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Support with housing costs across Europe: a distributional impact analysis

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Abstract

This paper aims to explore how housing allowances and mortgage interest tax relief have evolved in recent years, against the background of falling disposable incomes and rising housing costs. The analysis focuses on seven EU countries (Greece, Italy, Austria, Hungary, the Netherlands, Sweden and the UK), covering a range of market developments and policy responses. The first part of the paper provides an overview of housing market trends over the period following the financial crisis and examines recent changes in housing policies in the countries concerned. The next part discusses the main features of two specific housing policy instruments, housing allowance and mortgage interest tax relief, also exploring recent changes there and the motives behind these. The last part estimates the distributional impact of housing allowances and mortgage tax relief in 2016 as compared with 2007 using the European tax-benefit model EUROMOD. The paper concludes with a discussion of the results and of the policy implications.

Keywords

Welfare: housing and social services

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'Easi' (2014-2020). We use microdata from the 2008 and 2012 EU Statistics on Incomes and Living Conditions (EU-SILC) made available by Eurostat under contract EU-SILC/2013/59 (for Austria, Hungary, Netherlands and Sweden), the national 2008 and 2014 SILC data made available by respective national statistical offices (for Greece and Italy) and the 2008 and 2013 Family Resources Survey (FRS), made available by the UK Department of Work and Pensions (DWP) through the Data Archive. Material from the FRS is Crown Copyright and is used by permission. Data providers do not bear any responsibility for the analysis or interpretation of the data reported here.

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Introduction

Governments use a range of housing policy measures to pursue social policy objectives, such as assistance with housing costs to prevent material deprivation and, more broadly, access to affordable housing to promote social inclusion. However, policies helping low-income families meet their housing needs have always co-existed with very different measures, which benefit individuals and households higher up the income scale. The latter, whether intended or not, encourage and support home ownership. The resulting 'home-ownership bias' (Ronald 2008) has long been evident in most though not all advanced industrialised countries (Kemeny 1981), and achieved some prominence in the context of 'right-to-buy' schemes which transferred ownership of social housing units to their tenants, as in the UK in the 1980s (Forrest and Murie 1988). More recently, home ownership as a housing policy goal was given a further boost by the development of 'asset-based welfare', at least up until the onset of the global financial crisis (Ronald et al. forthcoming). In the post-crisis landscape, other objectives (reducing mortgage debt, lowering financial risks and reviving the construction sector) have received increased attention from policy makers (Scanlon and Elsinga 2014), underlining the fact that housing policies extend well beyond the protection of low-income households (Salvi del Pero et al. 2016).

In this paper, we aim to explore (i) how housing policies have evolved in recent years, against the background of falling disposable incomes and rising housing costs, and (ii) how recent changes in two housing policy instruments, namely mortgage interest tax relief and housing allowances, have affected the distribution of incomes in EU countries. In particular, it examines in more detail developments in seven EU Member States, Greece, Italy, Austria, Hungary, the Netherlands, Sweden and the UK, which are chosen to be reasonably representative of developments over the period.

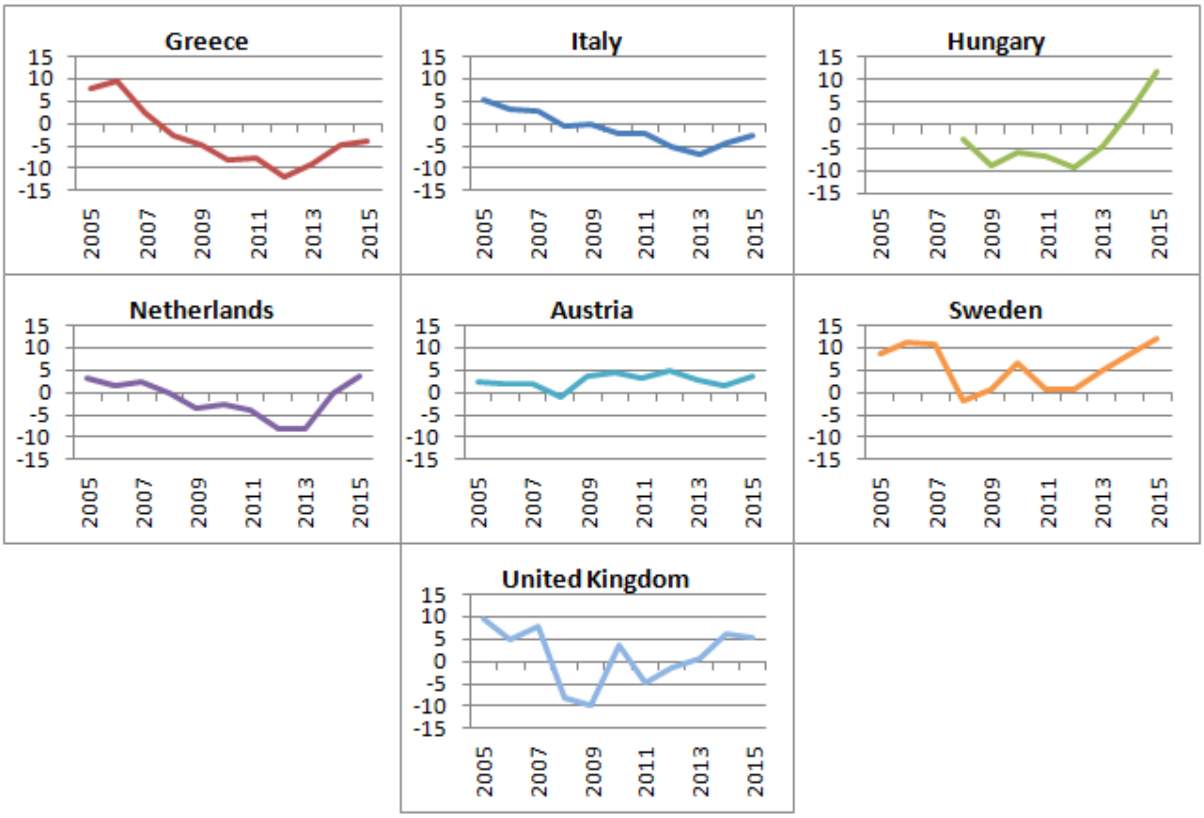
Housing market trends and recent housing policies

The seven countries concerned have had varying experience regarding housing market trends during and after the global financial crisis. An overview of the main trends and characteristics of housing markets and policy responses is provided below.

Trends in house prices

The global financial crisis had a strong impact on the housing market in all European countries. From 2007 house prices declined almost everywhere, but by 2013 the market had bottomed out in most Member States and appears to be recovering since then. In 2015, the annual increase in house prices in real terms (i.e. relative to the general rate of inflation) was 12% in Hungary and Sweden, 5% in the UK and over 3% in Austria and the Netherlands. In Greece, where the housing market has been in recession since 2008, the price index has continued to fall (by 4% in 2015 as compared with 12% in 2012). House price volatility has been most limited in Austria: in the 2005-2015 period, the annual house price index fluctuated within a narrow range (from around 0% to around 5%). Figure 1 shows a snapshot of house price changes over the last 10 years in the 7 countries examined here.

Figure 1: Annual house price index in real terms (rate of change, 2005-2015)



Note: House price index relative to the general consumer price index.
Source: ECB Statistics.

Changes in household disposable income

Household disposable income fell most in those Member States hit hardest by the crisis. In Greece and Hungary, the average income of those in the bottom decile fell by 5% or more a year over the 2008-2012 period (OECD 2015). In the EU as a whole, growth in household disposable income became positive again in 2013, but with marked differences between countries, and with the exception of Greece which experienced a protracted decline in income (Figure 2).

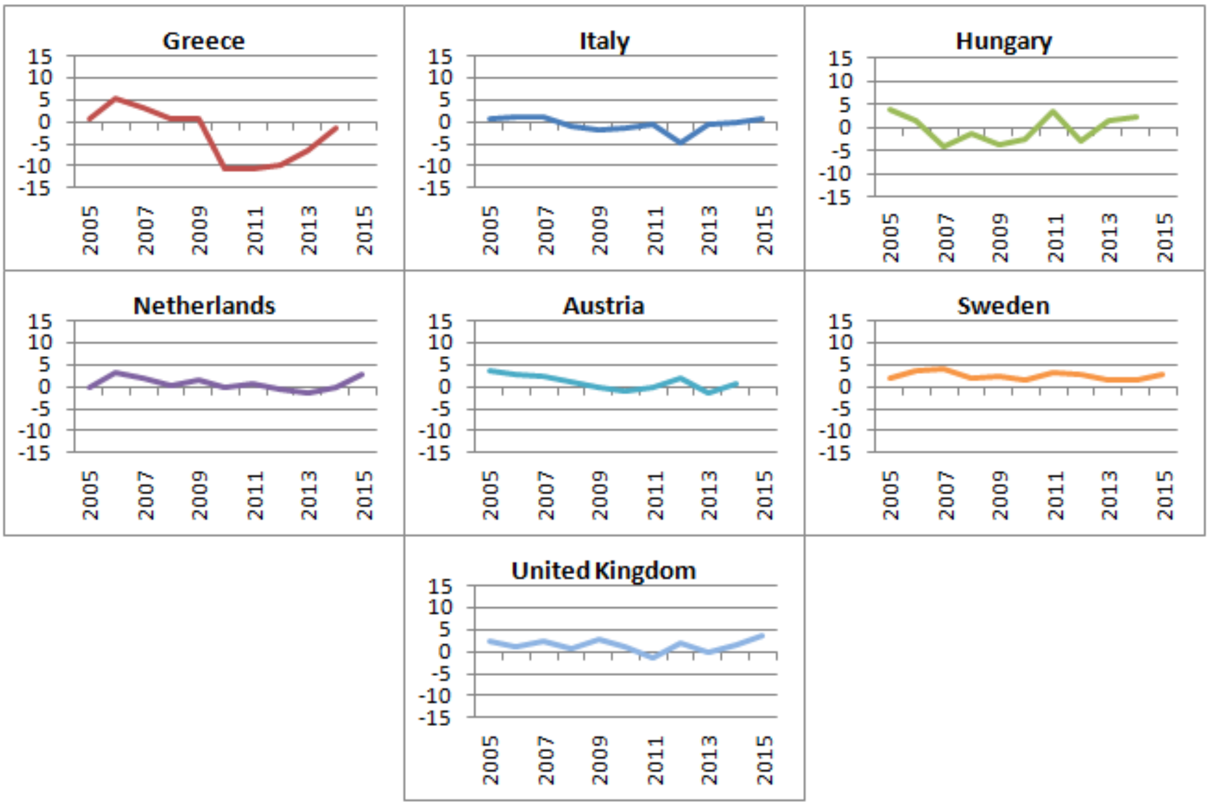
Housing cost burden and arrears

Housing costs represent a considerable share of disposable income [[1]]. As shown in Table 1, this share reaches 42% in Greece, but is also quite large in the Netherlands (30%) and the UK (25%). In Austria, Hungary, Italy and Sweden, housing costs relative to disposable income are below the EU28 average (22.5%). As might be expected, the burden of housing costs is heavier for those with incomes below 60% of the median.

[1] Housing costs refer to the monthly costs connected with the household's right to live in the accommodation. It includes the costs of utilities (water, gas, electricity, heating), regular maintenance and repairs, structural insurance, services and charges, taxes on the dwelling, rental payments, mortgage interest payments (net of any tax relief) and gross of housing benefits (Eurostat 2017).

When housing costs exceed 40% of disposable income, this is termed 'overburden'. Clearly, this is quite straightforward in the case of low-income households. In contrast, higher up the income distribution the share of housing costs in household income is arguably a question of consumer choice. In Greece, that share was 41% of all households in 2015. The relevant share was also significant in the Netherlands (16% of households) and the UK (13%). 'Overburden' is especially prevalent among the poor, the proportion of households below the at-risk-of-poverty threshold concerned ranging from between 30% and 35% in Hungary, Italy and Austria, to around 39-40% in Sweden and the UK, 56% in the Netherlands, and an astounding 96% in Greece.

Figure 2: Household net disposable income (annual growth rate 2005-2015)



Source: OECD National Accounts Statistics.

Table 1: Housing costs overburden rate and arrears (%, 2015)

	EL	IT	HU	NL	AT	SE	UK
*Housing costs as a share of disposable income**							
Income < 60% of median	76.5	35.2	35.5	51.6	39.5	45.0	47.5
Income > 60% of median	33.3	12.9	19.1	26.6	15.0	17.4	20.6
All	42.2	17.2	21.5	29.5	18.4	21.3	24.9
*Housing cost overburden rate***							
Income < 60% of median	95.8	32.9	31.5	55.6	34.8	38.9	40.3
Income > 60% of median	25.9	2.5	4.5	10.1	1.8	2.2	6.9
All	40.9	8.6	8.5	15.6	6.4	7.5	12.5
Arrears on utility bills							
Income < 60% of median	61.6	28.0	46.2	8.9	10.9	8.0	15.1
Income > 60% of median	36.6	8.7	14.8	1.8	2.3	1.8	5.4
All	42.0	12.6	19.4	2.7	3.5	2.7	7.0
Arrears on mortgage or rent							
Income < 60% of median	22.8	12.7	10.7	11.7	10.2	6.4	9.2
Income > 60% of median	12.0	3.6	5.1	2.6	2.4	1.1	2.7
All	14.3	5.4	6.0	3.7	3.4	1.8	3.8

Notes: * Weighted average of the distribution of housing costs in equivalised household disposable income.
** Housing costs overburden denotes the percentage of the population living in households where the total housing costs ('net' of housing allowances) amount to over 40% of equivalised household disposable income ('net' of housing allowances).

Source: Eurostat EU-SILC.

The share of households with arrears on utility bills and on mortgage or rent follows a similar pattern: it is considerably larger among low-income households in all countries, and is higher in Greece than in the other six countries, with Hungary also standing out in terms of arrears on utility bills.

Mortgage debt burden and financial vulnerability

Results from the Household Finance and Consumption Survey (HFCS), not available for Sweden and the UK, show that the percentage of households reporting mortgage debt – a large part of which is tied to the household main residence – has declined between 2009 and 2015 (Table 2). The Netherlands stands out with a high share of households holding mortgage debt (42%), followed by Hungary where one in every five households is reported to have a mortgage. The lowest values are recorded in Greece (13%) and Italy (10%). There is less country variation regarding mortgage debt payments relative to gross household income. The ratio ranges from 14% to 18% in four of the five countries, Austria being the outlier with a notably lower figure of below 7%.

Table 2: Indicators of mortgage debt burden (%)

	EL		IT		HU	NL		AT	
	2009	*2014*	*2011*	*2015*	*2014*	*2010*	*2015*	*2011*	*2015*
Households with mortgage debt[1]	17.5	13.3	10.8	10.1	20.1	44.7	42.0	18.4	16.7
Mortgage debt service- income ratio[2]	16.4	18.2	15.5	15.8	16.9	14.2	14.0	4.6	6.7
Loan-to-value ratio[3]	31.6	42.7	30.0	37.9	40.0	52.5	60.2	18.7	24.8

Notes: *1 Mortgage debt includes mortgages collateralised on household's main residence and mortgages collateralised on other real estate property owned by the household.*
2 The mortgage debt service to income ratio is the ratio of the monthly mortgage debt payments to gross household income (1/12 of the annual total), calculated for households with mortgage debt.
3 The loan to value ratio for households having mortgage debt collateralised on their main residence. It is calculated as the ratio of the household's mortgages collateralised on household's main residence to the current reported value of the household's main residence.
Source: *European Central Bank, Household Finance and Consumption Survey (HFCS), wave 1 and 2.*

The loan to value ratio (LTV) indicator shows the size of the mortgage relative to the value of the property (for households with mortgage debt on their main residence). Particularly high loan-to-value ratios can be observed in the Netherlands (60%), although these are also considerable in Greece, Hungary and Italy (38-43%), while they are rather low in Austria (around 25%).

Housing market characteristics and policy changes

Austria. In comparison to many other EU countries, the housing market in Austria shows a nearly equal split between home ownership and rental housing. In 2015, 49% of households lived in owned dwellings and 42% in rented ones, while 9% were either living for free or in an accommodation provided by employers. The subsidized rental housing sector is large (except in some rural areas, where rental markets in general are smaller), with housing associations and municipalities supplying dwellings at cost-rents (Mundt 2017). Nevertheless, with rising rents over the last decade – especially in larger cities – access to affordable housing has become difficult for low-income households (Dawid and Heitzmann 2015, Baumgartner 2013).

The Netherlands. Similarly to Austria, the Dutch housing market is characterised by a highly subsidised and regulated social housing sector, defined as comprising homes where the monthly rent is set below that prevailing in liberalised tenancy agreements (Government.nl 2016). The rental sector accounts for 43% of homes, the large majority of which belong to the regulated rental sector (Capital Value 2016). Only 10% of the rental housing stock is private. Housing associations, which own around 75% of all rental homes, are responsible for managing social housing. Owner-occupied housing, which concerns around 57% of all homes, has risen in importance during the last couple of decades, thanks to a shift in public policies in favour of home ownership. Mortgage financing schemes, in particular the widely accessible and generous mortgage interest tax relief, has played a crucial role in driving this development (Vandevyvere and Zenthöfer 2012). Increasing house prices during the 1980s and 1990s, coupled with high and rising loan-to-value ratios (LTV) and low repayment rates, resulted in one of the highest levels of gross household debt in the EU. Due to the fall in property prices since 2007, around 30% of Dutch home owners were in ‘negative equity trap’, i.e. left with an outstanding mortgage higher than the value of their property. To reduce housing debt and limit over-investment in housing, the Dutch authorities decided to set an LTV cap of 106% from 2012, to be gradually reduced to 100% by 2018, while tax relief for new mortgages became less generous (Ministry of Economic Affairs 2015). The new Housing Act that came into force on 1 July 2015 has also led to a number of changes in the regulated rental market. The overall aims are to increase affordability of social housing for the lowest income groups and improve the functioning of the social rental sector. Specific measures include the clear separation between 'services of general economic interest' (SGEI) and non-SGEI activities of housing associations. The primary focus is on providing affordable and good quality housing to people with limited financial means, and allocating social housing to 95% of those who qualify for housing benefit, while keeping rents below a certain limit (Ministry of Economic Affairs 2015). It remains to be seen if the policies adopted will meet the goals set out in the legislation.

Sweden. The distinction between social housing and the private rental sector is blurred in Sweden (Bååth 2015). Municipal housing companies, which own about half of the rental sector, aim to provide housing for all regardless of income; therefore, income thresholds do not apply in the allocation of municipal dwellings. Moreover, rents in the private and public sector [2] are more or less the same due to the so-called utility value principle [3]. The weight of the rental sector as a whole has declined as a result of the increased liberalisation and deregulation of the housing market, a development that has clearly favoured home ownership, now around 70% (Holmqvist and Turner 2014). Housing prices rose rapidly in the past six or so years, so housing costs have become increasingly burdensome, especially for renters. At the same time, a large share of home owners face high mortgage indebtedness. In 2010, the Finance Authority responded with setting a cap on new mortgages at 85% of the market value of the property (Sveriges Riksbank 2015).

Italy. The Italian housing market is historically based on home ownership, which reached 72.9% in 2015. The strong preference for home ownership was fuelled by a strict rent control legislation passed in 1978, which subsequently led to the collapse of the rental market in the 1990s (Baldini and Poggio 2012, 2014; Eurostat 2016). While disposable incomes increased only marginally, Italy witnessed a rapid increase in house prices and rents between 1998 and 2007 (Baldini and Poggio 2012, 2014). In the years following the financial crisis, credit institutes tightened lending rules, which led to an increase in the demand for rental housing. Affordability, however, remains out of reach for many low-income households, as house prices and rents remain high and public provision of housing very limited (Bianchi 2014). The situation is particularly problematic in metropolitan areas (Pittini et al. 2015). The increase of evictions of private tenants [4] is an indirect example of the severe lack of affordable rental housing in Italy (Ministerio dell'Interno 2016). These pressures have made government intervention necessary [5]. To ease the strain on households with outstanding mortgages, the government passed a "Housing Plan" in 2009, which allowed suspension of mortgage payments for 12 months in case of unemployment, reduction of working hours, serious illness or death (Marino 2014). This plan expired in 2013. In general, the situation of Italy's housing and mortgage market has improved slightly in 2015 (latest review available) compared to earlier years (Marino 2016). After large drops in housing transactions – the largest between 2011 and 2012, when transactions decreased by 26% – 2015 has seen a slight increase of 7.5% compared to 2014 (Marino 2014). Those purchased with a mortgage rose by

[2] In Sweden, there are four different types of tenures: dwellings with right of tenancy, condominiums, dwellings in cooperative housing societies and cooperative rental dwellings (Bååth 2015).

[3] According to the utility value principle, rents should be set by reference to similar tenancies in the given area (Bååth 2015).

[4] Baldini and Poggio (2012) explain that end of lease evictions were a major concern for public intervention prior to 1998, and had an impact on social housing allocation (priority to evicted households). In contrast, until the recent recognition of involuntary arrears (*morosità incolpevole*), households evicted because of arrears were considered ineligible for social housing in many Italian regions.

[5] Additional drivers increasing demand for affordable rental housing are demographic change (especially ageing and migration) and decreasing household size (Tosi and Cremaschi 2001, Bianchi 2014).

19.5% in 2015 (Marino 2016), reflecting an increasingly favourable lending environment. However, in terms of effectiveness in social inclusion these policy measures have had only limited success due to different levels of coordination (national, regional and municipal) at which the measures are administered (Baldini and Poggio 2012, 2014). With social housing playing a minor role, housing allowances and tax credits for renters are the main (but mutually exclusive) instruments for the government to support low- and medium-income tenants.

Hungary, like other CEE countries, has a high home ownership rate (82% in 2016), a consequence of the widespread privatisation process during the 1990s. Conversely, the social rental sector is virtually non-existent, accounting for only 3% of the entire housing stock (Hegedűs 2011). Home ownership was fuelled further by generous mortgage subsidies and easy access to cheap foreign currency denominated loans (mostly in Swiss Francs). At the onset of the financial crisis, Hungary was already in a dire financial state and close to economic recession. For those with mortgages denominated in foreign currency, the devaluation of the national currency resulted in a drastic increase in the cost of mortgage payments. Coupled with a decrease in household incomes, this led to an increase in arrears and foreclosures. Probably the most important recent regulatory change concerning the mortgage market in Hungary was the conversion of foreign currency denominated loans to national currency in 2015 (EMF 2016). The same year, a new loan subsidy programme (CSOK) was launched for the construction and purchase of new or existing housing for young families with children (or committed to having children). The programme is set to run until 2020. The number of applicants is estimated to be between 20 and 30 thousand in the next two to three years (European Construction Sector Observatory 2016). For 2016, the government allocated HUF 40 billion (EUR 129 million) for this housing programme. Meanwhile, the main means-tested housing benefit for low-income households was abolished in 2015. In 2014, around 400,000 recipients received the benefit, at a fiscal cost of HUF 19.5 billion (about EUR 63 million) (CSO 2015).

The UK housing sector was severely affected by the global financial crisis, which had vast implications for the availability and affordability of homes across tenures, from owner occupied housing to the rental sector, private and social. Successive governments introduced legislation to address the situation of rental and property markets (Schwartz 2011). Objectives varied. Between 2008 and early 2010, the focus was on stabilising the safety net by securing the development of social housing. For example, government grants to housing associations were increased (in the UK, these non-profit organizations are the main providers of social housing, together with local councils). From 2010 onwards, the goal of reducing government debt became paramount, which led to spending cuts affecting social benefits and other programmes related to housing provision or affordability (Schwartz 2011). Nevertheless, with 1.8% of GDP spent on housing allowances, the UK still ranks highest among OECD countries (Salvi del Pero et al. 2016). Over time, there have been a number of measures to ease access to housing for low- and middle-income households, mostly to support access to home ownership, but also to rental housing. For home ownership, these include: Help to Buy (consisting of equity loans, mortgage guarantee, and individual savings account (ISA) government top-ups), FirstBuy (another equity loan programme), NewBuy (another form of mortgage guarantee), or shared ownership (from housing associations). Tenants on the other hand are eligible for housing benefit, also called Local Housing Allowance for private sector tenants (Shelter 2016). However, since 2013 housing benefit has been phased out, to be amalgamated into Universal Credit, together with other means-tested benefits [6]. Nevertheless,

[6] Universal Credit will replace the following six means-tested benefits: income-based Jobseeker's Allowance, housing benefit, Working Tax Credit, Child Tax Credit, income-related Employment and Support Allowance, and Income Support (GOV.UK 2016c). It was piloted in 2013 and is now available across Great Britain for new applicants. For people already claiming any of the six benefits a gradual transition phase until 2021 is envisaged (Timmins 2016).

people currently receiving housing benefit will only gradually be shifted to Universal credit until 2021 (Timmins 2016). In addition, benefit caps were introduced in 2013, which limit the amount of benefit a person can receive (GOV.UK 2016d).

Housing allowance and mortgage interest tax relief

Governments employ a variety of housing policy instruments. A recent review listed as many as 16 such instruments, falling under four categories: home-ownership subsidies, housing allowances, social rental housing, rent support and regulation (Salvi del Pero et al. 2016). This part of the paper focuses on two broad measures: housing allowances, which are usually targeted at low-income households living in rented accommodation, and mortgage interest tax relief, which tends to favour better-off home owners (Matsaganis and Flevotomou 2007). We examine the relative priority attached to these two different policy objectives, assistance to low-income households and support of home ownership.

Housing allowance

Housing allowances are usually means-tested, serving the purpose of helping low-income households meet housing costs. In most countries, they are designed to support tenants, although in some countries eligibility is extended to home owners too, provided they meet the income and other conditions. The main characteristics of the housing allowance systems covered in this section are provided in Table 3 below. More detailed information on eligibility rules and other parameters can be found in the Appendix.

Table 3: Main characteristics of housing allowance schemes

	Name	Housing sector	Target group	Dependent on	Government expenditure as % of GDP
Greece	Rent subsidy	Rent	Private sector employees, pensioners	Income	0.07 (2009)
Italy	Rent supplement	Rent	Low and medium income	Income and rent	0.02 (2015)
Hungary	Home maintenance support	All	Low income	Income	0.06 (2014)
Netherlands	Rent benefit	Rent	Low income	Income and rent	0.4 (2013)
Austria	Housing benefit	Rent	Low income	Income and rent	0.1 (2014)
Sweden	Housing allowance	All	Families with children, youth, pensioners	Income	0.4 (2012)
UK	Housing benefit	Rent	Low income	Income and rent	1.8 (2015/16)

Sources: Austria: Mundt (2017); BMF (2015).
Greece: OECD (2008, 2013).
Hungary: Ministry of Human Capacities (2014); Central Statistical Office (2015).
Italy: WOBI 2016 (for the Province of Bozen/Bolzano); Baldini and Poggio 2012, Istat (2015).
Netherlands: Government.nl 2016; Belastingdienst 2016; Central Bureau for Statistics 2014.
Sweden: Swedish Social Insurance Agency (Försakringskässan) 2016. Statistics Sweden 2012.
UK: GOV.UK 2016e; Salvi del Pero et al 2016.

Austria. With a relatively high share of 28-31% of GDP spent on social protection, housing benefits play a limited role in Austria. Instead, supply-side grants for provision of affordable housing are of greater importance. Social housing in Austria is available for both low- and middle-income households, while means-tested housing benefits exclusively support those with low incomes. Housing benefits, however, do not aim at securing a minimum income of recipient households. Four out of nine regions have therefore adopted a minimum income threshold as an eligibility condition (i.e. housing benefit is only available to those who are employed or were employed in the near past), to distinguish housing benefit further from minimum income schemes (Mundt 2017). Housing allowance in Austria is managed at the regional level. Nine different regional schemes exist, with differences in eligibility conditions and amounts distributed. Housing allowance is generally calculated applying the housing gap formula (see also Table A1 in Appendix), by subtracting reasonable housing expenses from housing costs [7] (Turner and Elsinga 2005; Haffner and Boelhouwer 2006; Mundt 2017). Applicable housing costs generally cover rents and building charges, but are capped at a certain limit, which differs across the nine regions. The definition of reasonable housing expenses also varies between regions, but is usually set at around 25% of household income (Mundt 2017). Other factors taken into consideration are household size, household composition and household income, when computing the respective factors. Similar to the situation in other EU countries, housing costs in Austria have been rising more strongly than income levels especially over the past two decades. As a result, regional spending on housing benefit has been rising since the 2000s. In response to fiscal pressures, eligibility criteria were tightened after the financial crisis (see Table 4). This led to the current contradictory situation of spending less on housing allowances – and aggravating the situation for those most in need – just when housing costs are increasing more strongly (Mundt and Amann 2015a).

Sweden. Housing allowance is a central component of housing policy in Sweden. In 2012, total housing allowance expenditure amounted to SEK 14.6 billion or around 0.4% of GDP (Statistics Sweden 2012). Housing allowance is comprised of three separate schemes: (1) housing allowance for families and children and for young people aged between 18 and 28 years, (2) housing supplement for pensioners, and (3) housing supplement for people receiving a disability pension (called sickness or activity compensation). These benefits can be granted to households of all tenures, provided they are registered and permanently residing in the dwelling for which the allowance is applied for, and meet conditions for income and housing costs (see Table A6) [8]. The housing allowance is targeted at those with low income, in particular single parent households, while the housing supplement for pensioners provides an important safety net for older people with low pensions. Partly due to tightened rule changes, the number of housing allowance recipients has declined during the 2000s, although it started rising again after 2011 (Swedish Social Insurance Agency 2016). In 2015, 55% of all housing allowance was paid to households with women as the sole breadwinner (Swedish Social Insurance Agency 2016). Women are also the predominant recipients of the housing supplement for pensioners. In 2015, it was announced that 75% of the allocated funds for improving this supplement would go to women (Government Offices of Sweden 2015). The level of the housing allowance depends on income and capital, the number of persons in the household, the size of the dwelling and housing costs. The latter includes rents, cooperative or association fees, monthly housing expenses such as heating costs, and in the case of home owners also mortgage payments. The housing allowance is calculated and paid on the basis of the applicant's own estimated income, and is adjusted retrospectively after the yearly

[7] The housing benefit therefore covers housing costs exceeding those housing expenses which are specified as being "reasonable" and which households are expected to pay themselves.
[8] Eligibilty for the housing supplement for pensioners depends the individual's income and capital, and housing costs. Further, the person must draw a full pension and be older than 65.

income tax assessment is carried out. The annual income ceiling above which the allowance is reduced used to be changed periodically to account for the effect of inflation, but since 1996 it has been fixed at the same level (Chen 2006).

The Netherlands. Rent benefit (*huurtoeslag*) is the most important subsidy available to tenants throughout the whole rental sector in the Netherlands. It provides assistance with rents to both private and social tenants, provided they meet the income criteria, which vary across household types (see Table A5). The level of the benefit increases with rent up to a ceiling, currently set at EUR 710 per month for tenants in the regulated rental sector (this is below the corresponding rent limit of the private sector) (Government.nl 2016). The maximum rent is determined by a point system (Housing Valuation Scheme) rating the quality and facilities of the property (e.g. dwelling size, type of heating, surrounding area) (Belastingdienst 2016). Tenants also benefit from caps in rent increases, set each year by the government and linked to inflation. The government has introduced a number of changes in recent years with important consequences for the rental sector (Ministry of Economic Affairs 2015). As of 2013, landlords can increase the regulated rent at a higher rate than inflation (the law establishes a maximum increase depending on the income of the tenant). Low-income households are to be compensated for the increase through the rent benefit; if the tenant's income drops after the income-based increase he or she is granted a rent reduction so as to ensure that social housing remains affordable. The expectation is that, by bringing rents more in line with income, more affluent tenants will move into the private rental market. Another recent measure in effect from 2015 is aimed at making the housing valuation scheme more market-based: 25% of the maximum rent should be determined by the "attractiveness of the property", in particular the location of the dwelling (Ministry of Economic Affairs 2015:13).

Italy. Assistance with housing costs in Italy is provided in the form of a rent supplement (*Sussidio Casa* or *Contributo al canone di locazione e per le spese accessorie* after 2013). This is granted to low- and medium-income households with registered contracts, where in either case households have to pay at least 14% or 24% of the rent themselves (see Table A4). In 2013, the previous housing allowance scheme was combined with the subsidy for utility charges (Heiss 2013). The housing allowance is administered at the municipal level and depends on the local budget allocated to the rent supplement. In some regions this might lead to the rent supplement being transmitted on a voucher like basis, especially if the budget is low or the number of applications high. In this case, regions might transfer a fixed amount or limit the group of beneficiaries to those with higher needs (Baldini and Poggio 2012). Further, there is a tax credit available for private sector tenants. These two policies – housing allowance and rental tax credit – are, however, mutually exclusive for renters. The tax credit is the same across all regions and is available to private sector tenants with annual incomes below €30,987 (Baldini and Poggio 2012). The amount received depends on the type of contract: for controlled contracts the credit is €495.80 for incomes below €15,493.71 and €247.90 for incomes between €15,493-30,987; for free contracts it is €300 and €150 respectively (Ceriani et al. 2016). Tenants have to apply for the means-tested allowance, justifying their eligibility with low income or ISE/ISEE levels [[9]]. Responsible authorities will then prove eligibility and rank people according to their needs. The relatively lengthy process this involves results in long waiting periods for the allowance to be actually distributed. As Baldini and Poggio (2012) explain: "The timing of existing procedures

[9] ISE (*Indicatore della situazione economica*) measures the financial situation of families to assess eligibility for means-tested social benefits. In addition to incomes, also real and financial assets are taken into account. ISEE (*Indicatore della situazione economica equivalente*) is the equivalised ISE according to an equivalence scale. In the case of housing allowance both measures are used (ER.GO 2015).

leads to housing allowances being transferred to beneficiaries a minimum of 1-2 years after the latter have paid the rents the benefit relates to.”

Hungary. The home maintenance support, introduced in 1993 and terminated in 2015, used to be an important supplementary social assistance benefit in Hungary, helping persons in need with the regular expenses of their housing (Albert 2009, 2015) [[10]]. Until 2011, a person was eligible for means-tested home maintenance support if the household per capita monthly income was below 150% of the minimum old age pension (HUF 28,500/EUR 92) and other housing costs exceeded 20% of total household income. In 2011, eligibility rules changed so that a person could receive the benefit if he or she lived in a household where monthly income was below 250% of the minimum old age pension, and household members had no property (Ministry of Human Capacities 2014) [[11]]. Although coverage was relatively high – the benefit was paid to 412 thousand recipients in 2014, representing about 5.0% of the total adult population – the monthly amount was low (CSO 2015). The minimum amount of the allowance was around EUR 8, although local governments could specify a higher sum. Moreover, the level of the minimum old age pension, which most social provisions in Hungary are tied to, has not changed since 2008 (Albert 2015). Expenditure on home maintenance support was 0.06% of GDP in 2014 (CSO 2015). Since 2015, compensation for housing-related expenses, along with two other social assistance benefits, may be granted under a new benefit scheme called “settlement support by local authorities” (Ministry of Human Capacities 2015). The monthly amount and the criteria for this provision are regulated locally (only an upper limit was prescribed in the law, equal to the minimum old age pension). In terms of financing, municipalities have to cover the expenses from their local budgets and in case they are unable to generate the necessary funds they can apply for funding from the central government. So far, little is known about the adequacy, coverage and take-up of this benefit scheme. The only study available on the subject found that assistance with housing costs has become more limited, more unevenly and unfairly distributed (Mózer 2016). While the government’s intention to address the highly fragmented social assistance system by introducing this broader benefit scheme could be considered a positive development, the discretionary criteria on which the provisions are based, particularly the lack of a minimum limit set to such provisions, seem problematic.

Greece. The rent subsidy in Greece suffered a similar fate to that of the Hungarian housing support. It was suspended in 2010 and finally abolished in 2012, when Workers Housing Organisation (OEK), the agency responsible for its provision, ceased to exist (Matsaganis 2013, Konistis 2014). As the social rental sector is almost non-existent in Greece, rent subsidy played a substantial role in Greek housing policy: it was basically the only benefit available to tenants to assist with their housing costs. While low-income families and other vulnerable social groups were the main target population, the fact that the benefit was provided on a contributory basis excluded those most in need (Matsaganis 2013). In 2015, a rent benefit to home owners on behalf of their tenants (worth €160 per month for a couple with two children) was introduced as part of the so-called Humanitarian Crisis Bill adopted by the Greek Parliament. The new rent benefit is currently provided to around 30 thousand people.

[10] Prior to 2004, the provision of the home maintenance support was dependent on local government decision. In 2004, the normative home maintenance support was introduced. This was provided by local authorities, however 90% of the total amount was reimbursed from the central budget (Szívós et al 2011).

[11] Monthly household income per consumer unit was calculated by dividing total monthly income of the household by total sum of the consumer units of the household. Recipients of debt management services were also eligible to claim home maintenance support.

The UK. Housing benefit is one of the main social assistance benefits in the UK, both in terms of government spending and amount of claimants (ONS Digital 2016, GOV.UK 2016a and 2016b). Eligibility for claiming housing benefit is based on low-income and savings below £16,000. The maximum amount a household can receive is capped and depends on location and household composition. In 2013, an additional 'bedroom tax' or 'under-occupancy charge' was introduced that led to a reduction in housing benefit by 14-25% depending on the number of spare bedrooms. A special feature of the British social security system is that apart from the housing benefit there is no other form of contribution to housing costs included as part of social assistance (Stephens 2005; Stephens et al. 2002).

Table 4: Overview of recent changes in housing allowance schemes

Greece	2010: Rent subsidy provided by Workers' Housing Organization (OEK) suspended. 2012: Rent subsidy terminated and Workers' Housing Organization abolished. 2015: Rent benefit introduced.
Italy	2013: Housing allowance is paid under a different scheme called "*Contributo al canone di locazione e per le spese accessorie*" which unites housing allowance with assistance for utility charges.
Austria	After 2008: Eligibility criteria for granting the housing benefit are tightened.
Hungary	2011: The monthly income limit for the home maintenance support increased from 150% to 250% of the minimum old age pension. 2011: Previously normatively run gas price and heating subsidies transferred into the home maintenance support scheme. 2015: Normative home maintenance support abolished and a settlement support introduced instead (conditions for this new support are regulated by local authorities).
Netherlands	2015: Suitability standard introduced in the regulated rental sector (social housing corporations must allocate housing to 95% of households who qualify for housing allowance and charge a rent that does not exceed the cap limit).
Sweden	2102: An amount of SEK 170 per person was added to the housing supplement for pensioners. 2015: Housing supplement for pensioners is increased covering 95% of housing costs (previously 93%).
United Kingdom	2011: Local Housing Allowance (LHA) rates capped and the basis for setting the rates changed from the median (50th) to the 30th percentile of local rents (only applies to private rental sector). 2013: Reducing the amount of the housing benefit for under-occupying tenants of working-age; the so-called "bedroom-tax" (only applies to the social housing sector). 2013: Introducing a benefit cap for working age households; the total amount of housing benefit a household can receive is capped at the national average earnings (£500 per week for a couple or family and £350 per week for a single person with no children). 2013: Housing benefit to be phased out and incorporated along with other means-tested welfare benefits into a single programme, Universal Credit.

Sources: *Austria: Mundt (2017).*
Greece: Matsaganis (2013).
Hungary: Mózer (2016); Albert (2015).
Italy: Heiss (2013).
Netherlands: Ministry of Economic Affairs (2015).
Sweden: Government Offices of Sweden (2015).
UK: Shelter 2016b; GOV.UK 2016d.

Mortgage interest tax relief

Most tax credit schemes on mortgage interest tend to have a regressive impact, with larger reliefs for high-income households, who can afford houses at higher prices (European Commission 2015a). Moreover, mortgage interest tax credits can result in macroeconomic instability as it incentivises households to acquire higher levels of mortgage debt relatively to their income than they would otherwise do (European Commission 2015a). Mortgage interest tax relief may operate as tax allowance (reducing taxable income), or tax credit (reducing the amount of tax due). The value of tax relief to any taxpayer may be capped. Of the seven countries, mortgage interest tax relief is currently available in four: Italy, Austria, the Netherlands and Sweden (see Table 5). In Austria, a very limited deduction of interest payments for housing credits is available. In Hungary, no tax relief on mortgage interest is granted, but subsidised loans for the purchase or construction of housing are available, mostly for first-time buyers (EMF 2016). Greece until 2013 had a tax relief granted as a tax credit, while in the UK it was abolished already in 2000 (European Commission 2015b; Matsaganis and Flevotomou 2007).

Italy. The favourable tax treatment of owner-occupiers with outstanding mortgages reflects the high importance of home-ownership. Imputed rent (*rendita catastale*) is added to the total taxable income used to assess eligibility for tax credits, but is effectively tax-free, as a tax allowance of the same amount is available. Households who finance the construction or acquisition of their main residence with a mortgage loan are eligible for a tax credit on their interest payments. This tax credit amounts to 19% of interest payments and the maximum yearly deductible amount is €4.000 (which is equivalent to a tax credit of €760; European Commission 2015b). The Italian mortgage interest tax credit is also one of the most generous in the EU, preceded only by a few countries such as the Netherlands where particularly generous provisions are in place.

The Netherlands. The mortgage interest tax relief scheme allows home owners to fully deduct interest payments on mortgage loans from their taxable income. Given the relatively high marginal income tax rate, higher income households especially benefit from this (Vandevyvere and Zenthöfer 2012). In addition, there is no capital gains tax in the Netherlands and while it is one of the few countries with a tax on imputed rent it is relatively low. For mortgages on primary residence, the interest is income-deductible for a maximum period of 30 years. As a consequence, repaying mortgages is often deferred until maturity pushing up mortgage debt and making households vulnerable in case of income shocks [[12]]. Besides influencing the number of households with mortgage debt and the amount of mortgage debt taken up by households, this tax relief policy has also important implications for public finances. Forgone revenues from mortgage interest tax relief alone amount to around 2% of GDP (Vandevyvere and Zenthöfer 2012). Despite earlier efforts to make it more restrictive, mortgage interest tax relief remains a substantial feature of the Dutch housing market [[13]]. The two most recent legislative changes concern the eligibility for mortgage interest deductibility and the gradual decrease of the maximum deductible rate. Since 2013, new mortgage debt has to be paid back in an annuity or linear form over 30 years in order to qualify for the tax deduction and for the National Mortgage Guarantee (NHG) (European Commission 2015b). Starting from 2014, the maximum deductible tax rate is being reduced from 52% (the highest income tax bracket) to 38%, by half a percentage point over a period of 28 years. At the same time, the government also took steps to lower the

[12] Households' vulnerability to sudden changes in mortgage interest rates is mitigated by the fact that the majority of mortgage loans are taken with an interest rate fixed for a period of five years or more. (Oxley and Haffner, 2010). In 2015, 68% of new mortgages had a fixed term longer than five years (EMF, 2016).
[13] For instance, in 2000 interest deductibility was limited to 30 years (Vandevyvere and Zenthöfer 2012).

regulatory ceiling for the loan-to-value (LTV) ratio. From 2013 it is being gradually reduced from 106% to 100% in 2018 (as of 2015 it stood at 103%).

Sweden. Interest payments for mortgages can be deducted from the base for capital income tax. Since a large share of households have little or no capital incomes and therefore cannot make a full deduction, a tax credit can be obtained at a rate of 30% as long as it does not exceed SEK 100,000 (European Commission 2015b). For the part above this limit, one receives a tax reduction at a rate of 21%. The size of the mortgage interest deduction has basically remained unchanged since the 1991 tax reform (Sveriges Riksbank 2015). To limit increases in mortgage debt and related financial risks for households, an LTV limit or mortgage cap was introduced in 2010 whereby new mortgages should not exceed 85% of the market value of the housing concerned.

Austria. Mortgage interest tax relief is available, but very limited in scope and being phased out until 2020 (Wieser and Mundt 2014; Arbeiterkammer Oberösterreich 2017). Only mortgages signed before end of 2015 are eligible. This tax deduction is granted for expenditures on acquisition of housing or housing renovations together with other so called extraordinary expenses (such as expenses for voluntary personal insurance, church contributions or donations). The maximum applicable amount is €2,920, but only one fourth, i.e. €730, is then subtracted from the personal income tax base (Schneider and Wagner 2015; Arbeiterkammer Oberösterreich).

Table 5: Rules on mortgage interest tax relief and recent changes

Greece	*2007: Mortgage interests related to principal home fully deductible from taxable income for loans taken out before 2002 (on a pro rata basis for houses exceeding 120m² for loans taken out from 2000). For loans taken out from 2003 the tax relief is provided as a tax credit at a flat rate of 20% for mortgages up to EUR 200,000 and housing units up to 120m² (tax credit on a pro rata basis for housing exceeding 120m²).* 2011: Tax credit is reduced from 20% to 10% of interest repayments. 2013: Mortgage tax relief is abolished.
Italy	*Interest on mortgage loans for building or buying a principal residence is subject to a tax credit equal to 19%, up to a maximum interest payment of EUR 4,000.* 2008: increase of the tax credit related to mortgage loan interests to a threshold of EUR 4,000 (previously set at EUR 3,615).
Austria	*Very limited and only available for mortgages signed before end of 2015. The maximum deductible amount is €730 per year. Building costs including mortgage interest payments may be deducted.* 2016: extraordinary expenditures (which include mortgage interest payments) are no longer eligible for tax deductions. Interest payments for mortgages signed before 31.12.2015 can be deducted under the old scheme until 2020.
Netherlands	*Mortgage interest payments are fully deductible under the personal income tax system.* 2013: change in entitlement to mortgage interest tax relief for new loans (linked to the condition that the mortgage loan must be fully repaid after 30 years and at least on an annuity basis). 2014: mortgage interest deductibility on new loans is being gradually reduced by 0.5% point every year from 52% until it reaches 38% in 2041 (only applies to home owners eligible for maximum home mortgage tax relief in the highest income tax bracket).
Sweden	*Mortgage interest is deductible against capital income. In case capital income is not sufficient to allow a full deduction, the mortgage interest is deducted at a rate of 30% against income tax up to a maximum of SEK 100,000 (around EUR 10,000). Above this limit, the rate of tax reduction is 21 %.* 2010: loan-to-value (LTV) caps on new mortgages introduced (a loan collateralised on a home may not exceed 85% of the market value of the home).

Sources: European Commission 2013, 2015b; Ceriani and Gigliarano 2010; Sveriges Riksbank 2015.

Distributional impact of housing allowances and mortgage tax relief

In this part of the paper, we estimate the distributional effects of mortgage interest tax relief and housing allowances in 2016 as compared with 2007 (the onset of the global financial crisis) using EUROMOD, the EU-wide microsimulation model (Sutherland and Figari 2013).

The European tax-benefit model EUROMOD

EUROMOD has a unique design within which the different country-specific tax-benefit systems are modelled in a common conceptual and technical framework, with the aim to maximise cross-country comparability. It also serves as the main or only national model in a number of EU member states. EUROMOD simulates (non-contributory) cash benefit entitlements and personal tax and social insurance contribution (SIC) liabilities on the basis of the tax-benefit rules in place and information on original and replacement incomes as well as socio-demographic characteristics from the underlying survey data. The model captures a full range of institutional features of the tax and benefit systems. These include detailed income definitions (relevant for assessing eligibility for income- or means-tested benefits), precise characterisations of family units, thresholds, floors, ceilings, tax components and relevant tax rates as well as specific eligibility rules, claw-back rates or income disregards used in computing benefit entitlements. Because of this level of detail, it is possible to obtain an assessment of the tax burden and cash benefit entitlements, and of how these vary with income and family characteristics [14].

The base simulations refer to tax-benefit policies at the mid-point (30th June) of each year. Annual policy changes for each country are summarised in EUROMOD Country Reports, along with technical notes and validation results.

EUROMOD has been validated against national administrative statistics on tax revenues collected, as well as social benefits paid to households [15]. The version of the model used in this paper is based on information on personal and household characteristics, including market incomes, from the microdata of EU-SILC 2008 and 2012 (2014 in the case of Greece and Italy), or its more detailed national version where available [16]. Monetary values have been updated to the policy years using relevant uprating indices.

The two housing policies assessed

In 2007, mortgage interest tax relief policies existed in 5 of the 7 countries examined in this paper. In the Netherlands the tax relief took the form of a tax allowance (reducing taxable income), in Italy and Sweden tax payers could benefit from a tax credit (reducing the amount of tax due), while in Greece tax payers were entitled to either a tax allowance or a tax credit depending on the year when the loan was taken. In Austria, it is available in a very limited form and being phased out until 2020.

In Greece the tax relief was abolished in 2013. Consequently, there were 4 countries left with some sort of mortgage interest tax relief policies in 2016: Italy, Austria, the Netherlands and Sweden; however the Austrian mortgage interest tax relief is not simulated in EUROMOD (see Table 6).

14 At the same time, due to lack of detailed information in the underlying data, EUROMOD simulations might not be able to capture all details embedded in national tax legislation and they do not include expenditure on social housing.
15 See EUROMOD Country Reports at https://www.euromod.ac.uk/using-euromod/country-reports.
16 Note that the micro-data used for the UK come from the Family Resource Survey rather than EU-SILC.

Table 6: Mortgage interest tax relief in EUROMOD

	2007		2016	
	Tax allowance	*Tax credit*	*Tax allowance*	*Tax credit*
Greece	Yes	Yes	No	No
Italy	No	Yes	No	Yes
Hungary	No	No	No	No
Netherlands	Yes	No	Yes	No
Austria	No	No	No	No
Sweden	No	Yes	No	Yes
UK	No	No	No	No

Broadly-defined housing allowances were present in all seven countries in 2007. Given policy characteristics and data availability, EUROMOD simulates housing allowances in 4 of the 7 countries (Hungary, the Netherlands, Sweden and the UK) applying the policy rules on the underlying dataset. In the remaining three countries (Greece, Italy and Austria) values of housing allowances are taken directly from the data as reported in the survey because it is not possible to simulate them, in most of the cases due to rules applied at local level /or based on means tests not available in EUROMOD.

Due to policy changes occurring over the period, in 2016 we simulate a new rent allowance in Greece, while in Hungary, as explained above, the previously existing (nation-wide) housing allowance was abolished in 2015, replaced by a (local) discretionary scheme that cannot be simulated in EUROMOD nor as yet imputed from the data (see Table 7).

Table 7: Housing allowances in EUROMOD

	2007		2016	
	Simulated	*Imputed*	*Simulated*	*Imputed*
Greece	No	Yes	Yes	Yes
Italy	No	Yes	No	Yes
Hungary	Yes	No	No	No
Netherlands	Yes	No	Yes	No
Austria	No	Yes	No	Yes
Sweden	Yes	No	Yes	No
UK	Yes	No	Yes	No

What is the salience of the two housing policies assessed here? How much difference do they make to family incomes? Figure 3 below shows that the amount of tax due saved because of the availability of mortgage interest tax relief as a proportion of total household disposable income was 2.2% in the Netherlands, just over 1.0% in Sweden, and 0.2% in Italy. Compared to 2007, the weight of mortgage interest tax relief in family incomes had slightly increased in the Netherlands and Sweden, and slightly decreased in Italy. (The 2007 mortgage interest tax relief in Greece accounted for about 0.2% of total household disposable income.) On the other hand, as seen in Figure 4, housing allowances contributed approximately 2.5% of total household disposable income in the UK, 0.8% in Sweden and the Netherlands, 0.2% in Austria, and below 0.05% in Italy and Greece in 2016. Relative to 2007, the scope of housing allowances was roughly unchanged in most of the seven countries examined here, with the exception of Sweden where it had been significantly narrowed. (Hungary was of course another exception: the 2007 housing allowance, not available in 2016, made up about 0.4% of total household disposable income.)

Figure 3: Income share of mortgage interest tax relief (2007 vs. 2016)

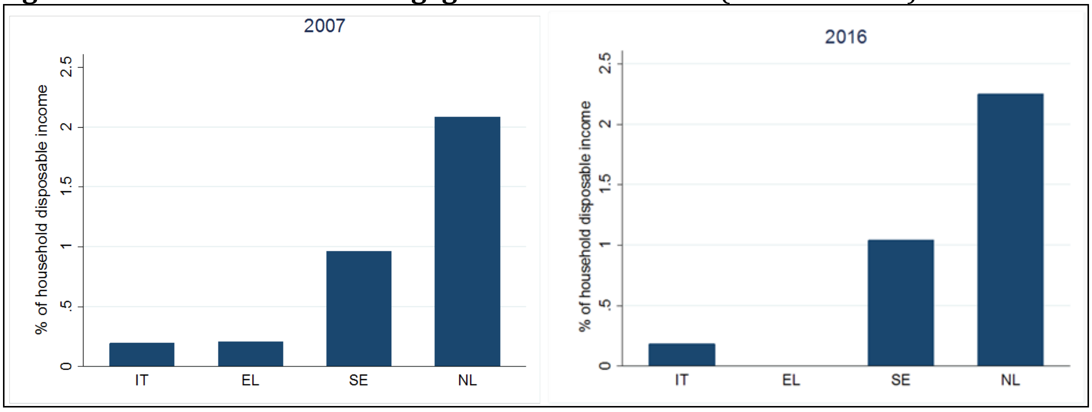
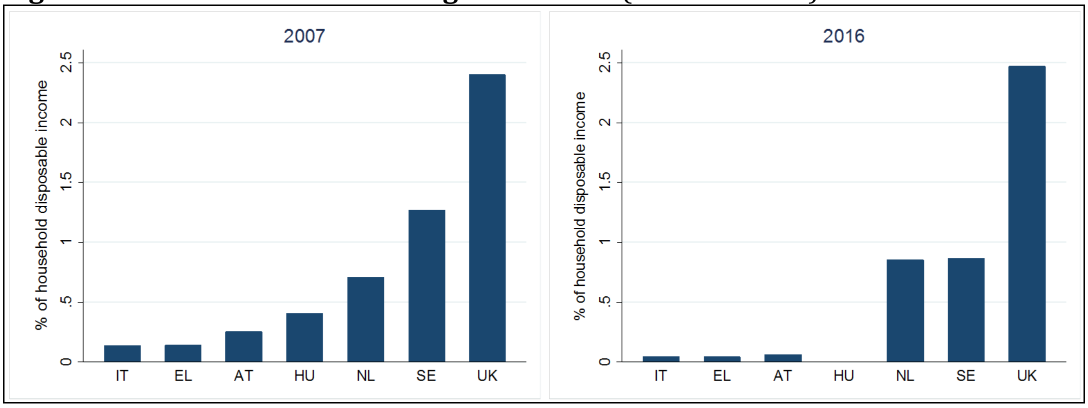


Figure 4: Income share of housing allowances (2007 vs. 2016)



Results of distributional analysis

In order to estimate the effects of the two policies in 2007 and 2016, we run a number of simulations for each year, for each policy, and for each country (40 simulations in all) [[17]]. Each simulation compares the baseline income distribution (i.e. as in place, with both housing allowances and mortgage interest tax relief, if available) with a counterfactual distribution (i.e. with mortgage interest tax relief but no housing allowance – and, respectively, with housing allowance but no mortgage interest tax relief, if available).

We assess the distributional impact of housing allowances and mortgage interest tax relief in terms of poverty (relative to a threshold fixed at 60% of median equivalised household disposable incomes in the baseline) and inequality (as captured by both the Gini index and the S80/S20 income share ratio).

Our estimates of the impact of these two policies on poverty (relative to a threshold kept constant as in the baseline) are presented in Table 8 below. The figures can be interpreted as first-order effects of a hypothetical abolition of the two policies, based on the assumption of no shifts to a new equilibrium in housing markets (e.g. affecting rents or housing prices) nor behavioural responses (e.g. in terms of changes in the labour supply of beneficiaries).

[17] Note that, as seen in Table 3, not all policies were available in all countries in both years.

As seen in Table 8, the impact of housing allowances on poverty can be described as strong (over 3 percentage point reduction in poverty rates) in the UK and Sweden (in 2007), rather considerable (between 1 and 2.5 percentage point reduction in poverty rates) in the Netherlands, Hungary (in 2007) and Sweden (in 2016), and relatively weak (below 0.5 percentage point reduction in poverty rates) in Austria and, especially, in Greece and Italy. Looking at changes between the two time points considered, the anti-poverty performance of housing allowances improved in the UK, declined in Sweden and (from a very low base) in Greece, and remained more or less unchanged in the Netherlands, Austria and Italy. As for the impact of mortgage interest tax relief on poverty, it turns out (as expected) to be much less significant. The percentage point reduction in poverty rates falls just short of 0.9 in the Netherlands and 0.3 in Sweden (up from 0.4 and 0.2 respectively in 2007).

Table 8: Poverty effects of housing allowances and mortgage interest tax relief

	Housing allowances		Mortgage interest tax relief	
	2007	*2016*	*2007*	*2016*
Greece	-0.13	-0.04	0.00	n.a.
Italy	-0.06	-0.07	-0.09	-0.03
Hungary	-1.55	n.a.	n.a.	n.a.
Netherlands	-2.33	-2.21	-0.42	-0.88
Austria	-0.46	-0.43	n.a.	n.a.
Sweden	-3.64	-1.59	-0.21	-0.29
UK	-4.59	-5.47	n.a.	n.a.

Note: Figures are differences in at-risk-of-poverty rates (at 60% of median incomes), comparing the baseline with a counterfactual income distribution without the policy being assessed, and keeping the poverty threshold constant as in the baseline.
Source: EUROMOD version G4.0.

The impact of housing allowances and mortgage interest tax relief on inequality, estimated using EUROMOD, is shown in Table 9. Once again, our estimates are first-order effects of a hypothetical abolition of the two policies, assuming no behavioural responses nor changes affecting clearing prices in housing markets. Inequality is measured here using two different indicators: The Gini index (which is more sensitive to changes affecting the middle of the income distribution), and the S80/S20 income share ratio (by construction more sensitive to changes affecting the top and the bottom of the income distribution).

The finding that immediately stands out as we inspect Table 9 is that the two policies have opposite effects on the distribution of incomes: housing allowances reduce inequality, while mortgage interest tax relief tends to increase it. Otherwise, the magnitude of the effects appears to be a function of the size of the scheme assessed (and its design). Specifically, housing benefit in the UK, the largest housing allowance in our sample, reduced inequality more than equivalent schemes did in the other six countries – and this is true irrespective of the inequality measure used. The Swedish and Dutch housing allowances came next in terms of inequality reduction, followed by the 2007 Hungarian scheme, while the Austrian, Greek and Italian schemes had a more negligible impact (though still reducing inequality, albeit very slightly). As far as mortgage interest tax relief is concerned, of the three countries where it was available (four in 2007), its regressive, inequality-increasing impact was greatest in the Netherlands, small in Sweden and in Greece (in 2007), and insignificant in Italy [18]. Comparing our two points in time, the inequality-

[18] As Baldini and Poggio (2014) have pointed out, approximately 20% of Italian households own homes they inherited (or were given to them). In spite of the recent expansion of the mortgage market, about one third of home purchases are still not mortgage-backed, typically supported by family savings and wealth, and intergenerational transfers.

reducing impact of housing allowances in Sweden seemed to grow weaker in 2016 relative to 2007. The picture was more inconclusive when the other countries were examined: in the UK and the Netherlands, this was only the case in terms of the S80/S20 ratio, while the Gini index suggested a stronger impact in 2016 than in 2007; in Austria, the reverse was true. Similarly, the inequality-increasing impact of mortgage interest tax relief in the Netherlands appeared to be somewhat softer in 2016 than in 2007 when looking at the S80/S20 ratio. Otherwise, results hardly changed.

Table 9: Inequality effects of housing allowances and mortgage interest tax relief

Gini	**Housing allowances**		**Mortgage interest tax relief**	
	2007	*2016*	*2007*	*2016*
Greece	-0.001	-0.001	0.001	n.a.
Italy	0.000	0.000	0.000	0.000
Hungary	-0.005	n.a.	n.a.	n.a.
Netherlands	-0.006	-0.007	0.006	0.006
Austria	-0.002	-0.002	n.a.	n.a.
Sweden	-0.011	-0.009	0.001	0.001
UK	-0.019	-0.021	n.a.	n.a.
S80/S20	**Housing allowances**		**Mortgage interest tax relief**	
	2007	*2016*	*2007*	*2016*
Greece	-0.04	-0.04	0.02	n.a.
Italy	-1.01	-0.01	0.00	0.00
Hungary	-0.14	n.a.	n.a.	n.a.
Netherlands	-0.20	-0.19	0.13	0.12
Austria	-0.05	-0.06	n.a.	n.a.
Sweden	-0.33	-0.30	0.02	0.02
UK	-0.87	-0.82	n.a.	n.a.

Note: Figures are differences in the values of the Gini index and the S80/S20 ratio, comparing the baseline with a counterfactual income distribution without the policy being assessed.
Source: EUROMOD version G4.0.

We present more detailed results in the Appendix. Figures A.1-A.7 show the income share of each policy and the distribution of spending involved, by income decile, in each country. This analysis reveals how the resources transferred by the two policies in each country are distributed to households at different points of the income scale. Note that such distribution of resources may either result from design features of the policy concerned (e.g. as a result of income tests explicitly aimed at targeting housing benefits), or from the characteristics of recipients (e.g. as a consequence of the fact that better-off households are more likely to be eligible for mortgage interest tax relief).

On the whole, housing allowances appeared to be rather narrowly targeted at low-income households. It can be shown that in Sweden 92% of all housing benefit available in 2016 was transferred to the poorest 20% of the population. The corresponding proportion in the other countries was 81% in Greece, 68% in Austria, and 62% in the Netherlands. In Italy and the UK, the poorest quintile received a mere 26% and 35% respectively of all housing benefit available. In 2007, the proportion of total spending directed to the poorest 20% of the population had been lower in all countries: spectacularly in Greece (30%), significantly so in Austria (53%) and Italy (15%), slightly lower in Sweden (87%) and the UK (30%), while it was slightly higher in the

Moreover, gifts and bequests are effectively not taxed, while market transactions are. In this sense, mortgages have extended access to housing to those born to less than wealthy families.

Netherlands (65%) relative to 2016. (In Hungary 88% of all housing benefit available in 2007 was paid to the poorest 20% of the population.) On the contrary, mortgage interest tax relief seemed to be disproportionally captured by better-off households. In 2016, the proportion of total tax revenue foregone because of mortgage interest tax relief that was received by the richest 20% of the population ranged from 58% in the Netherlands to 40% in Sweden and 37% in Italy. In 2007, the equivalent proportion had been 61%, 39% and 33% respectively (and also 61% in Greece).

Conclusion

In this paper we have reviewed recent changes in two housing policy instruments, namely housing allowances and mortgage interest tax relief, and have estimated their distributional impact. Although mortgage interest tax relief has been phased out or abolished in many European countries, it is still available in four of the seven countries reviewed. This policy instrument is particularly generous and widely used in the Netherlands. Its impact on the Dutch housing market remains substantial despite recently implemented changes to make it more restrictive. Results from microsimulation analysis using EUROMOD show that it has a large regressive, inequality-increasing impact (although compared to 2007, the effect seems to be somewhat weaker in 2016). The impact of mortgage interest tax relief was small in Sweden and Greece (in 2007), and insignificant in Italy in terms of increasing inequality.

In contrast, housing allowance is shown to have a considerable inequality-reducing effect in Sweden, the UK, the Netherlands and Hungary (in 2007). Changes between the two points in time indicate that this effect has increased in all four countries in 2016. Corresponding figures for Austria suggest a fairly weak and decreasing impact, while no significant change can be observed in the cases of Italy and Greece. As regards the anti-poverty performance of housing allowance, microsimulation analysis using EUROMOD confirms the important safety-net role attributed to this benefit and its relatively wide coverage in Sweden, the UK, and, to a lesser extent, in the Netherlands and Hungary (in 2007). The observed weak impact in Austria hints at the rather limited role housing benefit tends to play there, whereas in Italy and Greece the very low poverty-reducing impact could be explained by the low benefit amount and the small size of the population group targeted by the benefit. In terms of targeting, Sweden stands out with 92% of all housing benefit received by the poorest 20% of the population in 2016. The corresponding figures range from 81% in Greece, between 68% and 63% in Austria and the Netherlands, to a markedly low percentage in the UK and Italy (26% and 35% respectively). In comparison, mortgage interest tax relief is shown to strongly favour higher income households. This is especially the case in the Netherlands and Greece (in 2007), where more than 50% of total tax revenue foregone due to this policy went to the richest 20% of the population in 2016 (in Sweden and Italy it was around 40%).

While housing allowances and mortgage interest tax relief are the most significant of all housing policy instruments (in terms of number of member states having them in place, number of households receiving them, and fiscal costs), they are by no means the only such instruments. Therefore, an important caveat is that the two policies assessed here should ideally be viewed in the context of other housing policies. For instance, mortgage interest tax relief should better be analysed in tandem with imputed rent taxation, and housing allowances with social housing. In practice, imputed rent taxation is relatively rare (the Netherlands and Denmark are exceptions rather than the rule), while the income advantage implicit in the provision of social housing at below-market rent is difficult (though not impossible) to analyse.

A further caveat concerns the issue of capitalisation, i.e. the extent to which tax advantages are already reflected in house prices. Under full capitalisation, changes in mortgage interest tax relief are exactly matched by changes in house prices. Improving the generosity of tax relief causes mortgage demand to increase, leading to increases in housing demand, causing house prices to rise. Conversely, reducing (or abolishing) mortgage interest tax relief would simply cause house prices to fall. In other words, under full capitalisation mortgage interest tax relief has none of its intended effects: it makes housing no more affordable to new buyers, but merely amounts to a pure transfer from the public purse to developers, land owners, and previous owners of houses on sale.

Economic theory suggests that for full capitalisation to occur the supply of housing would have to be entirely inelastic. Empirical evidence on this is rather mixed. Berger et al. (2000) concluded that interest subsidies in Sweden are fully capitalised into house prices. Brounen and Neuteboom (2008) estimated that almost 75% of the fiscal subsidy associated with mortgage interest tax relief in the Netherlands is reflected in house prices. Saarima (2010) found a similar response on the part of high-income households in Finland. Other studies have found that the relevant effect is more limited. Jappelli and Pistaferri (2007) concluded that tax considerations did not affect the demand for mortgage debt payments in Italy. Bourassa and Grigsby (2000) cited estimates that put the rate of capitalisation in the USA at around 14%. Swank et al. (2002) estimated price elasticities of new housing supply in six countries; they found that these were lower in the Netherlands (0.30), the UK (0.45) and Denmark (0.66), and higher in France (1.09), the US (1.30) and Germany (2.40). High elasticities of supply suggest that the main effect of tax advantages is to increase housing consumption in quantitative terms. Conversely, price elasticities of supply close to zero imply that the degree of capitalisation tends to 100%, as a result of which tax advantages fail to render owner-occupied housing more affordable.

Capitalisation may also be present in the case of housing allowances. The recent OECD report cited above (Salvi del Pero et al. 2016, p.47) reviews evidence from Finland (Kangasharuju 2010, Viren 2011), France (Fack 2006, LaFerrère and Le Blanc 2004), the United Kingdom (Gibbons and Manning 2006), and the United States (Susin 2002), that landlords capture a sizeable share of housing allowances by raising rents, varying from around 16% in the United States to 50% in the United Kingdom and 78% in France. Housing allowances may drive up rents by increasing housing demand in a market with limited supply, by encouraging recipients to consume more housing, by encouraging landlords to raise rents when they know that tenants receive housing allowances, and by creating the conditions for collusion between landlords and tenants settling for a higher rent and sharing the implicit subsidy.

Having said that, our findings confirm that housing allowances are generally targeted at lower-income households, while the opposite seems to be the case with mortgage interest tax relief. In view of the latter, recent policy trends aiming to restrict the scope of mortgage interest tax relief (e.g. in the Netherlands), or to abolish it altogether (e.g. in Greece, in Ireland, and less recently in Germany, France and the UK) – even though mainly driven by other concerns (such as to contain fiscal costs and reduce mortgage debt and volatility in housing markets) – have the extra effect of softening its regressive edge.

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Appendix

Table A1: Housing allowance scheme in Austria

Name:	Housing benefit *(Wohnbeihilfe)*
Number of recipients:	4.7% of Austrian households in 2014
Government expenditure:	0.1% of GDP (2014)
Eligibility:	Different across the nine regions. Four of the regions require some sort of minimal income, to prevent substitution between social security and housing policies.
Amount paid:	Housing gap formula: HB= Applicable housing costs - reasonable housing expenses On average, across regions, the amount received per household varies between €110 and €220.
Caps:	Applicable housing costs are often capped (differ by region, household size and size of dwelling) and definitions of reasonable housing expenses also differ by regions. Additionally, there are housing benefit caps in some regions.
Withdrawal rate:	Varies across regions

Source: Mundt 2017; BMF 2015.

Table A2: Housing allowance scheme in Greece

Name:	Rent subsidy administered by the Workers Housing Association (OEK), (suspended in 2010 and abolished in 2012).
Number of recipients:	105,200 households in 2009
Government expenditure:	€167 million or 0.07% of GDP (2009)
Eligibility:	As the rent subsidy functioned as a contributory benefit, beneficiaries had to work with insurance for a specific period to be eligible for the rent subsidy. Further, they or members of their household could not own a house or have other assets. For retired recipients of OEK, the only prerequisite was of being a pensioner.
Caps:	Limit on annual income in 2009: - EUR 12,000 for single or couple without children - EUR 14,000 with 1 child - EUR 16,000 with 2 children - EUR 18,000 with 3 children - EUR 20,000 with 4 children
Amount paid:	The amount of the rent subsidy depended on the family composition. In 2009, the monthly rent subsidy amounted to - EUR 115 for single or couple without children - EUR 140 with 1 child - EUR 165 with 2 children - EUR 215 with 3 or more children.

Source: OECD 2008, 2013; Konistis 2014; Leventi and Matsaganis 2016.

Table A3: Housing allowance scheme in Hungary

Name:	Home maintenance support (*Lakásfenntartási támogatás*), abolished as a single benefit in 2015. Housing cost compensation is now provided as part of a new benefit scheme called Settlement support (*Települési támogatás*)
Number of recipients:	In 2014, the support was paid to 412,416 recipients.
Government expenditure:	HUF 19.5 billion or 0.06 % of GDP (2014)
Eligibility:	Until 2011 a person was eligible for means-tested home maintenance support if he or she lived in a household whose per capita monthly income did not exceed 150 % of the minimum old age pension and the home running expenses exceeded 20 % of total monthly income of the household. From 2011 until 2015 a person was eligible for means-tested support if he or she lived in a household, whose per consumer unit monthly income did not exceed 250 % of the minimum old age pension and household members had no property. From 2015 onwards, home maintenance support can be provided as part of the Settlement support, which is regulated by local governments. Eligibility rules are set by local governments and vary across municipalities.
Amount paid:	Until 2015, the amount of the home maintenance support was determined by the per consumer unit monthly household income which was calculated by dividing total monthly income of the household by total sum of the consumer units of the household. The minimum amount of the home maintenance support was set at HUF 2,500 (EUR 8). As for the new Settlement support, the law only set an upper limit on such a provision, which is the minimum old age pension (HUF 28, 500/EUR 92 a month)*.

*Note: *There was no change in the minimum old age pension since 2008 when it was set at HUF 28,500.*
Source: Ministry of Human Capacities 2014, 2015; Central Statistical Office 2015.

Table A4: Housing allowance scheme in Italy

Name:	"*Sussidio Casa* (IPES)", after 2013 "*Contributo al canone di locazione e per le spese accessorie*"
Number of recipients:	N.A.
Government expenditure:	384 million euro or 0.02 % of GDP (2015)
Eligibility:	Two groups are eligible: - households with incomes or ISE/ISEE-levels below twice the minimum state pension (pensione minima) - households who are eligible for social housing (defined on social and economic need) Only households with registered rent contracts can apply.
Amount paid:	- Theoretical basis: Supplement= Rent - x*Income - Maximum amount €500 per month - In reality, the amount paid depends on the funds available - The allowance is paid on a monthly basis for 12 months, the application has to be renewed thereafter
Application process:	Tenants have to apply for the allowance, justifying their eligibility with low income or ISE/ISEE levels. Responsible authorities will then prove eligibility.

Source: WOBI 2016 (for the Province of Bozen/Bolzano); Baldini and Poggio 2012; Istat (2015).

Table A5: Housing allowance scheme in the Netherlands

Name:	Rent allowance (*huurtoeslag*)
Number of recipients:	1.26 million households or 16.8% of Dutch households (2013)
Government expenditure:	EUR 2.4 billion representing 0.4% of GDP (2013)
Eligibility:	Eligibility for the rent allowance depends on age, household composition, the rental price and the combined incomes of the household. Only tenants can receive the benefit.
Caps:	For tenants in the regulated rental sector (i.e. social housing tenants), the rent is subject to a ceiling (EUR 710 in 2016). For both social and private tenants (i.e. those in the unregulated rental sector), income criteria have to be met. In 2016, these were set for single households as follows: - monthly rent needs to be between EUR 231 and 409 (for those aged 18-23) and 710 (for those aged 23 or more) - annual income cannot exceed EUR 22,100 - capital (savings or investments) max EUR 24,437. For couple households: - monthly rent needs to be between EUR 231 and 409 (710 if aged 18-23 and living with a child or with a partner older than 23; and if both are older than 23) - annual combined income cannot exceed EUR 30,000 - capital (savings or investments) max EUR 24,437.
Amount paid:	The maximum rent is determined using a point system that takes into account the quality of the dwelling (size and facilities) and the surrounding area (availability of public transport, schools, shops etc.).
Application process:	After application, a notification is sent if the applicant is entitled to a benefit and, if so, the amount of the benefit. The benefit is paid in advance after a processing period that takes around 8 weeks. The final amount is calculated after the end of the year when tax payment is assessed. The final calculation shows the advance payments received and the amount that should have been received. If the advance payments are too low, the remaining amount is paid into the applicant's account in a lump sum. If the advance payments received are too high, the excess amount has to be paid back.

Source: Government.nl 2016; Belastingdienst 2016; Central Bureau for Statistics (CBS) 2014.

Table A6: Housing allowance scheme in Sweden

Name:	Housing allowance (*bostadsbigrag*)* for families with children and for young people (aged between 18 and 28) without children.
Number of recipients:	186,058 households, of which 150,563 are households with children and 35,519 are households without children (December 2015)
Government expenditure:	SEK 4.9 billion or 0.12 % of GDP (2015)
Eligibility:	Tenants, co-operative and tenant-owned housing residents, as well as home owners, are eligible for the allowance. Housing allowance for families with children is paid for those who pay more than SEK 1,400 per month for their housing, and for young people if it is more than SEK 1,800 per month. The allowance is subject to individual means testing (for families with children, the applicant's or the cohabiting partner's income cannot exceed SEK 436,000 per year, for young people living alone SEK 86,700 and if living with a partner SEK 103,720).
Amount paid:	The amount received is determined by: - applicants' income (including income from earnings, capital, business, income support i.e. social assistance, and education and student grants) - housing expenses (rents, association fees, mortgage payments, monthly operating costs for housing including heating costs) - size of the home - household composition (i.e. living alone or with a partner, number of dependent children living at home). In 2015, the maximum housing allowance that could be received per month for families with children was: - SEK 3,400 for 1 child - SEK 4,200 for 2 children - SEK 5,200 for 3 or more children For young households (aged 18-28 years) without children, the maximum amount was SEK 1,300 per month.
Deductions:	The amount of the allowance is reduced if the annual income exceeds a certain limit. In 2015, this limit was set as follows: - for married couples or cohabitees with children: SEK 58,500 for each partner - for single parents: SEK 117,000 - for young people living alone: SEK 41,000 - for young childless couples: SEK 58,000.
Application process:	Housing allowance can be paid for at most 12 consecutive months. Applicants need to estimate how much they will earn during the calendar year applied for. Preliminary housing allowance is calculated and paid on the basis of this information (usually within 30 days)**. Once tax has been assessed for the year, the final allowance is established retrospectively. Depending on the income reported at application, lower or higher than the actual income, recipients might receive more allowance or have to pay back money.

Source: Swedish Social Insurance Agency (Försakringskässan) 2016. Statistics Sweden 2012.
*Notes: *There is also a housing supplement (bostadstillägg), which is available for pensioners and disability benefit recipients, however, information provided in the table only considers the housing allowance for families and young people. **The applicant is not entitled to housing allowance if the calculated amount is less than SEK 100 per month.*

Table A7: Housing allowance scheme in the UK

Name:	Housing Benefit (for social tenants, i.e. local councils or housing associations) or Local Housing allowance (for private tenants who signed a contract after 1st April 2016; it will be applicable in 2018)
Number of recipients:	4,682,532 households (average Jan-Aug 2016)
Government expenditure:	£24,244 million pounds (2015/2016) This represents 14.2% of total benefit spending and 1.8% of GDP
Eligibility:	A person is eligible if: - paying rent - receiving low income or claiming benefits - savings below £16,000
Caps:	Limit to total amount of benefits a person aged 16-64 can receive, introduced in 2013; *Outside Greater London:* £384.62 per week for couples with or without children, and single parents; and £257.69 per week for single adults *Inside Greater London:* £442.31 per week for couples with or without children, and single parents; and £296.35 per week for single adults
Amount paid:	Amount depends on: - your 'eligible' rent* - if you have a spare room - your household income - including benefits, pensions and savings (over £6,000), and - your circumstances, e.g. age of people in the house, or whether someone has a disability. Private tenants are eligible for Local Housing Allowance and the amount received depends on the location of their home, the household size, income (including benefits, pensions and savings (over £6,000)) and their circumstances. Depending on the amount of bedrooms they are eligible for they get the following amounts: - 1 bedroom: up to £260.64 - 2 bedrooms: up to £302.33 - 3 bedrooms: up to £354.46 - 4 bedrooms: up to £417.02
Deductions:	The amount received may be reduced if recipient household has a 'spare' bedroom. This "under-occupancy charge" or "bedroom-tax" deducts - 14% of the 'eligible rent' for 1 spare bedroom, and - 25% of the 'eligible rent' for 2 or more spare bedrooms.
Withdrawal rate:	65% for income above applicable amount

Source: GOV.UK 2016b, 2016e, 2016d, 2016f; Shelter 2016b, 2016c; Salvi del Pero et al 2016.
*Notes: *Eligible rent is the perceived reasonable rent for a suitable property in a given area. It includes service charges (e.g. for lift maintenance or a communal laundry), but excludes energy costs.*

Figure A.1: Income share and distribution of spending in Greece

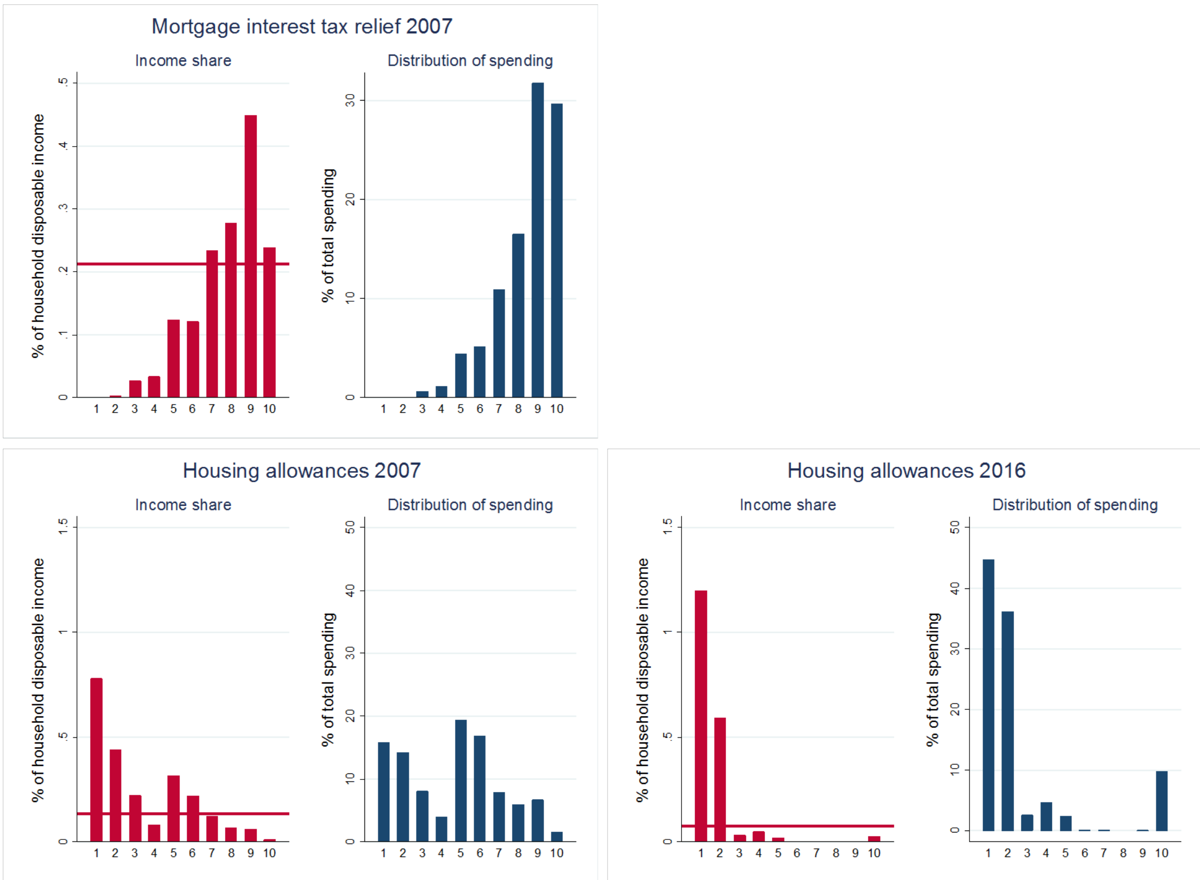

Figure A.2: Income share and distribution of spending in Italy

Figure A.3: Income share and distribution of spending in Hungary

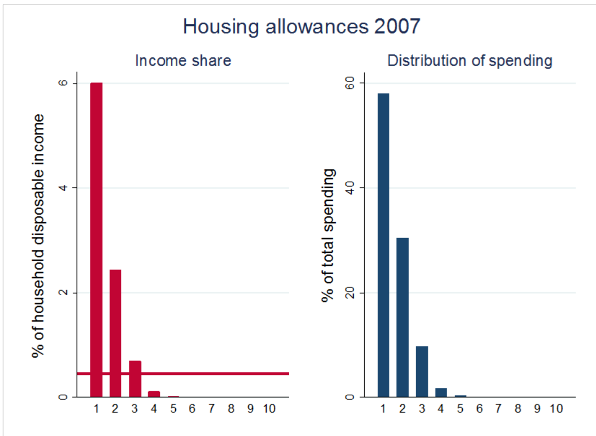

Figure A.4: Income share and distribution of spending in the Netherlands

Figure A.5: Income share and distribution of spending in Austria

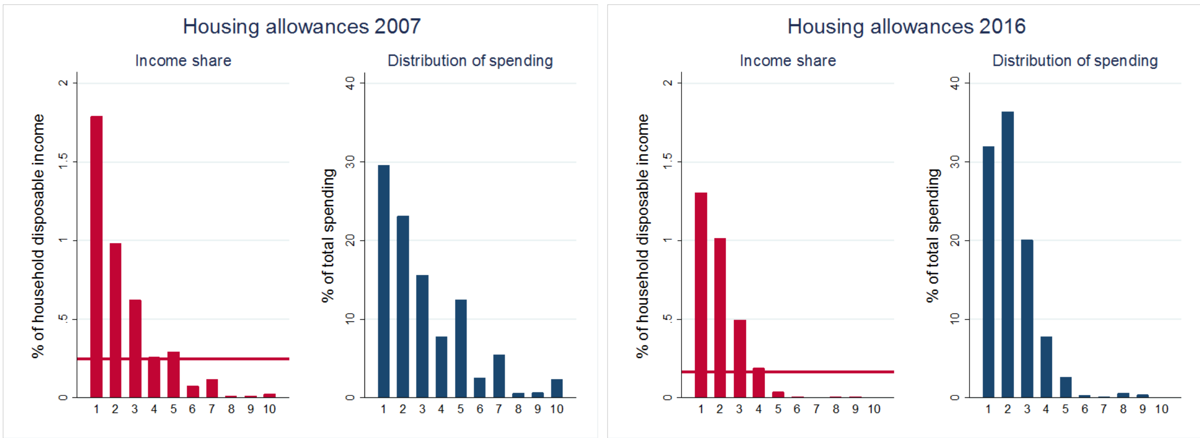

Figure A.6: Income share and distribution of spending in Sweden

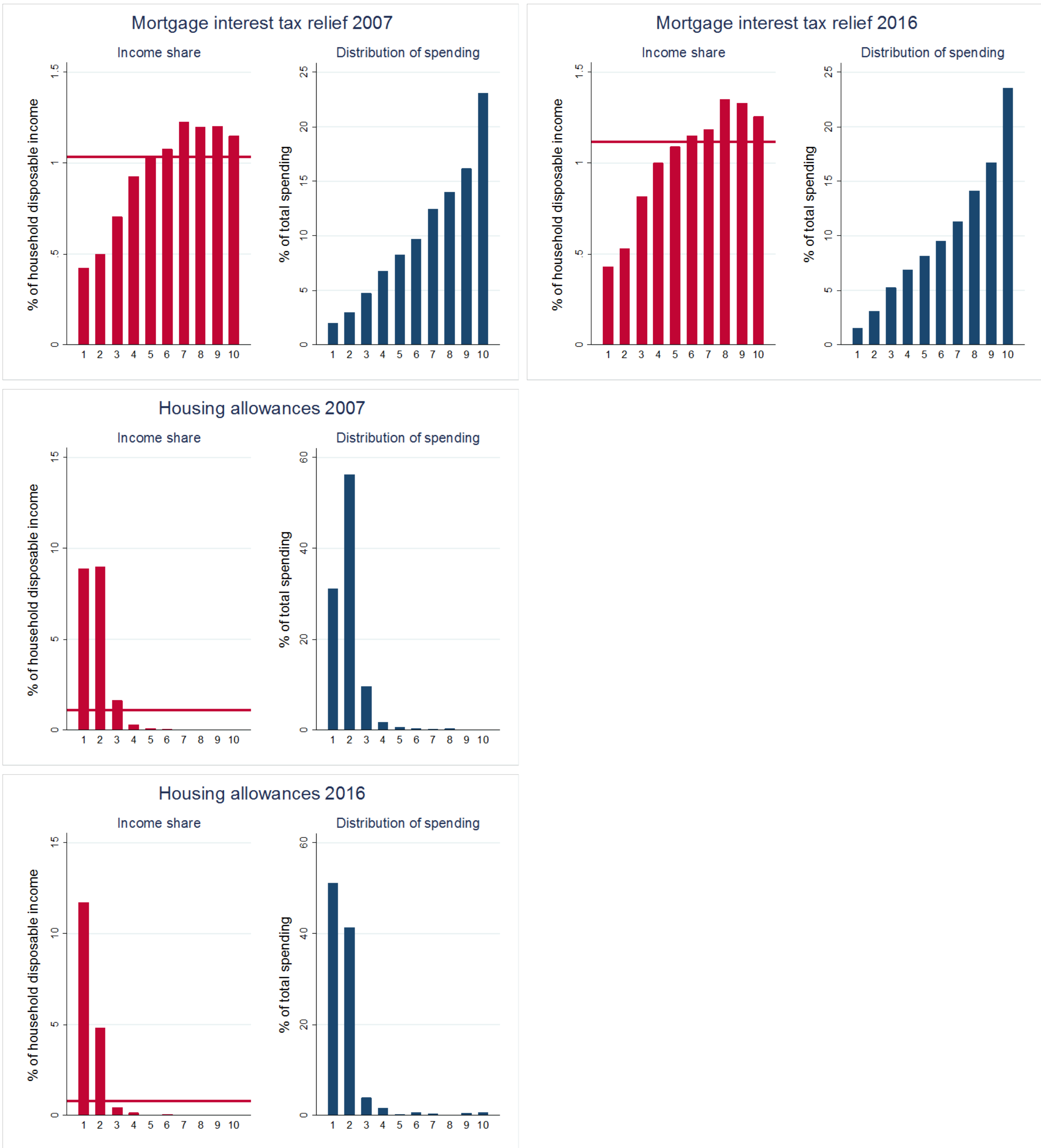

Figure A.7: Income share and distribution of spending in the UK