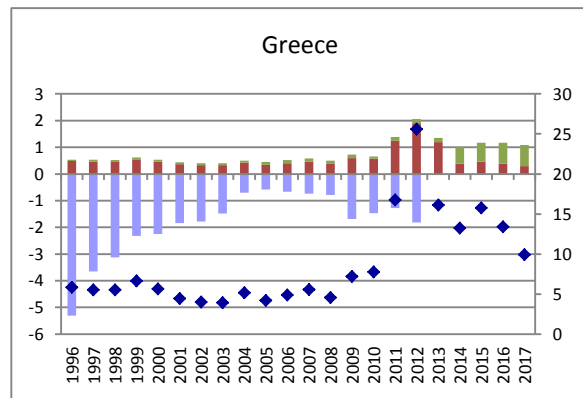
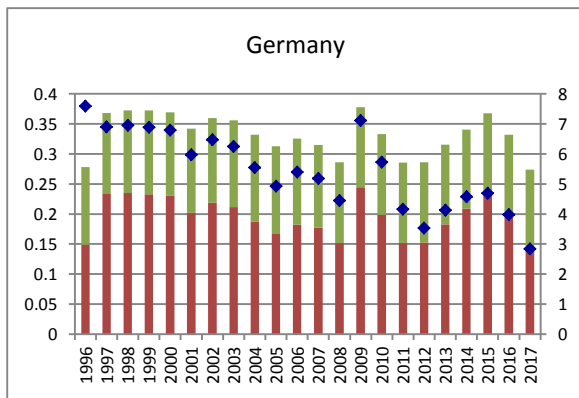
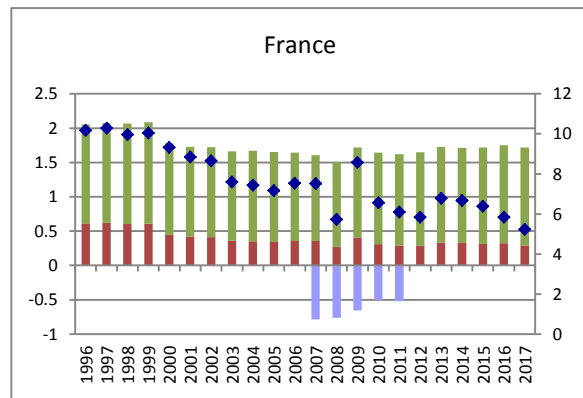
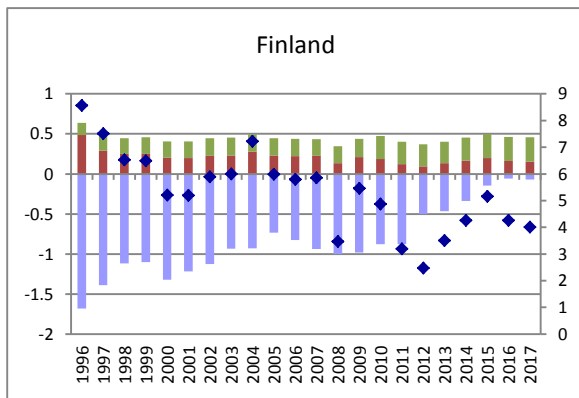
Appendix 4: Contribution of individual tax elements to UCOH, 1996-2017

Graphs A4.1.-A4.8. Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia



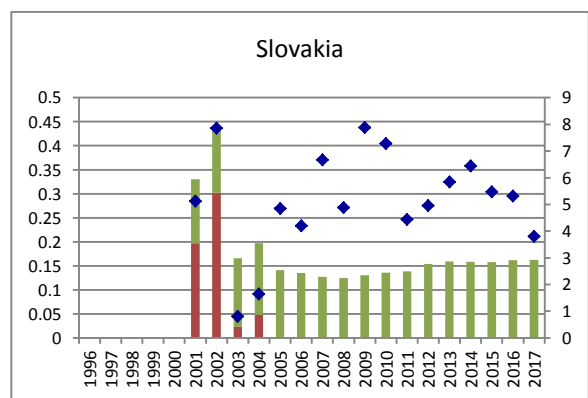
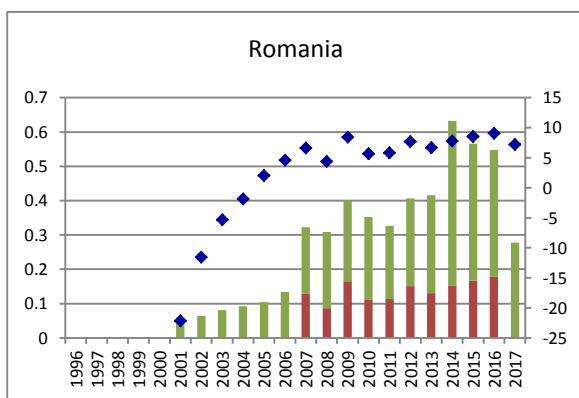
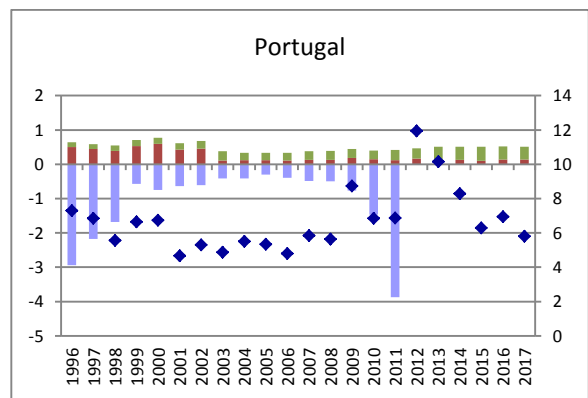
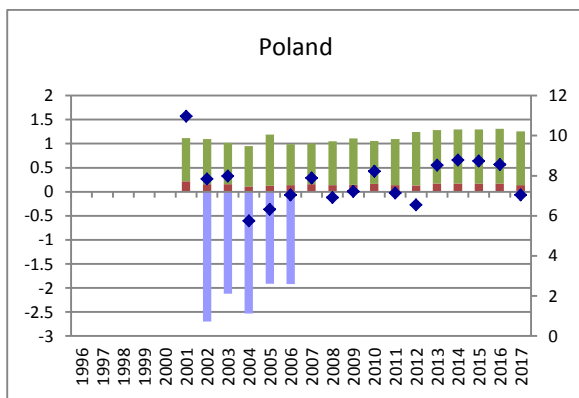
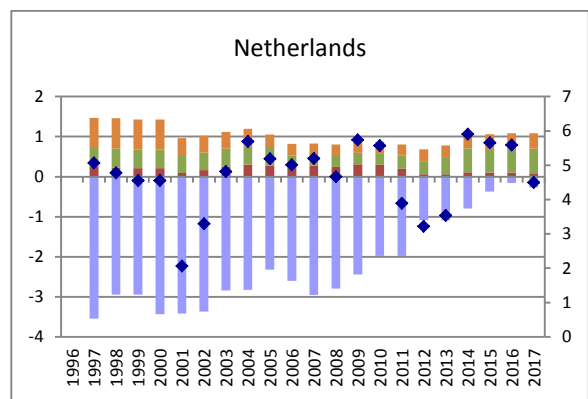
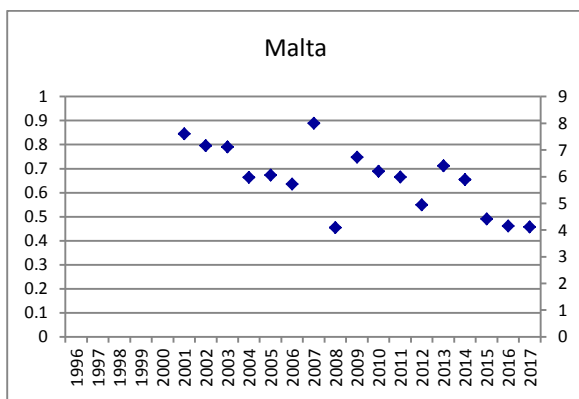
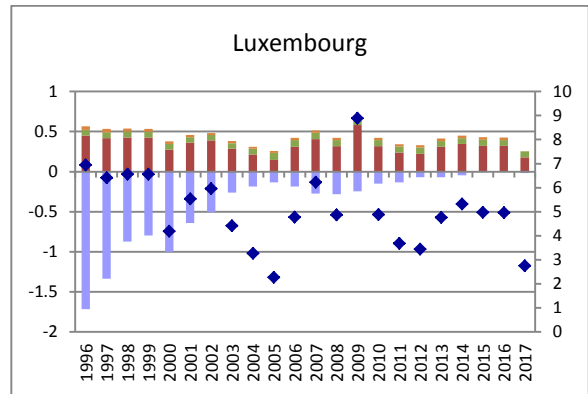
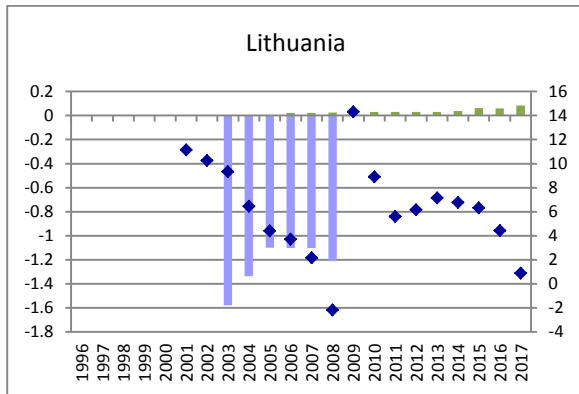
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Graphs A4.9.-A4.16. Finland, France, Germany, Greece, Ireland, Hungary, Italy, Latvia



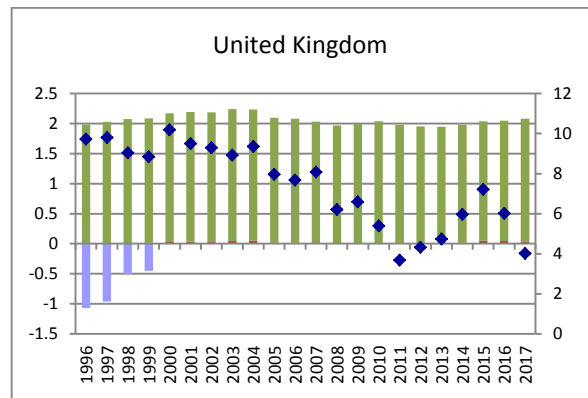
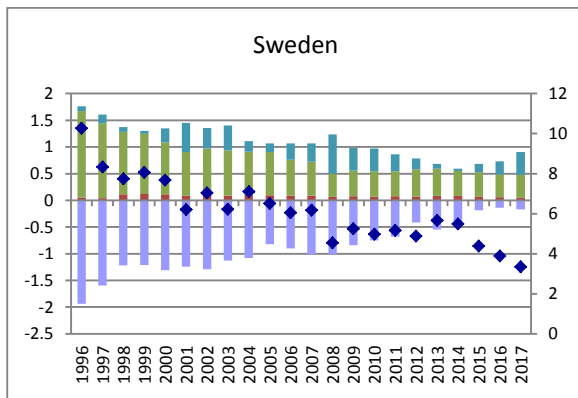
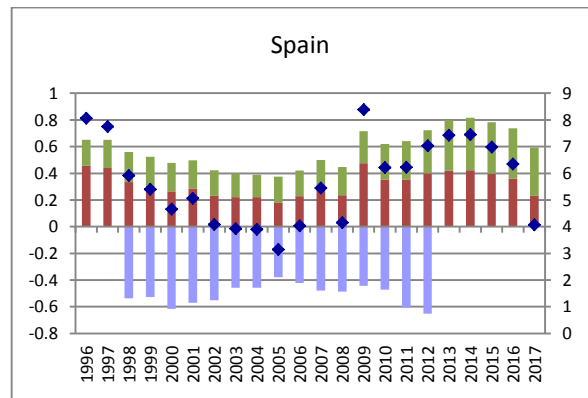
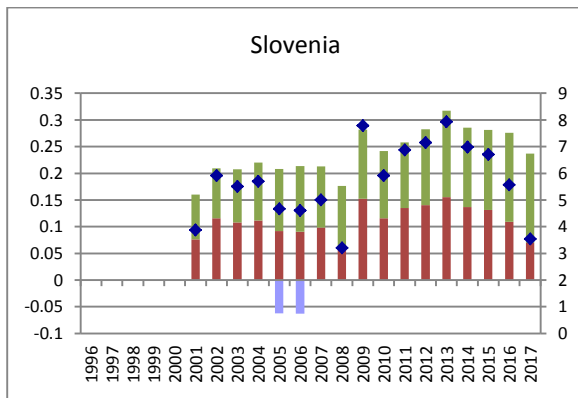
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Graphs A4.17.-A4.24. Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia



■ transfer tax ■ recurrent property tax ■ mortgage tax relief ■ capital gains tax ■ tax on imputed rent ◆ UCOH (right-hand side)

Graphs A4.25.-A4.28. Slovenia, Spain, Sweden, the United Kingdom



■ transfer tax ■ recurrent property tax ■ mortgage tax relief ■ capital gains tax ■ tax on imputed rent ◆ UCOH (right-hand side)



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