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The impact of housing subsidies on tenants' housing affordability

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The impact of housing subsidies on tenants' housing affordability

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INTRODUCTION

In recent years, many European Union (EU) countries have seen house prices rising more strongly than inflation, with rent levels also increasing significantly. Consequently, growing attention is given to the issue of housing affordability in the rental market by policymakers, researchers, and the media. Several policy instruments aim to ensure affordable housing for tenants, such as social housing, housing allowances, rent regulation, or social loans. However, estimations of unaffordable housing remain at a relatively high level for specific groups in the housing market, especially those with low incomes in the rental sector.

This research note focuses on the affordability of housing for tenants and the impact of the two main housing subsidies in the rental sector: housing allowances and social housing. Within the EU, countries have historically focused on different housing policy instruments, partly creating strong international differences in tenure structure. After World War II, some countries focused on subsidising homeownership (e.g. Belgium), while others invested in creating a broad social rental sector (e.g. the Netherlands). In Germany, tenure neutrality was a key principle in housing production, leading to a particularly large private rental sector. In Southern Europe, the scope of social housing tends to be small, similar to Central and Eastern Europe, due to privatisation tendencies in the early 1990s. From the 1970s onwards, many EU countries introduced a system of housing allowances to target the most vulnerable people on the housing market.

The aim of the study is to analyse the affordability of housing (housing cost overburden and payment arears) for a selection of six EU countries (Belgium, France, Italy, Germany, Hungary and the Netherlands). Furthermore, the impact of housing subsidies on affordability for tenants will be examined. The six countries represent different European regions, as the evolution of housing policies is regionally influenced. Housing allowances exist in all six countries, but their coverage differs substantially. With the exception of Belgium, both social and private tenants are entitled to housing allowances. In addition, the size of the social housing sector differs strongly between the six countries. Typically, the implicit subsidy in social housing (difference between social and market rent) is not set in reference to the income level. One of the exceptions is Belgium, which makes it an interesting case for comparison. As little is known about the interplay between housing allowances and social housing, this issue will be thoroughly addressed here.

Earlier studies on the effectiveness of housing allowances showed that they can substantially improve household income and prevent unaffordable housing for low-income tenants (Ah Jung, 2013; Flambard, 2019). In the Netherlands, Heylen and Haffner (2012) found that the housing allowance can also lower income inequality. However, Flambard (2019) pointed out that, in France, housing allowance recipients were still more exposed to unaffordable housing than those who were ineligible. Means-testing means that recipients are considerably more financially vulnerable than non-recipients and the level of housing allowances is often not high enough to close the gap. The stricter the means test, the

stronger this effect. In a regression model, presuming all other things are equal, the effect of housing allowances for 'equal type of tenants' is explored.

Several studies have examined the effect of social housing on affordability, generally finding that social housing plays a significant role in securing affordable housing for low-income households because of its below-market rent (e.g. Omic and Halb, 2017, Tunstall et al., 2013). The affordability impact differs according to the level of subsidisation of social rent (Haffner and Heylen, 2011). To date, few authors have explored the affordability impact of housing allowances and social housing and their interaction in one analysis.

This study begins with a descriptive micro-data analysis of European Union Statistics on Income and Living Conditions (EU-SILC) data for 2016 and 2020, focusing on the distribution of tenant subsidy systems and affordability indicators (housing cost overburden rate and payment arears). The year 2020 (instead of 2021) was selected for data availability: it was the last year that the crucial variable 'imputed rent' was included in yearly EU-SILC modules. The year 2016 was chosen to facilitate a considerable time range, as affordability figures do not tend to change strongly in the short term. In addition, explanatory regression models are analysed on the impact of housing allowances and social housing on affordability, using EU-SILC data.

In the next chapter the different policies in respect of social housing and housing allowances in the six countries are discussed. Chapter 3 presents the method and data. Chapter 4 discusses the distribution of tenants and their housing subsidies, followed by the results for the affordability indicators and the regression analyses, and some final conclusions.

HOUSING SUBSIDIES FOR TENANTS

SOCIAL HOUSING

This study uses the Organisation for Economic Co-operation and Development (OECD) (2020) definition of social housing:

> 'Residential rental accommodation provided at sub-market prices that is targeted and allocated according to specific rules, such as identified need or waiting lists. It may be referred to as social or subsidised housing (Australia, Canada, Germany and the United Kingdom), public housing (Australia, United States), council housing (United Kingdom) or general housing (Denmark), among others'.

During much of the post-World War II period, the model of social housing was broadly similar across Europe, with the exception of the countries in Southern Europe. There was a strong emphasis on government-supported housing to overcome the destruction and lack of investment during the war, house the fast-growing population, strengthen the economy, and ensure employment. However, the forms of subsidy and government intervention were specific to each country. Some countries focused on expanding the social or public housing sector (e.g. the Netherlands and the United Kingdom (UK)), while others promoted homeownership through grants or fiscal subsidies and invested less in social housing (e.g. Belgium) (Scanlon et al., 2014).

The extent to which housing was seen as part of the welfare state also differed between countries. After World War II, in (communist) Eastern Europe, social rented housing was considered part of the social wage, while in Northern Europe and certain Western European countries, social housing was considered an important part of the welfare state. In countries such as France, England and Germany, the highly developed labour movement weighed on social housing, with social housing mainly intended to house skilled workers and white-collar employees needed by the growing industry. By contrast, in Southern Europe, the emphasis was on supporting the 'family provision' of housing and, consequently, home ownership (Czischke and Taffin, 2011).

In Western and Northern Europe, a distinction gradually emerged between those countries that saw social housing as a mechanism to provide housing for all sections of the population, and those that emphasised lower-income housing. As the housing shortage worsened, this difference in approach became increasingly clear. In addition, in the 1980s and 1990s, some countries (e.g. UK) moved more strongly towards privatisation of social housing. However, certain countries, such as France and the Netherlands, still saw an important role for social housing into the 2000s, including in urban renewal. In Eastern European countries (e.g. Hungary), after the fall of communism, almost the entire social housing stock was privatised without introducing alternative systems to support the vulnerable (Scanlon et al., 2014). Influenced by European regulations and stricter fiscal policies, among others, social housing models in Europe seem to be converging in recent decades, with allocation gradually

focusing more on lower-income households (e.g. the Netherlands) and so-called residualisation observed in several countries (Scanlon et al, 2015). Residualisation refers to a process whereby public or social housing is moving towards a situation where it is only a 'safety net' for the most vulnerable in the housing market; those who cannot find suitable housing in the private sector because of their income, age or disability (Pearce & Vine, 2014).

In 2019, the Netherlands had the largest social rental sector in Europe, accounting for 29% of the housing stock. In Scotland, Northern Ireland, Austria and Denmark, the share exceeded 20%. A number of countries, including France (16%) have a medium-sized social rental sector, ranging from 10% to 19% (see Table 2). The Scandinavian countries (excluding Denmark) also belong to this middle group. Belgium, Germany, Hungary and Italy each has a small social rented sector of less than 10% of housing stock. However, Germany is a separate case, as it has a significant de facto social rented sector (see below). In 2019, no Southern European country had more than 5% of social housing, and Greece had no social housing at all (Housing Europe, 2021).

Social landlords usually receive object financing from the government, allowing them to set a social rent below the market rent. The social rent (and implicit subsidy) can be determined in various ways: on the basis of cost, the (estimated) market rent, the tenant's income, or a system of rent regulation. The latter is in force in the Netherlands, where a point system based on housing characteristics determines the maximum rent for social (and private) housing. In France, the social rent is derived from the cost price of the dwelling, while in Germany the market rental value is taken as the basis (Scanlon et al., 2014; Elsinga, 2011). In the Belgian regions, social rent is typically calculated on the basis of household income and capped according to the estimated market rent. Social rents in Belgium are adjusted according to the income evolution of the social tenant, which is more limited (if at all) in the other selected countries. This study uses the term ‘social rent subsidy’ for the difference between the social rent and the (estimated) market rent for the dwelling, as an implicit type of housing subsidy. By contrast, housing allowances are ‘explicit’ subsidies (Haffner and Oxley, 1999; Heylen and Haffner, 2013).

In countries with income-dependent rents (e.g. Belgium, Ireland), a large difference exists between social rent and market rent. In other countries, social rent is often not affordable for lower incomes without further government intervention. However, in many EU countries, social tenants (similar to private tenants) can benefit from a housing allowance that depends on income (Scanlon et al., 2014).

Rental housing markets can be categorised by two theoretical systems: a dualist and a unitary rental system (Kemeny, 1995). Dualist rental systems reflect a strongly regulated and subsidised social rental market, which is generally small in size. Social housing functions as a safety net for those on lower incomes and carries a certain level of stigmatisation. The owner-occupied sector is dominant, while the private rental market is seen as a market segment for those who cannot or do not want to buy a home.

In unitary rental markets, the difference between the rent levels in the private and social rental sectors is relatively limited. Rents in both sectors are moderate and there is little difference in the regulations and subsidies granted by the government. Social housing does not operate as a safety net but offers direct competition to the private rented sector, necessitating a relatively large social rental sector that is not aimed at those on lower incomes, but, rather, at broader segments of the housing market. Finally, the position of owner-occupation is less dominant and all sectors compete with one another.

Belgium, Italy and Hungary are viewed as having a dualist rental system, Germany has a unitary rental system, and the Netherlands combines elements of both (Kemeny, 1995, 2001; Hoekstra, 2009; Elsinga et al., 2008).

Table 1 Characteristics of social housing and housing allowance, six selected countries

	Size of social rented sector around 2020*, as % of housing stock**	Social rent setting	Target group for social housing	Housing allowance for social tenants	Housing allowance coverage (% of tenants) in 2020***
Belgium	6	Income and market value (Flanders and Wallonia) Cost and income (Brussels-Capital)	Low income	No Only tenants of social rental agencies (SRA)	1.4
Germany	3	Market rent; in some regions, rent varies with income	Low income	Yes	15.0
France	16	Cost	Low and middle income	Yes	55.7
Hungary	4	Cost	Low income	Yes	8.1
Italy	3	Market rent (basis for agreed rent)	Low income	Yes	2.7
the Netherlands	29	Regulation (points system)	Low and middle income	Yes	44.6

*Notes: *Figures for Belgium and Germany are for 2019, France for 2018, the Netherlands for 2020; **excluding homes of social rental agencies (SRA).*
Sources: Authors' calculations based on Housing Europe (2021), Scanlon et al. (2014), Elsinga (2011) and EU-SILC 2020.

HOUSING ALLOWANCES

A housing allowance is a subject-oriented subsidy paid on a regular basis to reduce the housing costs of households. It is used in all EU countries to make renting more affordable. However, in some countries, the instrument is not organised as a national or regional subsidy, but, rather, as a local benefit

(e.g. Hungary) (Krapp et al., 2020). In some countries, such as France and Germany, owner-occupiers can also benefit from the housing allowance.

First introduced in the 1970s, the housing allowance system was expected to be cheaper than social housing and to better address some of its shortcomings. For instance, the housing allowance ensured that households did not have to move when in financial difficulty, it prevented ghettoisation (a criticised side effect of the social rental sector) and relieved pressure on the declining social rental sector (*Bundesministerium für Arbeit und Soziales* (BMAS), 2012).

In several countries, two or more housing allowance schemes coexist, with different purposes or targeting different groups. In all EU countries, the allocation of housing benefit is linked to an income test and thus targets low-income households. Extensive support programmes can be found in several Western European countries, with high shares of tenants. In France and the Netherlands, about half of tenants receive a housing allowance, falling to 15% in Germany (EU-SILC 2020 data). On the other hand, there are also some EU countries where the share of beneficiaries does not exceed 3% of households, including Belgium and Italy. The evolution of these instruments over time is characterised by relative continuity or minor adjustments in most countries (Krapp et al., 2020).

In many housing allowance systems (e.g. France, Belgium), the benefit is related to income. The housing allowance is often determined from the difference between actual rent and so-called affordable rent (e.g. percentage of income). Subsidy ceilings are usually set, which can affect affordability (Scanlon et al., 2014). The income link is important not only in determining the level of subsidy at a given point in time, but also for its decrease or increase in response to an increase or decrease in income (marginal pressure) and the effects on the employment rate of housing allowance recipients (Van den Broeck et al., 2017). In addition to the possibility of an unemployment or poverty trap, housing allowances are criticised for their potential market-distorting effect. The subsidies increase tenants' budgets, which may lead to a higher demand for rental housing and increase the general rent level. In turn, this would affect affordability for people not entitled to housing allowance or those who do not apply for it despite being eligible (non-take-up) (Hyslop and Rea, 2019; Laferrère and Le Blanc, 2004).

HOUSING SUBSIDIES IN SELECTED COUNTRIES

Belgium

Since the reform of the Belgian state in the 1980s, housing policy became a competence of the regions. In the three regions, access to social housing targets low-income groups. The overall share of social tenants is 7% and is higher in Wallonia and Brussels than in Flanders (Winters, 2018, Anfrie et al., 2021). Social housing is provided in the three regions (until the end of 2022) by two types of actors primarily: social housing associations (SHA) and social rental agencies (SRA) (Winters and Elsinga, 2008). SRAs do not own housing, but, rather, rent housing on the private market and rent it to vulnerable groups. They agree reasonable rents with the homeowner and guarantee them a regular rental income and proper maintenance (De Decker, 2002; 2009). Since July 2023, SHAs and SRAs in Flanders

have merged, with only one actor per municipality: the housing company. This implies that each housing company then operates in a unique, non-overlapping area.

The social rent for SHA dwellings is significantly below the market price in the Belgian regions. According to administrative data, the average social rent for SHA homes in Flanders at the beginning of 2018 was EUR 306 per month, EUR 331 lower than the average market rent (survey data). The social rent is income-dependent in the three regions, meaning that the average subsidy decreases with higher income (Heylen and Vanderstraeten, 2019). The social rent can never exceed the market rent or a certain percentage of income (around 22%, varying by region) and is also capped downwards (flat rate) (VMSW, *Vlaamse Maatschappij voor Sociaal Wonen*, 2022; Anfrie et al., 2021). Tenants of SRAs in Flanders pay about 15% below the market rent. However, they can receive a housing allowance if they meet the relevant income condition (Flemish Housing Agency, 2022). Due to a change to the regulations in 2019, every SRA tenant is in principle eligible for a housing allowance. In the three Belgian regions, social housing is only accessible to households with an income below a certain limit. In 2022, the limit for Flanders was EUR 25,850 for a single person, EUR 38,773 for single-parent families and couples, plus EUR 2,167 per dependent person (VMSW, 2022b).

In the Belgian regions, there are two types of housing allowances: a 'moving subsidy' (Flanders, Wallonia, Brussels-Capital) and a rent premium for households on the waiting list for social housing (Flanders, Brussels-Capital). The target group for the former subsidy is people moving from a dwelling declared unsuitable and/or uninhabitable or too small to a dwelling that meets government quality standards. In Flanders, tenants of an SRA can also receive a housing allowance (Flemish Housing Agency, 2022). The rent premium is granted to families who have been registered on the waiting list for social housing with an SHA for a certain number of years. In 2012-2013, that was five years, reducing to four years from 2014. In order to qualify, annual income must fall below a certain income threshold (Heylen, 2020).

The calculation of housing allowances differs between the regions. In Flanders, the housing allowance and the rent premium both depend on income, household situation and location (Flemish Housing Agency, 2022). In Wallonia, the amount of the housing allowance is equal to the difference between the rent of the new dwelling and the rent of the uninhabitable, overcrowded or unsuitable dwelling being left (Walloon Housing, 2022). In Brussels-Capital, the housing allowance depends on the rent of the new dwelling and income (Brussels Housing, 2022). In the three regions, ceilings are applied for the housing allowance and rent premium.

Germany

After widespread destruction in World War II, West and East Germany each took their own course on social housing policy. In West Germany, a system of supply subsidies was designed that allowed different types of investors (public, private, profit, non-profit) to offer subsidised housing for a fixed period of time. The current German system is a continuation of this (Haffner, 2021). By contrast, East Germany developed a public housing programme that targeted all residents. This system ended in 1990 and left little trace (Droste and Knorr-Siedow, 2014). The principles of the social market economy

are important for the development of social housing in West Germany. Implementing these principles presupposes temporary government intervention in the market and the principle of tenure neutrality, i.e. every type of investor in social housing is treated equally, to avoid market distortion (Elsinga and Haffner, 2022).

In return, landlords of subsidised social housing must comply with a number of conditions. For instance, a maximum rent (*Kostenmiete,* cost rent) is imposed, which can be reduced to an affordable rent because of the subsidies. There are also income limits for tenants. In the German system, part of the housing stock is separated from the private market and temporarily given the status of social housing (Haffner, 2021). The binding conditions apply for a period of 15 to 40 years (30 years, on average), after which the rental property can be sold or rented on the private market. During the 1990s and 2000s, around 100,000 houses disappeared from social housing stock annually and far fewer continued to be added. The social housing stock has since shrunk further, partly because the binding period has become systematically shorter (Droste and Knorr-Siedow, 2014). In 2021, the number of social housing units was 1.2 million, about 2.7% of total housing stock. The private rental market is quite large in Germany, comprising about 45% of all housing stock in 2019 (Housing Europe, 2021).

In addition to the 'statutory' social rental sector, which includes housing in which the landlord must comply with social conditions, Germany also has a considerable de facto social rental sector. These are homes owned by municipal and cooperative housing companies that previously had the legal status of social rented housing. They are often rented out at rents below market price. In doing so, the municipal shareholders seek to meet municipal expectations within welfare legislation (Droste and Knorr-Siedow, 2014). In 2022, there were almost four million de facto social housing units in Germany, representing 9.6% of the total housing stock (Housing Europe, 2021).

Until 2006, social housing in Germany was jointly funded and organised by the federal government and the Länder. In 2006, full competence for social housing – subsidy, price and rent regulation, and allocation – was transferred to the 16 Länder, along with the budgets earmarked for social housing (until 2019). The purpose of this transfer was to allow the Länder to develop their own social housing policies within their urban and spatial policies, in response to different population trends (Haffner, 2021).

German social housing distinguishes between different types of housing: *Erster Förderweg*, which was the standard type until the mid-1980s, features social rents substantially below the market price; *Zweiter Förderweg* and *Dritter Förderweg* both feature slightly higher social rents and are aimed at higher-income households (40% and 60% above the income limit of the first type, respectively). The second type was common in social housing construction in the 1970s and 1980s. From the 1990 onwards, the third type was foremost (Droste and Knorr-Siedow, 2014). In 2021, the responsible district or housing agency calculated the level of the maximum social rent (*Kostenmiete*) on the basis of a profitability calculation (Lerbs and Nobbe, 2021).

In 1970, the housing allowance (*Wohngeld*) was introduced in Germany, alongside a housing cost subsidy for recipients of social benefits. Both owner-occupiers and tenants were part of the target group,

demarcated by an income limit (BMAS, 2012). Since the 2005 reform, the *Wohngeld* can only be applied for by (mainly) working people. The subsidy amount is both income and rent-dependent, and is based on a system of reference rents (Van den Broeck et al., 2017). Several areas are used to differentiate the level of the reference rent, taking into account household composition (*Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit*, 2020). Before 2005, recipients of social assistance, unemployment and other social benefits (including pensioners) could obtain a specific housing allowance. Since the 2005 policy reform, the housing subsidy for these groups is calculated and paid together with their social benefits (*Kosten der Unterkunft und Heizung*) (Haffner et al., 2013, German government, 2022).

France

In France, social housing is known as *habitation à loyer modéré* (HLM). It grew strongly after World War II – partly driven by housing shortages – and experienced a production peak in the early 1970s. Its share of total housing stock has remained at around 17% for more than three decades (Lévy-Vroelant et al., 2014; Laferrere, 2013). In France, around 100,000 social housing units are added every year, the highest level within the EU in both absolute and relative terms. In addition to a significant social rental sector, the housing stock in France consists of 58% owner-occupied housing and 27% private rented housing (Schaefer, 2018).

About 90% of French social housing is owned by social housing associations under the HLM umbrella. In addition, about 10% of social rental housing is managed by semi-public real estate companies (*Sociétés d'Economie Mixte Immobilières,* SEM), which follow the same rules and regulations as HLM landlords (Driant, 2011; Lévy-Vroelant et al., 2014).

The rent in the French social rental sector is determined by a formula that considers the initial construction cost and how the house was financed. Older houses are thus often cheaper. Social rents are relatively low and vary less between dwellings than on the private market. In 2011, the rent difference with the private market was around 30-40%, while the differential was even higher in large cities (Lévy-Vroelant et al, 2014).

The design of French social housing is that of a universal (rather than residual) sector, containing a mix of low-income and middle-income households. Income limits vary according to household type, region[1] and financing method (Ghékière, 2011). Since the 1960s, four types of social rent and intermediate rental housing have been produced, targeting different income groups (PLAI, PLUS , PLS, PLI). The income threshold is lowest for PLAI homes. PLUS homes are the standard low-rent social housing, intended for households with modest incomes.[2] PLS and PLI homes are so-called intermediate rental

[1] Distinguishing between Ile-de-France and the rest. Within Ile-de-France, there is an additional distinction between Paris and neighbouring communes, and the remainder.

[2] For this type of rental property, the income limit (excluding Ile-de France) is EUR 27,481 annual taxable income (in year N-2) for a single person, EUR 36,700 for a couple, EUR 44,134 for a young couple, a single-parent family with one child or a couple with one child. For a couple or single-parent family with two children, the limit is EUR 53,281.

homes and are allocated to prospective middle-class tenants who cannot claim HLM rent, but whose income is insufficient to find proper private housing. This is where the income threshold is highest (Lévy-Vroelant et al., 2014). Government loans for PLS and PLI housing can be used by private investors to offer housing in addition to social landlords. In doing so, these should respect two essential features of social housing: a rent ceiling and income limits (Action logement, 2022).

According to the highest income limit in 2006, 80% of tenants in France were eligible for social renting, representing one-third of all households. In practice, however, 70% of prospective tenants fell within the poorest 30% of households, making the (relatively high) income limits less relevant (Lévy-Vroelant et al., 2014). Over the decades, the income profile of French social tenants has weakened considerably and the notion of a universal rental system is no longer accurate (INSEE, *Institut National de la Statistique et des Etudes Economiques*, 2006).

Since the introduction of housing allowances in 1977, there has been a clear shift from object to subject subsidisation of housing in France at budget level. Different types of housing subsidies exist, with the aim of supporting people to pay rent or a monthly loan. In addition to private tenants, tenants in French social housing (HLM) are also eligible. Until recently, owner-occupiers were also part of the target group.

The three main subsidies are the personal housing subsidy (*Aide Personnelle au Logement,* APL), the family housing subsidy (*Allocation de Logement Familiale,* ALF) and the social housing subsidy (*Allocation de Logement Social,* ALS). Their amount is determined on the basis of the beneficiaries' income, family situation and place of residence. It is not possible to combine several types of housing subsidies. A means test takes assets into account alongside household income, where those assets exceed EUR 30,000. Eligibility criteria are based on household composition and housing. The main difference between the three housing allowances lies with the target group (Aide Sociale, 2022).

The APL is the most common subsidy and could be applied for – at household level – by both tenants and owner-occupiers. Since January 2020, however, the APL has been abolished for new owner-occupiers. The ALF is intended for households that do not meet the eligibility criteria of the APL, and has its own conditions. For example, it can only be granted to households receiving child benefit or with dependent children (up to 21 years old). In addition to tenants, owner-occupiers were also eligible for the ALF until 2020. From January 2020, it is only be granted to tenants. The ALS, for which only tenants are eligible, is granted to people who cannot receive either the APL or the ALF, and who meet the ALS conditions (French government, 2022).

Hungary

The Housing Law regulates social housing in Hungary. It describes social housing as a type of rental property controlled by municipal governments and distributed in accordance with social criteria. The share of social housing dropped from 20% to 3.7% during the past 20 years, with public housing now concentrated in the largest municipalities (Housing Europe, 2023; Hegedüs, 2013).

The widespread privatisation of social housing began in 1990 when tenants were given the opportunity to buy their public rental dwellings at a discounted rate of between 10% and 15% of market value. Households who stayed tenants in the public sector were mainly the poorest, while social tenants who could afford it typically bought their homes (Housing Europe, 2023).

There has been no national social housing programme since 2004, as the central government left the housing sector and local governments were given more authority. That decentralisation has allowed local governments to manage their housing supply, resulting in various local strategies. In smaller cities, local authorities handle their housing stock directly, while larger cities generally created housing corporations owned by local governments. A small number of social housing units are owned and operated by non-profit organisations or public corporations (Housing Europe, 2023).

Local governments are responsible for rent-setting. Social rent levels in Hungary are relatively low and cover about 30-40% of actual costs. Nevertheless, a majority of tenants have difficulty paying even these low rents and experience rental arrears. In addition, the average rent varies significantly between cities and housing stock quality. Municipalities are responsible for funding public housing, but the central government contributes through several subsidy programs (Hegedüs, 2013). The Housing Law states that the allocation should be based on social criteria. The target populations for social housing are typically newly married couples, single parents, and low-income families (Housing Europe, 2023).

The home maintenance benefit was established in 1993 and terminated in 2015. It was a means-tested additional social assistance benefit, designed to help certain households to pay their housing cost. The coverage of this housing benefit was relatively high, at about 5% of adults in 2014, but the benefit level was rather low (Hegedüs, 2013; Albert, 2015).

In 2015, a new benefit programme was introduced, ‘expenditure support by local authorities’, which aims to grant compensation for housing-related expenses. Its monthly amount and eligibility requirements are regulated at a local level. Municipalities must cover costs from local budgets but may seek assistance from the federal government (Mózer, 2016).

Italy

At the beginning of the 1990s, the competence for housing policy in Italy was transferred to the regions and local authorities, and the national public housing fund was disbanded. In 2017, there were 1.9 million social housing units in Italy, making up 3% of all housing. Cooperatives rent out roughly 329,680 units, while municipalities own about 700,000 residences and assign them based on a waiting list. In general, the social housing sector is underfunded, resulting in low levels of new supply and issues with maintenance and housing stock management. This results in a continuous shrinkage of the sector's size (Housing Europe, 2021).

With the introduction of the National Housing Plan in 2008, private profit and non-profit actors entered the social housing sector, in collaboration with the regions and municipalities. In 2016, public

housing organisations and municipalities initiated a large renovation programme for social housing stock (Di Giovanni, 2019).

Social housing rents in Italy must fulfill several conditions: they must be affordable (lower than market rent), reasonable, given the different market environments across the cities, and the reduced rents cannot be higher than the locally agreed rent (threshold) between landlords and tenants associations (Napoli et al., 2022).

The housing allowance in Italy is means-tested and takes the form of a rent supplement. The recipients of this assistance are low-income and middle-income households with registered contracts, who must cover at least 14-24% of the rent themselves. The administration of the housing allowance is handled at municipal level and is based on local funds. If the budget is limited or over-subscribed, regions may grant a fixed amount (instead of income or rent-dependent benefits) or prioritise applicants with the greatest need (Figari et al., 2019; Baldini and Poggio, 2010).

The housing allowance must be requested by tenants. In order to determine eligibility and rank people according to their needs, real and financial assets are considered, in addition to income. The relatively long application process may result in waiting periods of up to one or two years (Baldini and Poggio, 2010).

The Netherlands

In the Netherlands, the share of housing corporations in the total housing stock rose sharply after World War II, with a peak in housing production in the 1970s and 1980s. In 1985, the share of the social rental sector was as high as 43% of housing stock. The number of social rental houses remained the same in absolute terms (2.4 million), but slowly declined in relative terms, to 32% in 2014 (Elsinga and Wassenberg, 2014; Boelhouwer et al., 2014). In 2019, 29% of the housing stock comprised dwellings of housing corporations (Housing Europe, 2021).

In the mid-1990s, due to privatisation, housing associations became financially independent, while retaining their social task. Economies of scale took place and more and more social tasks were entrusted to corporations, including investing in the living environment, public spaces and housing for the elderly, and participating in neighbourhood policy (Boelhouwer et al., 2014).

As housing associations offered services that were not of general economic interest (non-DAEB[3]) – including letting in the unregulated sector – the European Commission's State aid regulations were not met. Additional problems included incidents of administrative failure, financial mismanagement (triggering a public debate on remuneration practices) and some housing associations taking large financial risks in certain commercial projects (Boelhouwer et al., 2014). All this led to several investigations that were then reflected in the 2015 Housing Act. The Act returned housing corporations to

[3] Services of General Economic Interest (*Diensten van Algemeen Economisch Belang*)

their core tasks: building, renting (through allocation) and managing social housing for people with low incomes or those who have difficulty finding suitable housing for other reasons (Gruis, 2018).

Rental properties in the Netherlands fall within the regulated rental sector if the rent at the start of the contract does not exceed a certain maximum (liberalisation limit). For 2022, this maximum limit is EUR 763 (Dutch government, 2022a). Of all rental housing in the Netherlands, about 81% belonged to the regulated sector in 2021. This is all housing owned by corporations and about half of the housing owned by private landlords (Dutch Ministry of Interior and Kingdom Relations (BZK), 2022).

There is a maximum rent limit for regulated rental housing, determined by the number of points according to the Housing Rating System (WWS). Each property is given points based on its surface area, insulation, amenities, and WOZ value (dwelling value for fiscal purposes). The number of points determines the maximum allowable rent. Given their social purpose, housing corporations often do not charge the maximum rent. The national average rent at housing associations is about 70% of the maximum (Aedes, 2022a; Haffner et al., 2008).

By 2022, housing associations must have allocated 85% of vacant or new homes within the regulated sector to low-income tenants. For this purpose, an income limit is applied, which varies according to family composition. In 2022, the limit was EUR 40,765 for single persons and EUR 45,014 for multi-person households, for taxable income. Private landlords renting regulated housing should not follow these allocation conditions. The same applies to rental housing in the non-regulated (free) rental sector (Dutch government, 2022b).

Given that a broad demographic was considered the target group and national income limits were only introduced since 2013, many middle-income and high-income households occupy housing owned by housing corporations (Dutch Ministry BZK, 2022). In the Netherlands, social rents are not increased if income rises. As a result, social tenants have no financial incentive to move to a more expensive house in the private rental market (Imandt et al., 2016).

In the Netherlands, the housing allowance (*huurtoeslag*) can be received by both private and social tenants. It was introduced in 1975 to make rents more affordable. In 2006, the target group comprised about 30% of Dutch households. The rent supplement involves a subsidy of the actual rent, which depends on the rent, household income, household composition and age of the tenant (Elsinga et al., 2007; Haffner and Heylen, 2016). The higher the income, the higher the own-contribution and the lower the subsidy. Subsidy amounts are adjusted annually for inflation through parliamentary channels (Van den Broeck et al., 2017).

The Dutch housing allowance is means-tested and the income limits vary according to household type and age (Priemus and Haffner, 2017). In addition, there is an asset condition, which stated in 2022 that a single person may own a maximum of EUR 31,747 and couples a maximum of EUR 63,494. Finally, the rent in 2022 could not exceed EUR 763, i.e. no housing allowance could be obtained above this so-called liberalisation threshold (Ministry of Finance, 2022).

METHOD AND DATA

Two Eurostat indicators are used in the analysis of tenants' affordability: housing cost overburden and arrears on rental payments. Both affordability indicators can be calculated using the EU-SILC, a cross-sectional and longitudinal sample survey, coordinated by Eurostat, based on data from the EU Member States. The survey provides data on income, poverty, social exclusion and living conditions for countries in the EU.

Housing overburden means that total housing cost is higher than 40% of disposable household income. The housing cost overburden rate is defined by Eurostat as the percentage of the population living in households where the total housing costs (net of housing allowances) represent more than 40% of disposable income (net of housing allowances). As this analysis take place at household level, a slightly adjusted definition will be applied here: the percentage of the households where the total housing costs (net of housing allowances) represent more than 40% of disposable income. As housing costs are calculated by deducting housing allowances, and these allowances are not added to disposable income, the indicator allows for analysis of the impact of housing allowances on affordability. The arrears on rental payments (during the last 12 months) are operationalised in EU-SILC by a variable with three categories - 'yes, once', 'yes, twice or more', 'no' – which is dichotomised for this study into 'yes/no'.

The housing information in the EU-SILC is collected at household level by interviewing the reference person of the household. Income data are collected at personal level, with some components included in the household section. Information on employment, education level and other personal characteristic (e.g. health status) is collected for each household member aged 16 or older.

In order to analyse the impact of housing allowances, information is drawn from EU-SILC variable HY070, at household level, which includes all allowances to compensate rent, gas, electricity, heating, water, and utility bills.

In analysing the effect of social housing on affordability, its implicit subsidy or social rent subsidy is calculated, i.e. the difference between the social (below market) rent and equivalent market rent for a similar dwelling, excluding any costs for repair, heating, water, electricity, etc. Ideally, to maximise comparability across countries, the equivalent market rent is calculated via a regression/stratification method based on actual rents. In this method, market rent is estimated using appropriate econometric model/stratification criteria, applying the available data on private rent. The source can be the EU-SILC sub-sample of full rent tenants or any other reliable external source. An alternative but less preferable method (due to its subjective nature) for determining the equivalent market rent is self-assessment, where respondents estimate the potential monthly market rent of their dwelling.

In the descriptive part of this study, imputed rents based on regression models are used for Belgium, France and Italy. Subjective rent – based on the self-assessment method – was used for Hungary, as the imputed rent variable is not available on the basis of the preferred regression method. For the

Netherlands and Germany, no equivalent market rent is available in EU-SILC. The level of social rent subsidy is thus analysed by using the ratio of the average rent for social tenants to the average rent for private tenants. This measure gives a rough indication of the subsidisation level of social housing. For comparison, this measure is also calculated for the other four countries in the descriptive analyses. In the regression analyses, the impact of social housing (or the social rent subsidy) on the two affordability indicators is measured by the difference in impact between the social and private tenants in a country, all other variables held constant (e.g. dwelling and household characteristics).

Cross-sectional EU-SILC data are used, mainly for 2020 (2021, in the case of the Netherlands), but also for 2016. The survey year 2020 was chosen as it is the last time that the imputed rent variable (HY030) was collected on a yearly basis[4] (necessary to calculate the implicit rent subsidy for social tenants). In the Netherlands, 2021 data are analysed instead of 2020 because, from 2021 onwards, a distinction is possible in the Dutch SILC data between social tenants (rent at reduced price) and private tenants (rent at market price), which was not previously included in the tenure status variable (HH021). In addition, the data for the Netherlands do not contain an imputed rent variable, making it unnecessary to choose 2020 as the year of analysis.

For analysing the impact of tenants' housing subsidy systems on affordability outcomes, several logistic regression models are analysed. In general, in logistic regression analysis, a binary variable is predicted by several explanatory variables. In this study, indicators of unaffordable housing are the predicted variables, which can take the values of affordability problem/no affordability problem. The two main explanatory variables are receipt of housing allowances (yes/no) and tenant type (living in social or private rental housing). The marginal effects of the different explanatory variables are presented, showing the absolute change in probability of an affordability problem, all other things equal, for different values of the explanatory variables.

The logistic regression models only include tenants and are set up separately for the six different countries. Interaction effects are estimated between tenure type and receipt of housing allowances, enabling an examination of whether housing allowances have a differential impact on affordability for social and private tenants. Several characteristics of the household and head of household are included as explanatory variables (e.g. age, household type, education level), together with some features of the dwelling (dwelling type, number of rooms).

As the unit of analysis is the household, the analysis is carried out at household level. The number of observations (tenants) in 2020 EU-SILC data (2021 for the Netherlands) are: Belgium (n=2,112), Germany (n=10,801), France (n=3,522), Hungary (n=387), Italy (n=2,143) and the Netherlands (n=4,863).

[4] From EU-SILC 2021 onwards, imputed rent is collected by a specific housing module on a three-year basis.

RESULTS

DESCRIPTIVE RESULTS

Distribution of tenants and housing subsidies

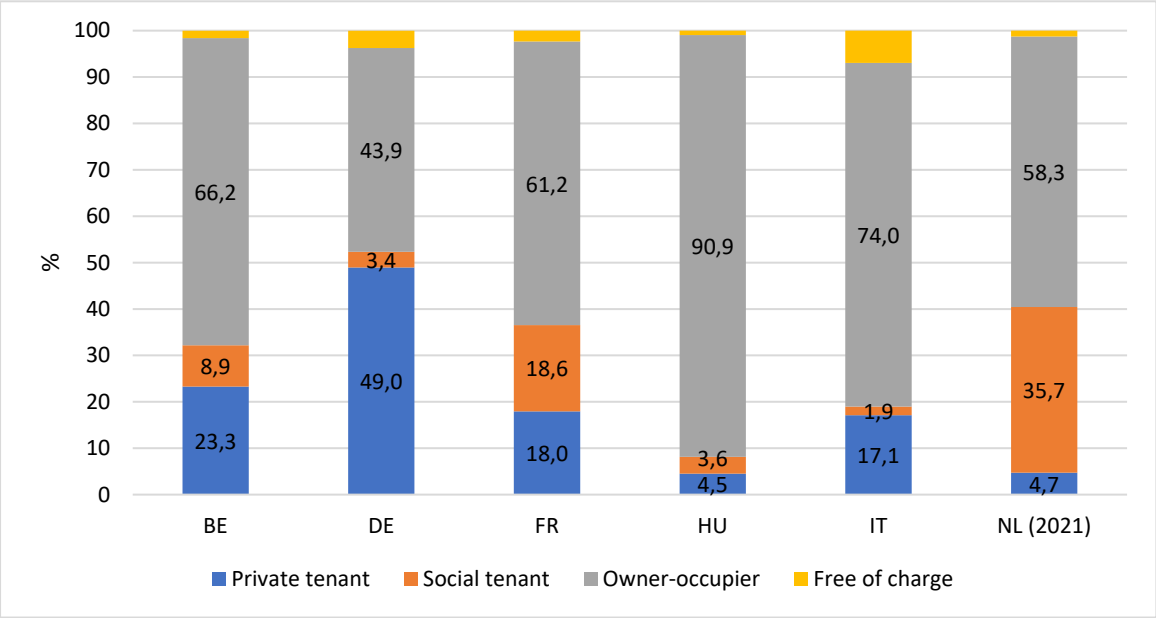
Figure 1 shows the distribution of tenure status and housing subsidies in 2020. It shows that the share of tenants is highest in Germany (52%), followed by the Netherlands, France and Belgium, with 40%, 37% and 32% of households, respectively. Italy has a share of tenants of 19%, while Hungary's rented sector share is relatively small, at 8%.

Germany's private rental market is remarkably large (49%) and its social rental sector is small (3%). The Netherlands, by contrast, has a private rented market of just 5% and a social housing sector of 36% of all households. This latter includes dwellings held by housing corporations, as well as private rental dwellings with a regulated rent. The definition in EU-SILC differs to that used in Table 1, where the size of the Dutch social housing sector reaches 29% (according to administrative figures, excluding regulated private rental dwellings). For Belgium and France, small differences are evident between the numbers in Table 1 (administrative sources) and Figure 1 (EU-SILC). This is because the administrative sources for Table 1 take the whole housing stock into account in calculating the share of social housing, including second homes and student accommodation, which are not included in survey research.

Figure 1 shows that Hungary and Italy have a small social housing sector. Hungary also has a small private rental sector, compared to 17% in Italy. In France, the share of social tenants reaches 18%, approximately equal to the share of private tenants. Finally, Belgium has a social housing sector of 9%, which is half of the size of the private rental sector.

Similarly, homeownership rates in the six countries differs significantly (see Figure 1). The rate is highest for Hungary (91%), which is typical of housing market privatisation in ex-Soviet countries after the Cold War period. Italy also has a relatively high homeownership rate (74%), also typical of a Southern European country. Belgium and France occupy the middle ground, at 61% and 66%, respectively. Germany and the Netherlands have the lowest share of homeownership, at 44% and 58%, respectively.

Figure 1 Tenure status, selected EU countries, 2020

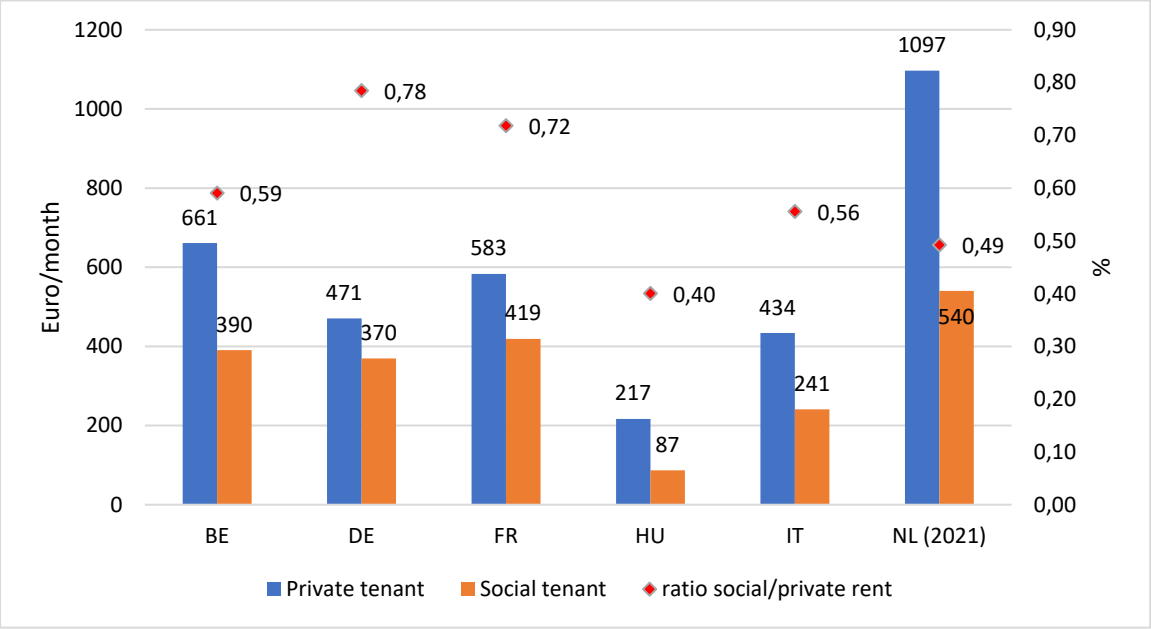


Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Figure 2 compares the average rent difference in 2020 for social and private tenants. It also provides a (basic) measure for the relative level of social rent – the ratio of average social rent to average private rent. This gives an indication of the implicit subsidy level for social tenants. The lower the ratio, the higher the implicit subsidy.

Of the six countries, Germany and France have the highest social/private rent ratio. This ratio is remarkably low in Hungary and also has a relatively low level in the Netherlands. The latter is due to the small private rental sector, which is separated from the regulated market by its higher rent level (above the liberalisation rent). The average rent in social housing is the highest in the Netherlands, followed by France. Based on the results for the social/private rent ratio, the regression analyses are expected to show that the lower this ratio, the higher the impact of social housing on affordability. Consequently, the expectation is that this impact is highest for Hungary and the Netherlands, and lowest for France and Germany.

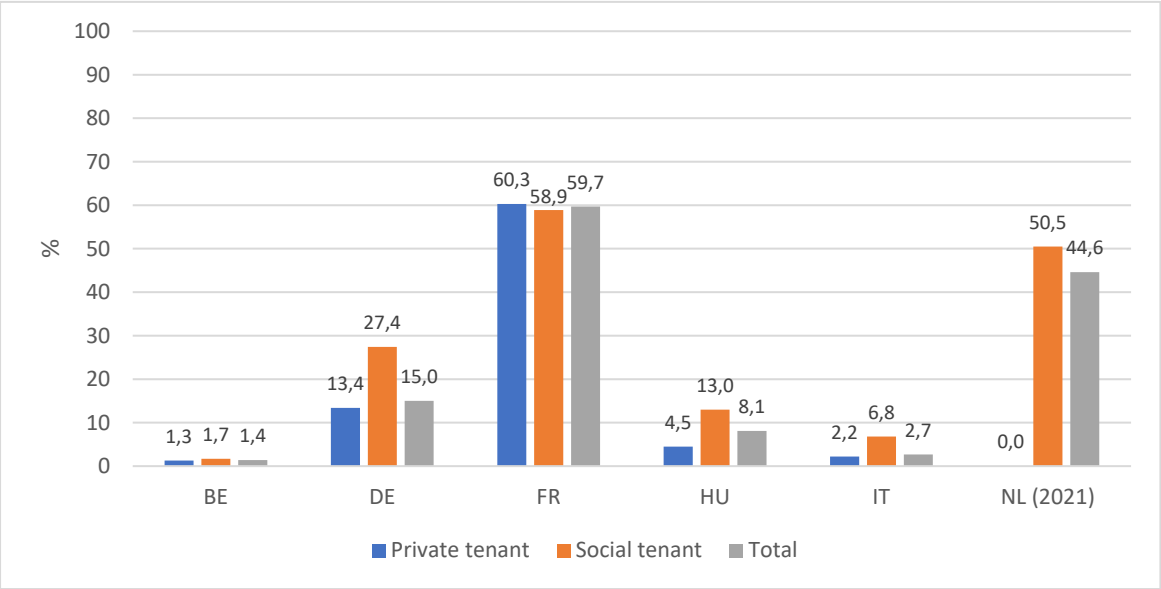
Figure 2 Average rent, by tenant type (left axis), and ratio of social/private rent (rights axis), selected countries, 2020



Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

The incidence of housing allowances differs significantly between the six countries, as shown in Figure 3 (and Table 2). In France, the majority of tenants (60%) receive a housing allowance, compared to 45% in the Netherlands. In Germany, about 15% of tenants received a housing allowance in 2020, compared to 8% and 3% for Hungary and Italy, respectively. In Belgium, prevalence was very low, with less than 2% of tenants granted an allowance. With the exception of France, the housing allowances were typically received by social rather than private tenants. Dutch private tenants do not receive a housing allowances as their rent is by default above the entitlement threshold (liberalisation limit).

Figure 3 Receipt of housing allowance, by tenant type (%), selected countries, 2020



Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Table 2 presents the average amounts of the implicit subsidy in social housing and the housing allowance. The average housing allowance is highest is Germany for both private and social tenants (around EUR 300/month). In France, Italy and the Netherlands, the average amount is about EUR 200/month, while the amounts are substantially lower in Belgium and Hungary. The average benefit is higher for social tenants than private tenants in France, but the reverse is true in Italy. This opposite result for France and Italy in terms of tenure type reflects the degree to which the benefit relates to income level (lower half of the table). In France, low-income tenants receive a substantially higher benefit than higher income tenants, on average, while in Italy the low-income group receives a significantly lower amount (EUR 110) than the higher income group (EUR 239). This reflects the rent-related nature of the Italian housing allowance system, as lower income households generally occupy cheaper dwellings or live in less expensive regions. Finally, in Belgium and Germany, the housing allowance does not vary between income groups.

For four of the six countries it was possible to calculate the implicit subsidy of social housing by means of an equivalent private rent estimation (for all social tenants) (see Method and data chapter). This social rent subsidy is, on average, highest in Italy. In Belgium and Hungary, the implicit subsidy is much higher than the housing allowance for social tenants, whereas in France the housing allowance for social tenants is higher. In Italy, both subsidy types are at a relatively high level for social tenants. In Germany, no social rent subsidy could be determined, but is unlikely to be higher than the average (high) housing allowance granted to social tenants. Figure 2 shows that social and private rent in Germany do not differ strongly, on average.

As a share of the estimated market rent, the implicit social rent subsidy reaches a level of approx. 40% in Italy and Hungary and 26% in Belgium, showing its importance to affordability. In France, the rate is about 21%, which is in line with France's relatively higher social/private rent ratio (Figure 2).

In both Belgium and France, the social rent subsidy (as a percentage of market rent) decreases with income level, whereas Hungary and Italy show no such income effect. In Belgium, this effect is due to the formula of social rent calculation, where social rent is strongly income-dependent. In France, rent calculation does not depend on income, but the result likely reflects the layered system of social housing. France has different types of social housing, each with its own subsidy level and target group. The lower the income limits for the target group, the higher the subsidy level of the governmental loan system.

Table 2 Housing allowance and social rent subsidy, coverage (%), and amount (EUR/month), selected EU countries, 2020

	Belgium	Germany	France	Hungary	Italy	the Netherlands
Housing allowance, % of households						
Private tenant	1,3	13,4	60,3	4,5	2,2	0,0
Social tenant	1,7	27,4	58,9	13,0	6,8	50,5
Housing allowance, average per beneficiary						
Private tenant	124	293	178	21	195	-
Social tenant	100	302	217	19	143	210
All tenants	114	295	199	20	187	210
Social housing, % of households						
Total	8,9	3,4	18,6	2,6	1,9	35,7
Social rent subsidy						
Average	140	-	118	139	227	-
% of estimated market rent	25.7	-	21.1	40.1	41.8	-
***By income level*[1]**						
Housing allowance, average per beneficiary						
Income < 60% of median	114	286	230	23	110	212
Income ≥ 60% of median	114	280	177	17	239	208
Social rent subsidy, % of estimated market rent						
Income < 60% of median	27.8	-	28.6	39.2	41.9	-
Income ≥ 60% of median	24.6	-	18.7	40.4	41.7	-
N (all tenants)	2112	10801	3522	387	2143	4863

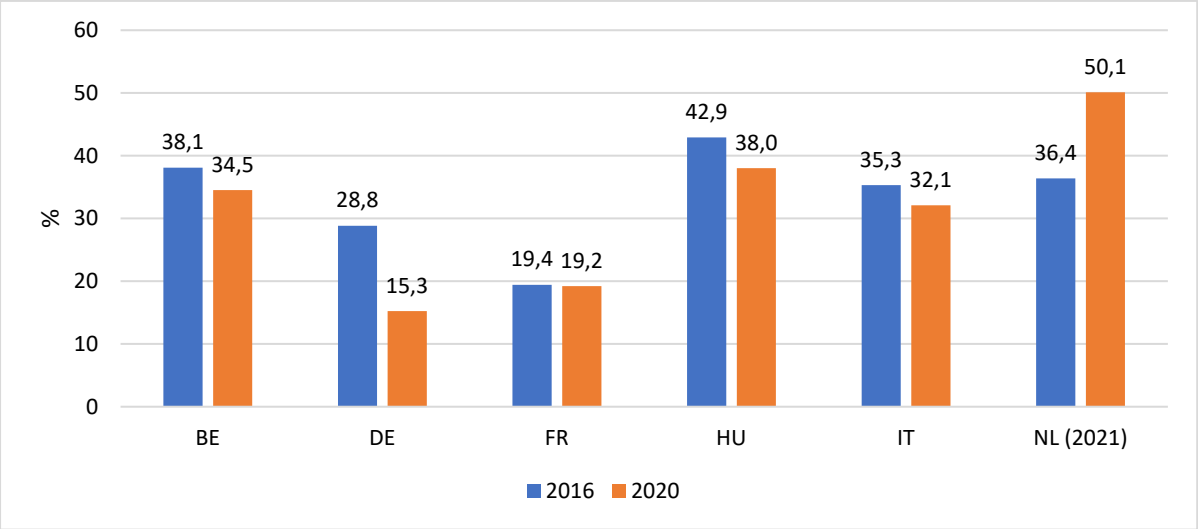
Note: 1: Equivalent disposable income.

Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Affordability indicators

Figure 4 presents the affordability trend for tenants between 2016 and 2020, according to the housing cost overburden rate. For four of the six countries the evolution is positive, especially for Germany, where the rate decreased from 29% to 15%. In France, the situation is stable, while the Netherlands shows that the group above the 40% affordability threshold is increasing. This may reflect its strongly increasing rent levels in recent years (Eurostat, 2022). In 2020, German and French tenants had the lowest overburden rate, and Dutch tenants were worst off.

Figure 4 Housing cost overburden rate, tenants, selected EU countries, 2016 and 2020

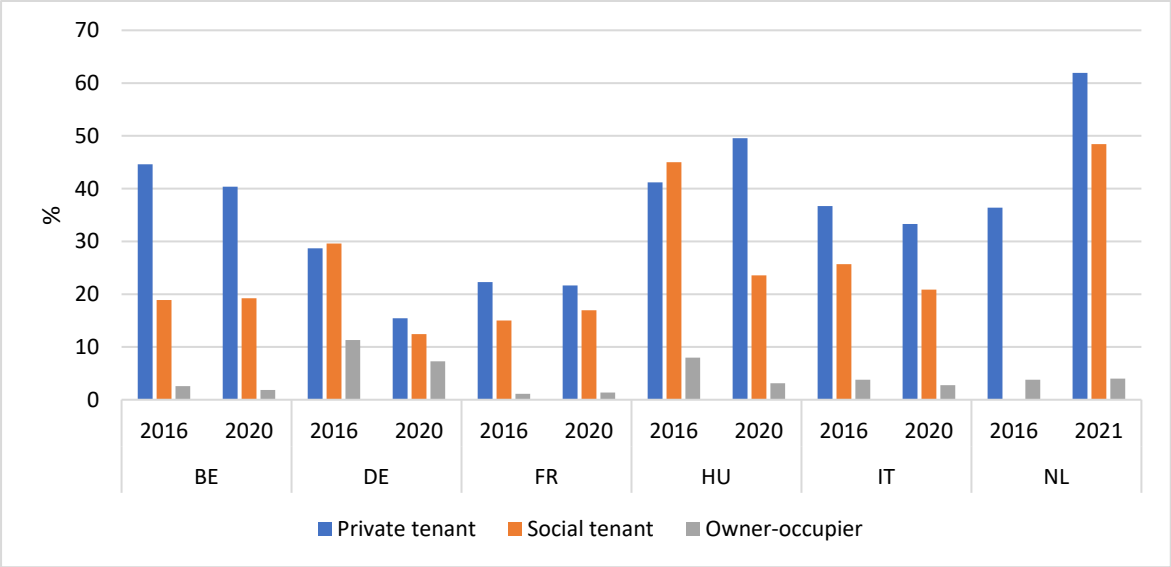


Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

In all six countries the housing cost overburden rate was higher for private tenants than for social tenants (see Figure 5). This difference is quite small in France, Germany and the Netherlands, but large in Belgium and Hungary. Private tenants have a relatively low affordability risk in Germany and France, followed by Italy. In Belgium, the Netherlands and Hungary, however, private tenants show a comparably high overburden rate.

By comparison, homeowners' overburden is relatively low in the six countries. However, capital repayments of mortgages are not included in the total housing cost in Eurostat's definition. In comparative affordability research this amount is often accounted for in ratio indicators, leading to fairly high affordability ratios for homeowners with a mortgage (Haffner and Heylen 2011; Stone, 2006).

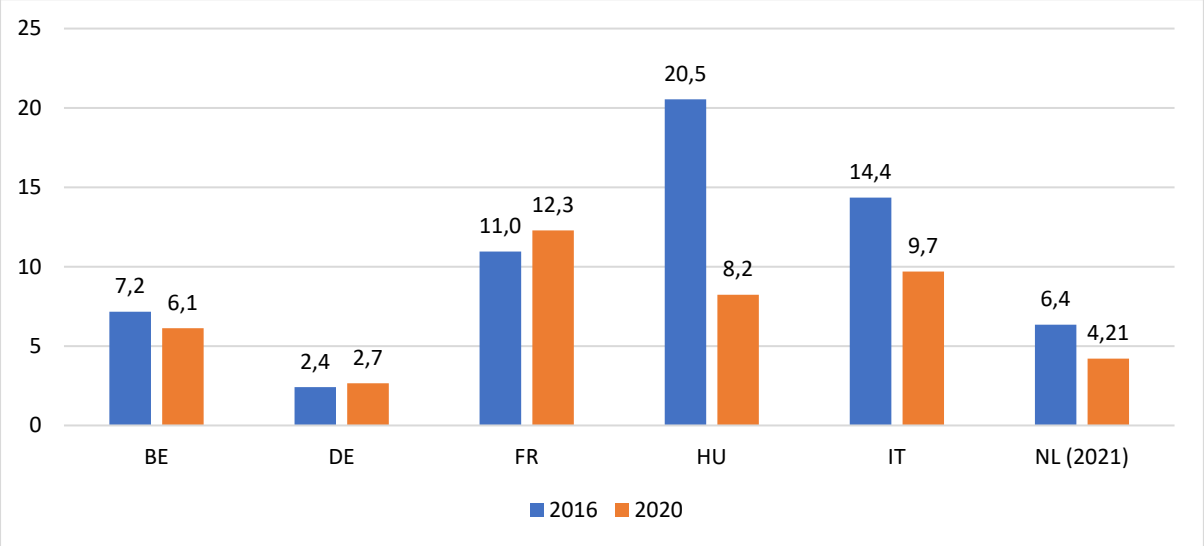
Figure 5 Housing cost overburden rate, by tenure status, selected EU countries, 2016 and 2020



Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Figure 6 shows a somewhat different picture for arrears on rental payments. Relatively few Dutch tenants had arrears in the preceding 12 months, with a positive evolution since 2016. That evolution was remarkably positive for Hungarian tenants, with a drop of 12 percentage points (pp) since 2016. Again, German tenants have least affordability issues, with an arrears level of only 3%.

Figure 6 Arrears on rental payments during past 12 months, tenants, selected EU countries, 2016 and 2020



Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Receipt of housing allowances does not necessarily imply a better affordability outcome (see Table 3). Only in Germany and Italy do the groups receiving housing allowances have a lower housing cost over-burden rate than the group without. The composition of the group receiving the allowance is different

and includes more low-income households because of means testing. Accordingly, the regression models will be analysed to assess the impact of the housing allowance for equal groups in terms of income and other relevant individual and household characteristics.

Low income and single tenants have relatively high housing cost overburden rates in the six countries. With the exception of Hungary, where the youngest group is most vulnerable, the 65+ age group has the highest overburden rate. In terms of education level, the outcomes are mixed. Finally, households headed by women have worse affordability outcomes than male-headed households in Belgium, Germany, and Italy, with the situation about equal in France and the Netherlands, and better for women-headed households in Hungary.

Table 3 Housing cost overburden rate, for tenants (%), selected EU countries, 2020

	Belgium	Germany	France	Hungary	Italy	the Netherlands
Housing allowance						
No	34.2	16.8	14.8	37.9	32.5	47.6
Yes	48.6	6.2	23.5	39.6	15.6	53.0
Gender						
Male	32.2	12.5	18.7	43.0	29.8	48.5
Female	36.9	18.8	19.6	34.9	34.9	51.5
Age group						
18-34	30.1	15.9	15.5	45.0	31.4	50.2
45-64	32.0	10.9	18.8	31.9	32.0	48.9
65 and older	46.8	20.3	27.5	26.2	34.1	51.1
Poverty statues						
Income < 60% of median	24.7	5.7	12.6	32.4	16.7	42.8
Income ≥ 60% of median	65.4	48.5	39.9	60.4	67.3	76.8
Household type						
Single	51.9	19.9	29.8	52.5	47.5	62.2
Single parent	27.9	15.4	18.3	38.1	46.1	21.4
Two adults, no dependent children	17.0	7.1	11.3	28.2	22.0	20.9
Two adults, dependent child(ren)	10.3	7.0	7.8	33.4	20.6	11.7
Education level						
Basic education	38.8	18.2	22.6	24.0	33.4	48.5
Upper secondary	33.8	16.3	18.2	39.5	31.0	50.4
Tertiary	29.6	12.7	16.3	46.1	29.3	50.6
N	2107	10488	3105	387	2124	4591

*Notes: ***, **, *: Significance at 1%, 5%, 10% level (Wald test statistic).*
Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

MULTIVARIATE ANALYSIS: IMPACT OF HOUSING SUBSIDIES ON AFFORDABILITY

This section describes the results of the multivariate analyses. For greater insight into the effects of the housing subsidies in question, logistic regression models are constructed per country, with the presence of an affordability overburden or rent arrears as a binary dependent variable and the housing subsidy systems as explanatory variables, together with relevant household and dwelling characteristics. The household features included are gender, age, education level and citizenship (local, EU, non-EU) of the household head, equivalent disposable household income, and household type. The number of rooms and dwelling type (house/apartment) are also included.

Table 4 presents the results of the logistic regression models of the housing cost overburden rate (no overburden/overburden). It shows the marginal effects or predicted probabilities for tenant categories of experiencing a housing cost overburden, relative to the reference category, holding the other variables constant. The magnitude of the marginal effects indicates the strength of the association. When the effect is negative, it means that the probability of overburden is lower for that category compared to the reference category. Conversely, positive marginal effects entail higher probabilities than the reference category. For equivalent disposable household income, the marginal effect represents the change in the predicted probability of a housing cost overburden following a 1 pp change in income, while holding all other variables constant. Table 4 also presents the level of confidence of the estimated marginal effects (p-level), based on the Wald test statistic. The Mc Madden R^2 gives an indication of the goodness-of-fit of the different models.

Crucial results are the marginal effects for types of tenants, housing allowance, and the interaction effect for both. As several housing features are controlled for (dwelling type and number of rooms), the marginal effect for social housing compared to private rental can be interpreted as the impact of the social rent subsidy on the probability of experiencing a housing cost overburden. Where the interaction effect is statistically significant, it means that the impact of the housing allowance on the overburden rate depends on the type of tenant. As the interpretation of interaction effects may be complex, predicted probabilities are presented in Table 5 for two reference tenant profiles[5]: a single person (the dominant household type in the rental market), male (reference category in the regression model; single men and single women are equally represented in the rental sector of the selected countries), aged 34 to 44, with basic education and local citizenship, who lives in a rental apartment with an average number of rooms for a single person. Two income levels are used: the first quantile and the median of the equivalent income distribution for tenants. The results presented depend on the choice of the values for the reference tenant.

For type of tenant, the impact of social housing on reducing the probability of housing cost overburden is estimated to be significant in all six countries. It is largest in the Netherlands and Belgium (marginal effects of -43 pp and -29 pp, respectively), closely followed by Hungary and Italy. This is unsurprising, as these four countries have a lower social/private rent ratio than France and Germany. In addition, affordability rates for private tenants are considerably worse than for social tenants, which is not the

[5] In order to calculate the predicted probabilities, the independent variables need to be given values.

case in France and Germany. Nevertheless, in France and Germany, the impact of social housing on affordability overburden is significant, with marginal effects of -9 pp and -4 pp, respectively. Expressed as predicted probabilities for the reference tenant (Table 5), the impact of social housing is strongest in Belgium when no housing allowances are received. For both income levels, the predicted probability of experiencing an overburden is more than three times lower for social tenants than private tenants in Belgium.

For the receipt of housing allowance, the marginal effects are significant at 1% level in all countries, except Belgium and Hungary. The relatively low impact of housing allowances on reducing the risk of overburden in these two countries is unsurprising, as they have the lowest housing allowance level for beneficiaries (see Table 2). The housing allowance effect is largest for Germany (-18 pp), followed by the Netherlands (-16 pp), Italy (-14 pp) and France (-7 pp), which is in line with their differences in benefit amounts.

France is the only country where the interaction effect is significant, i.e. two coefficients should be interpreted together to get an idea of the subsidies impact. Table 5 shows that the predicted probability of overburden for France is more than two times lower for social tenants receiving housing allowance (for both income levels), whereas this decrease in probability is only about 50% lower for private tenants receiving housing allowance. The reason for the stronger housing allowance impact for social tenants in France is the relatively strong income dependency of this benefit. In France, social tenants receive a higher housing allowance, on average, than private tenants (see Table 2). For Italy, the regression model shows no significant impact of housing allowance by tenant type, likely because the relationship between income and housing allowance goes in the opposite direction, as the housing allowance level typically reflects the rent level.

Interestingly, Table 5 also gives a picture of the cumulative impact of social housing and housing allowance on the probability of housing cost overburden. In both Germany and Italy, for the two income levels, the combination of social housing and receipt of housing allowance delivers an overburden likelihood below 10% (second and fourth column, in italics). However, the social housing sector is quite limited in size in both cases, and housing allowance is not widespread in Italy. In France and the Netherlands, where the social housing sector is large and housing allowance has the widest coverage, its combined impact is also substantial in overburden probability. This combined impact can be seen in Table 5 as the difference between column 1 (private tenant) and column 2 (social tenant) for a reference tenant with the income of quantile 1; and column 3 (private tenant) and column 4 (social tenant) in case of median (equivalent) income. Nevertheless, in both France and the Netherlands, the overburden probability of social tenants receiving housing allowance is not at the same low level as in Germany and Italy, or even Hungary (figures in bold).

Table 4 shows that the effect of the background variables may differ considerably. In all six countries, being single or having a lower equivalent income increases the probability of housing cost overburden (all other variables held constant). In France and the Netherlands, the youngest group (18-34 years) has a higher likelihood of affordability problems. With the exception of the Netherlands, households with a higher educated reference person (tertiary education) have a higher likelihood of housing cost

overburden, with all other things held equal. This counter-intuitive result can be explained by the assumption that higher educated people expect a larger future income rise than people with a basic education level, and therefore rent more expensive dwellings.

The dwelling variables also play a role. In Belgium, Hungary and Italy, living in an apartment significantly increases the probability of housing cost overburden. In all countries except Hungary and the Netherlands, a higher number of rooms also increases this probability.

Table 4 Logistic regressions models, for tenants, marginal effects (pp) for probability of housing cost overburden, selected EU countries, 2020

	Belgium	Germany	France	Hungary	Italy	the Netherlands
Type of tenant						
Private tenant						
Social tenant	**-29.4*****	**-4.3*****	**-9.0*****	**-24.1*****	**-17.3*****	**-42.8*****
Housing allowance						
No						
Yes	**-0.7**	**-17.9*****	**-7.2*****	**-2.5**	**-13.9*****	**-16.4*****
Interaction effect						
Social tenant*housing allowance	6.7	1.0	**-5.5****	0.8	-12.9	
Gender						
Male						
Female	0.6	1.4**	0.1	-3.4	1.7	2.2*
Age group						
18-34						
35-44	-0.4	-1.7	11.0**	-8.3	-1.5	31.3***
45-64	-3.9	-0.7	13.1***	-13.7	1.5	32.0***
65 and older	-2.4	-0.6	14.5***	-12.5	-0.3	33.7***
Equivalent income	-0.04***	-0.02***	-0.03***	-0.09***	-0.04***	-0.05***
Household type						
Single						
Single parent	-25.6***	-6.1***	-17.6***	-14.7*	-13.6***	-42.8***
Two adults, no dependent children	-20.1***	-8.4***	-14.9***	-12.8**	-20.0***	-39.1***
Two adults, dependent child(ren)	-43.6***	-11.6***	-29.5***	-19.6***	-32.6***	-67.0***
Three or more adults	-39.2***	-14.9***	-25.2***	-22.6**	-37.1***	-67.0***
Education level						
Basic education						
Upper secondary	3.1*	0.1	0.6	10.7*	4.1	1.2
Tertiary	8.2***	3.7***	6.8***	23.5***	11.9***	1.8
Citizenship						
Local						
EU	-1.1	3.4**	7.3*	34.8	0.8	-2.0
Non-EU	-1.1	-0.4	-2.7	-32.5	-2.7	-0.4

	Belgium	Germany	France	Hungary	Italy	the Nether-lands
Dwelling type						
House						
Apartment	5.1***	-0.8	-1.0	10.0*	6.2***	2.2
Number of rooms	3.5***	3.1***	4.1***	2.2	2.8***	0.5
Mc Madden R^2	0.42	0.42	0.30	0.25	0.42	0.37
N	2059	9808	3011	369	2108	3953

*Notes: ***, **, *: Significance at 1%, 5%, 10% level (Wald test).*
Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Table 5 Predicted probabilities[1] (%) of housing cost overburden, according to (equivalent) income level and receipt of housing allowance, selected EU countries, 2020

	Income of quantile 1		Median income	
	No housing allowance (1)	Housing allowance (2)	No housing allowance (3)	Housing allowance (4)
Belgium				
Private tenant	78.5	76.1	54.7	51.3
Social tenant	23.0	35.5	9.0	15.4
Germany				
Private tenant	30.9	8.7	7.0	1.6
Social tenant	19.2	*5.5*	3.9	*1.0*
France				
Private tenant	73.5	58.3	45.7	29.8
Social tenant	54.0	**26.0**	26.3	**9.6**
Hungary				
Private tenant	49.0	44.8	28.0	24.8
Social tenant	16.1	14.6	7.2	6.5
Italy				
Private tenant	78.7	53.3	46.1	20.8
Social tenant	46.0	*8.1*	16.4	*2.0*
Netherlands				
Private tenant	99.4	97.9	98.1	94.1
Social tenant	88.1	**69.5**	71.4	**43.5**

Notes:[1] specific reference household: single, male, aged 34-44, basic education level, local citizenship, living in a rental apartment with an average number of rooms for a single person.
Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Table 6 shows the results of the six logistic regression models with arrears on rental payments as the binary predicted variable. Only in France is the impact of social housing statistically significant at 1% level, but in the opposite direction to that expected. All other things equal, French social tenants have a 4 pp higher probability of rent arrears than private tenants. For housing allowance, the impact on rent arrears is statistically significant in all countries except Belgium and Hungary. Again, the association is in the opposite direction than expected. Tenants receiving housing allowance have a higher probability of experiencing rent arrears, ranging from 2 pp in Germany to 6 pp in Italy.

These counter-intuitive results for the impact of social housing (in France) and housing allowance (four countries) could be explained by eligibility conditions. By applying income and asset limits (means-testing), more vulnerable tenants will find their way to the subsidy systems. In the regression models, an effort is made to control for many background characteristics, but some personal features may not be captured by the variables of EU-SILC. These arguments also hold for the housing cost overburden, but there is a crucial difference between the two indicators: the housing cost overburden looks at the effective rent to income situation, but does not take the wider context into account. Rent arrears, by contrast, may be the outcome of a household's spending behaviour, or a general debt situation, which are more common among vulnerable households.

Table 6 Logistic regressions models, marginal effects (pp) for probability of rent arrears, significance level, selected EU countries, 2020

	Belgium	Germany	France	Hungary	Italy	the Nether-lands
Type of tenant						
Private tenant						
Social tenant	**1.7**	**0.8**	**3.6***	**0.3**	**1.1**	**-1.2**
Housing allowance						
No						
Yes	**4.3**	**1.5*****	**5.1****	**2.1**	**6.2****	**3.0*****
Interaction effect						
Social tenant* housing allowance	-6.8	-1.3	-0.8	-0.8	6.7	
Gender						
Male						
Female	-1.0	-1.1***	-0.1	-0.6	-1.4	-1.8***
Age group						
18-34						
35-44	-0.1	-0.5	10.7***	-7.2	-1.5	3.0
45-64	-0.3	-1.1*	8.8**	-11.7	1.5	2.7
65 and older	-2.0	-2.1**	4.0	-11.6	0.2	-1.8
Equivalent income	0.0***	0.0***	0.0***	0.0	0.0***	0.0**
Household type						
Single						
Single parent	3.0*	0.7	-0.3	0.0	4.3	1.0
Two adults, no dependent children	1.6	-0.7	1.8	-3.0	1.7	-0.7
Two adults, dependent child(ren)	1.3	0.4	0.3	-3.8	4.1	1.8**
Three or more adults	1.9	1.9***	3.9	-1.8	4.3	0.0
Education level						
Basic education						
Upper secondary	0.8	-0.8**	0.6	-10.1	-2.6	-0.5
Tertiary	0.7	-0.6*	-4.6**	-6.2	-4.6	-1.9**
Citizenship						
Local						

	Belgium	Germany	France	Hungary	Italy	the Netherlands
EU	-3.4	1.0**	0.2	31.0	0.8	3.0**
Non-EU	1.5	0.4*	4.8**	46.2	2.4	1.3
Dwelling type						
House						
Apartment	-1.9	-0.5	3.0**	-8.5**	1.0	-0.1
Number of rooms	-0.5	-0.3*	0.1	-1.5	-0.6	0.1
Mc Madden R^2	0.10	0.09	0.11	0.21	0.09	0.17
N	2064	10082	3411	359	2127	4155

*Notes: ***, **, *: Significance at 1%, 5%, 10% level (Wald test).*
Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

Table 7 presents the predicted probabilities on rent arrears, based on a reference tenant and two income levels. It gives an idea of the cumulative effect of social housing and receipt of housing allowance. Where no housing allowance is received, the predicted probability of rent arrears is somewhat comparable between the private and social reference tenant in the six countries. In Belgium and Germany, receipt of housing allowances increases the rent arrears probability only for the private reference tenant, whereas in the other four countries, it increases the probability of rent arrears for both types of tenants. This counter-intuitive effect of housing allowance receipt on rental arrears, and the differences between the countries, may be explained by differences in the eligibility conditions between the countries.

For the Hungarian reference tenant, the likelihood of arrears is higher than 20% in all scenarios, whereas the arrears likelihood is lowest for the German tenant. The four other countries take a middle position. Overall, the predicted arrears probabilities are at a considerably lower level than the overburden probabilities (see Table 5), in line with the descriptive analyses.

Table 7 Predicted probabilities[1] (%) of arrears on rental payments, according to (equivalent) income level and receipt of housing allowance, selected EU countries, 2020

	Income of quantile 1		Median income	
	No housing allowance	Housing allowance	No housing allowance	Housing allowance
Belgium				
Private tenant	7.6	15.1	6.0	12.1
Social tenant	10.0	6.7	7.9	5.2
Germany				
Private tenant	4.5	9.1	3.5	7.2
Social tenant	6.7	7.3	5.2	5.7
France				
Private tenant	7.9	12.6	6.1	9.9
Social tenant	11.1	16.3	8.7	12.8
Hungary				
Private tenant	23.3	29.3	22.1	27.9
Social tenant	24.3	27.2	23.0	25.8
Italy				

	Income of quantile 1		Median income	
	No housing allowance	Housing allowance	No housing allowance	Housing allowance
Private tenant	8.6	11.3	7.1	9.3
Social tenant	9.9	17.6	8.2	14.8
the Netherlands				
Private tenant	6.0	17.1	5.1	14.7
Social tenant	3.8	11.3	3.2	9.6

Notes:[1] for specific reference household: single, male, aged 34-44, basic education level, local citizenship, living in a rental apartment with an average number of rooms for a single person.
Source: Authors' calculations based on EU-SILC (2020; 2021 for the Netherlands).

CONCLUSION

This research note analysed the affordability of rental housing in a selection of EU countries and explored the impact of the two main policy instruments to protect tenants' housing affordability – social housing and housing allowances. Two Eurostat indicators were used to analyse affordable housing: the housing cost overburden rate and arrears on rental payments.

The scope and impact of social housing and housing allowances differs significantly between the six selected countries – Belgium, Germany, France, Hungary, Italy and the Netherlands. The selection reflects different European regions, as the evolution of housing policies to some extent is regionally bound, such as the privatisation of social housing in Central and Eastern Europe in the early 1990s and the widespread introduction of housing allowances in Western European countries in the 1970s. The social housing sector grew rapidly after World War II, although with less of a distinct regional tendency. In all countries (only partly in Belgium), social tenants are also entitled to housing allowances if they meet the entitlement criteria. As little is yet known about the interplay between these two housing subsidies, their interaction was a focus point here. The analyses were carried out on EU-SILC data, mainly for 2020 and 2021 (the Netherlands), although trends since 2016 were also described. This section discusses the main trends per country and draws some general conclusions. Conclusions in respect of the regression analyses refer primarily to the impact of subsidies on the housing cost overburden rate.

Belgium is characterised by a regionally governed housing policy, a rather small social housing sector, and a very limited system of housing allowances. The outcome is that rent is considerably more affordable for social tenants compared to private tenants. The affordability impact of the social rent subsidy in Belgium is comparably strong (according to the regression model), partly because the social rent calculation is related to income. Compared to the other five countries, the housing cost overburden rate for private tenants is quite high, whereas this is not the case for social tenants.

Germany has only a small difference in rent levels between private and social renting. Its official social housing sector is small, while the private rental sector is the largest in the EU. The coverage of the housing allowance, which is also available for owner-occupiers, is smaller than in France and the Netherlands, but the average amounts are higher. The regression analyses showed that the affordability impact of the social rent subsidy is the lowest of all six countries, but the impact of the housing allowance is the highest. The affordability outcome for German tenants is good and improved still further between 2016 and 2020.

France is characterised by a medium-sized social housing sector, in which different types of subsidisation levels exist, but the average rent level is not much lower than in private renting. More than half of private and social tenants receive a housing allowance, whose average amount is relatively high. As the housing allowance is income-dependent, its impact is significantly stronger for social tenants compared to private tenants. The outcome is that the housing cost overburden rate is slightly higher, and

thus affordability only a little worse for private tenants than for social tenants. Compared to the other five countries, the overburden rates are relatively low for both types of tenants.

In Hungary, the social housing sector is small and the housing allowance has a medium-sized coverage. The housing allowance is low on average, whereas the level of the social rent subsidy is relatively high. Accordingly, social rent is much lower than private rent. In line with these results, the regression model shows that the affordability impact of the social rent subsidy is relatively high compared to the other countries, but the effect of the housing allowance is negligible. In 2016, rent arrears in Hungary were remarkably high, but had fallen to a more moderate level by 2022.

Italy has a small social housing sector and a housing allowance system with a small scope. The average rent is considerably higher for private tenants than for social tenants, implying a fairly high social rent subsidy. The average housing allowance is quite high and at the same level as France. The logistic regression analysis found that the affordability impact of both subsidy systems is comparably strong. The housing allowance level is not income-dependent, which implies that its affordability impact does not vary by tenant type.

Finally, the Netherlands is characterised by the largest social housing sector in Europe and a small private rented sector, which is the only Dutch rental segment that does not fall under rent regulation by a point system. As the free market's demarcation line is a high so-called liberalisation rent, the rent difference between social and private renting is substantial. About half of social tenants receive a moderately high housing allowance, for which private tenants are not eligible. Despite a strong affordability impact of both subsidy systems, highlighted by the regression analyses, the housing cost overburden rate is not much lower for social tenants than for private tenants. This outcome is probably related to the relatively strong income profile of Dutch private tenants. Compared to the other countries, the overburden rate for both types of tenants is quite high.

Some general conclusions can also be drawn from the analyses. The results of the regression models highlighted that the higher the subsidy level – of both housing allowance and social rent subsidy - the higher the impact on affordability, in an international comparative perspective. Furthermore, the affordability impact is higher when the subsidy calculation is income-dependant, as shown by social housing in Belgium or the housing allowance in France. Regarding the interaction of both types of subsidies, for an income-dependant housing allowance (France) the affordability impact is larger for social tenants than for private tenants, but this does not hold when housing allowance is not linked to income level (e.g. Germany, Italy). The lowest predicted probability on housing cost overburden is achieved by a combination of social housing and housing allowance. This probability is lowest in countries where neither social housing nor the housing allowance system has a large scope, but are well targeted (Germany and Italy).

Housing subsidies affect rental arrears far less than the housing cost overburden. This effect even goes in the opposite direction in some countries, where social housing or housing allowance receipt leads to a higher probability of rent arrears. This counter-intuitive result likely reflects the means-testing involved in the two policy instruments.

The results show that the size of the housing subsidy is an important factor in improving affordability for tenants. For instance, the level of the housing allowance (in Hungary and Belgium) or social housing subsidy (in France and Germany) is not always sufficient to have a considerable impact on the housing cost overburden. It is also important that lower income households can easily access existing housing subsidies. In several countries (e.g. France, Belgium, the Netherlands), long waiting times persist for social housing, while, in Italy, the housing allowance is also subject to waiting lists. Finally, the results highlight the importance of the issue of non-take-up of benefits. Vulnerable people may not apply for certain housing benefits because of lack of awareness, a complex application procedure, the stigma attached to the benefit, language barriers, or a lack of trust in governments.

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