INTERNATIONAL MONETARY FUND

European Department

Affordable Rental Housing

Making It Part of Europe's Recovery

Khalid Elfayoumi, Izabela Karpowicz, Jenny Lee, Marina Marinkov, Aiko Mineshima, Jorge Salas, Andreas Tudyka, and Andrea Schaechter

No. 21/13

European Department

Affordable Rental Housing: Making It Part of Europe's Recovery

Khalid Elfayoumi, Izabela Karpowicz, Jenny Lee, Marina Marinkov, Aiko Mineshima, Jorge Salas, Andreas Tudyka, and Andrea Schaechter

INTERNATIONAL MONETARY FUND

Cataloging-in-Publication Data
IMF Library

Names: Elfayoumi, Khalid. | Karpowicz, I. (Izabela). | Lee, Jenny. | Marinkov, Marina. | Mineshima, Aiko. | Salas, Jorge. | Tudyka, Andreas. | Schaechter, Andrea. | International Monetary Fund. European Department, issuing body. | International Monetary Fund, publisher.
Title: Affordable rental housing : making it part of Europe's recovery / Khalid Elfayoumi, Izabela Karpowicz, Jenny Lee, Marina Marinkov, Aiko Mineshima, Jorge Salas, Andreas Tudyka, and Andrea Schaechter.
Other titles: International Monetary Fund. European Department (Series).
Description: Washington, DC : International Monetary Fund, 2021. | Departmental paper. | Includes bibliographical references.
Identifiers: ISBN 9781513570204 (Paper)
Subjects: LCSH: Rental housing—Prices—Europe. | Housing—Prices—Europe. | Low-income housing—Europe. | Low-income tenants—Europe. | Income distribution—Europe.
Classification: LCC HD7288.85.E85 E44 2021

Publication orders may be placed online, by fax, or through the mail:
International Monetary Fund, Publication Services
P.O. Box 92780, Washington, DC 20090, U.S.A.
Tel. (202) 623-7430 Fax: (202) 623-7201
E-mail: publications@imf.org
www.imfbookstore.org
www.elibrary.imf.org

Contents

Tables

Figures

Abstract

Many European economies have faced pressure from rental housing affordability that has widened social and economic divergence. While significant country and regional differences exist, this departmental paper finds that in many advanced European economies a large and rising share of low-income renters, the young, and those living in cities is overburdened. In several locations, middle-income groups also increasingly face rental affordability issues. These groups have experienced particularly slow income growth amid rising rental prices. Disparities between renters and homeowners have widened over the past decade in an environment of low interest rates and housing policies that tend to be regressive and favor home ownership. Rental housing support for the segment of tenants most in need has often not kept pace with affordability pressures. These trends will likely intensify after the disproportionate COVID-induced contraction of contact-intensive service sectors, wherein many renters are employed, as well as the need to flexibly relocate to locations in which sectors are expanding. Apart from analyzing rental housing affordability across households' income groups, location, and age cohorts in advanced European economies, this paper identifies key drivers of affordability in recent years. It also reviews experiences with policies in support of rental affordability. The paper argues that a post-pandemic economic strategy in Europe that aims to reverse heightened disparities must include more efforts to expand affordable rental housing. Targeted higher housing allowances, more social rental housing, and regulatory and financial incentives that raise rental housing supply across locations would not only tackle

The authors would like to particularly thank Enrica Detragiache, Marissa Plouin (OECD), and Claude Taffin for their suggestions; Gabriela Inchauste (World Bank) for sharing her experience with rental market data at the outset of the paper; colleagues in charge of the OECD Affordable Housing Database; Konstantin Kholodilin for making available his rental regulation database; and Dilcia Noren and Ana Ilagan for the excellent editorial assistance. This paper has also benefited from comments by IMF seminar participants and colleagues during the review process.

housing-induced inequalities but also broaden the opportunities, especially for low-income earners and the young, during the post-COVID economic transformations. At the same time, investment in rental housing would help spur activity, create jobs, and enhance energy efficiency if properly targeted.

CHAPTER

1 Introduction and Main Findings

Affordable housing is a critical factor for economic inclusion. Housing is generally the largest single spending item by households, either in the form of rent or mortgage payments. Home ownership is also a key channel for building wealth. Housing location and associated access to education, transportation, employment, and health care are major contributors to opportunities that shape a person's lifetime income and very often that of their children.[1]

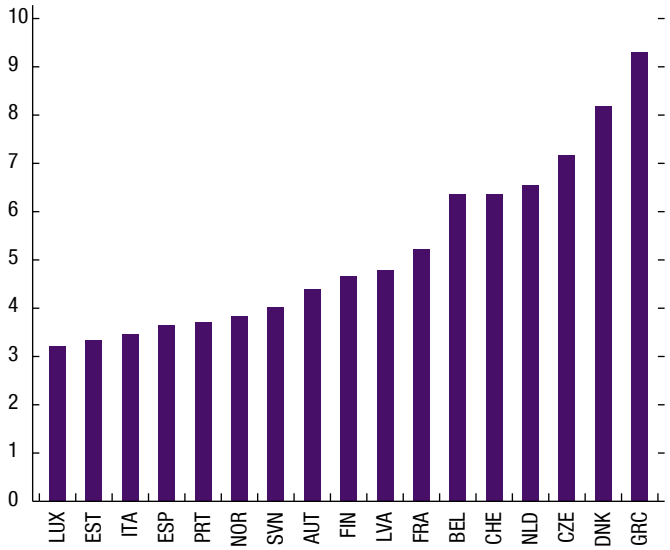
Housing costs have contributed to socioeconomic disparities even before the pandemic. Lower-income households tend to spend a larger share of their disposable income on housing than high-income households, which squeezes resources available for other—in some cases critical—spending (OECD 2020b). Income inequality, as measured by the Gini index based on disposable income after deducting housing costs, is indeed higher than inequality measured by the Gini index based only on the total disposable income in advanced European economies (Figure 1).

Affordability pressures have been particularly stark for renters. Since 2010, housing costs for renters in Europe have generally been higher than those for homeowners with mortgages, whose costs started to decline from 2014 as did the interest burden amid very accommodative monetary policies (Figure 2, panel 1). Despite large differences across and within countries, in the decade following the global financial crisis many groups that rent—either by choice or by necessity—needed to spend a large, and often rising, share of their income on housing.[2] This is especially true for those in the lowest income

[1]For example, the OECD's "Framework for Policy Action on Inclusive Growth" (2018) advises that policies to enable greater equality of opportunities should also include measures that provide access to affordable housing.

[2]For the United States, Albouy, Ehrlich, and Liu (2016) show that that increased pressure on housing affordability is a long-term trend. They report that the share of income spent by renters and homeowners has been on an upward trend rise since the 1970s with a sharper increase for renters. Their analysis suggests that rising rents appear to be the primary driver of the rising income share spent on rental housing..

Figure 1. Additional Inequality Caused by Housing Costs, 2018[1]
(Difference in Gini coefficient including and excluding housing costs)

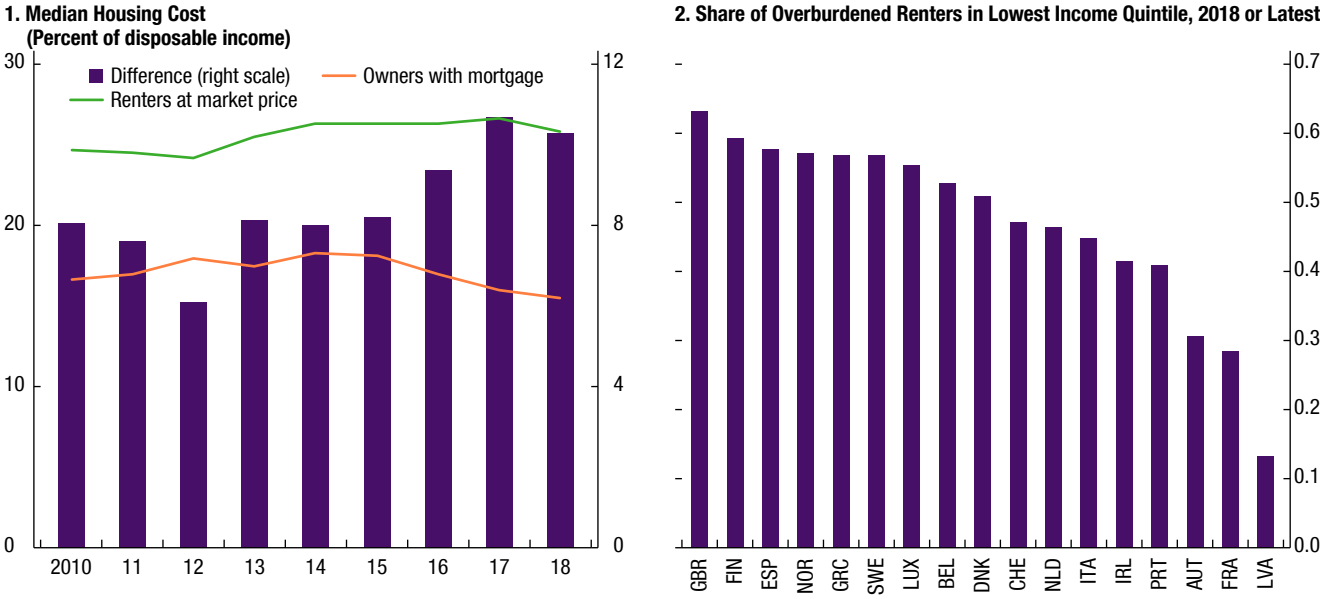


Sources: EU-SILC; and IMF staff calculations.
Note: Figure uses International Organization for Standardization (ISO) country codes.
[1]Inequality is measured as the difference between the Gini coefficient with and without housing cost calculated with equivalized disposable income, following Dustmann and others (2018). Positive numbers suggest that inequality is larger if housing cost is taken into account. Housing cost includes utilities (water, electricity, gas, and heating) among other housing-related expenses. Equivalized disposable income controls for the differences in a household's size and composition.

quintile wherein renting is most widespread. In nearly three-quarters of the countries analyzed here about half or more of the lowest income quintile renters were overburdened in 2018, that is, they paid at least 40 percent of their disposable income on rent (Figure 2, panel 2). The decline in rental affordability is yet another manifestation that some groups did not benefit from dynamic economic developments pre-COVID. Rental price and income developments both contributed to greater inequality. The cumulative median real rent rose by nearly 7 percent over five years from 2013, with a few cities recording cumulative real increases of more than 30 percent. Social discontent and calls for rent controls were often a consequence of these localized rent surges. But stagnant real incomes of many households that rent—particularly young people and low-income earners who more frequently face uncertain job duration and whose incomes are impacted by technological change and globalization—contributed to the squeeze as well.

The COVID-19 pandemic will likely aggravate rental housing affordability pressures and inequality in Europe. Many groups that rent are particularly vulnerable to the COVID-19 crisis as they work more frequently in contact-intensive industries and generally have less access to telework. Incomes are projected to take several years to recover and will likely take longer for those who need to transition into new sectors, amplifying pre-COVID trends of economic divergence. At the same time, in some locations potential structural changes could help mitigate affordability pressures by putting downward pressure on rental costs. But these changes are still highly uncertain, such as a sustained reduction of tourism, conversion of commercial into residential real estate, or relocation away from urban centers. In the meantime, uncertainty could weigh on housing investment and thereby intensify supply shortages, especially of rental housing.

Figure 2. Housing Costs for Renters and Homeowners



Sources: EU-SILC; and IMF staff calculations.
Note: For panel 1, housing costs are based on a narrow definition—for homeowners it includes principal repayments and mortgage interest payments, while for renters it includes rental payments; sample covers Austria, Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland. Panel 2 includes renters at market rates; tenants are considered overburdened if they devote 40 percent or more of their household disposable income to rental payment (see Chapter 3 for more details). Figure uses International Organization for Standardization (ISO) country codes.

This paper analyzes how rental affordability has evolved pre-COVID in Europe, attempts to identify its main driving forces, and discusses policy options for an inclusive post-pandemic recovery. Availability, quality and cross-country comparability of rental market data are generally quite limited. Therefore, this paper combines various data sources that cover most advanced European economies at the national, regional and, in some parts, city level. The focus is on advanced economies for which rental markets tend to be larger and data quality is better. The macroeconomic role that rental markets play for resource allocation, economic and financial stability, and social inclusion are summarized in Annex 2.

- Chapter 2 presents some key features of rental markets, in particular their size and development over time as well as key characteristics of renters. Data are derived from the European Union Statistics on Income and Living Conditions (EU-SILC) with the latest data points corresponding to 2018 (see Annex 1 for details on the data sources).[3]

[3]Germany is not covered in the analysis in those parts of the paper that use EU-SILC data due lack of access to the microdata administered by the German Federal Statistical Office.

- Chapter 3 first analyzes key rental affordability indicators by income group, age, location, and nationality by exploiting microdata from EU-SILC. Particular focus is on the most affected groups. The chapter then explores how developments in the numerator (rental costs) and denominator (disposable income) contributed to affordability changes. Since rental markets are local markets, it goes beyond reporting price changes for a country as a whole by briefly analyzing price developments also for major European cities. The city-level analysis draws on data from the Estate Agency Rent Surveys (EARS), a survey-based data source for rental prices in European metropolises. Lastly, the chapter assesses how groups that tend to rent are impacted by the COVID-19 crisis.
- Chapter 4 explores econometrically the main drivers of rental affordability, in particular for the lowest income quintile. To take advantage of large data variation, the regression analysis exploits regional rental affordability indicators (from EU-SILC), with structural variables derived from regional data by Eurostat, as well as other control factors.
- And finally, Chapter 5 reviews experiences with housing policies that support affordable renting, including sometimes unintended side effects; summarizes how such policies relate to the crisis responses during the pandemic in support of vulnerable tenants; and offers options that would make the recovery more inclusive. While investment in rental housing should also be energy efficient to lower the sector's carbon intensity, laying out a just transition strategy that compensates low-income households that will be particularly impacted by higher energy prices goes beyond the scope of this paper.[4]

The paper's key findings and policy recommendations are as follows.

- Housing affordability pressures are more intense for renters than homeowners. The median renter (at market prices) spends more than one and a half times what the median homeowner spends on housing when measured as the share of disposable income. The discrepancy has widened between 2011–13 and 2016–18 by 4 and 2¾ percentage points for low-income and median renters, respectively, compared to median homeowners during this period of low interest rates.
- The overburden rates among renters tend to be disproportionately high for low-income households, the young, and those living in cities. Nearly half or more than half of renters in the lowest income quintile were overburdened in 12 out of 17 advanced European economies analyzed here.

[4]See, for example, Arregui and others (2020) who argue that carbon tax revenues could be directed toward targeted assistance to combat energy poverty, including in the housing sector.

- The incidence of overburdened tenants has increased since the global financial crisis in half of the countries, particularly among the already highly burdened groups of renters.
- Depending on the country and region, the rise in rental prices and/or greater income dispersion have contributed to the deterioration in rental affordability. The median rent increased annually by about 1.3 percent in real terms since 2013 on average in the countries analyzed here, 0.5 percentage point more than median real incomes. For the lowest decile of income earners in advanced Europe, rental cost outpaced disposable income growth by 0.7 percentage point annually.
- Rental price surges and affordability pressures have been particularly harsh in some major European cities. Among the 14 (of 24) countries that experienced an annual average real rent increase of at least 1 percent since 2013, 11 saw bigger increases in their capital city than for the country as a whole. In three-quarters of the countries, for which detailed data are available, more than 60 percent of low-income renters living in cities were overburdened in 2018.
- An econometric analysis identifies the following key drivers of rental affordability during 2005–18 across 204 regions in advanced European economies, all of which had a stronger impact for low-income earners:
  - Rising economic output did not translate into disposable income gains that compensated sufficiently for rising rental costs. A 1 percent increase in regional GDP per capita led to a more than 7 percentage point increase in the spending on rent as a share of income for the lowest-income households compared to a 4¼ percentage point increase for all households.
  - Greater urbanization, structural transformation toward high-skilled services, as well as higher incidence of tourism put pressure on rental affordability, particularly for lower-income households.
  - The analysis does not find credit conditions to have been a significant driver of rental affordability. The result suggests that other frictions such as household liquidity constraints could form a strong barrier to arbitrage between housing and rental markets.
- Housing policies are complex. They often address multiple goals, and affordability, well-balanced landlord tenant-regulations, and equal access to opportunities are only some aspects. Measures are often fragmented and layered across levels of government. Most countries provide more public resources toward home ownership than renting (OECD 2020b). Public spending on social rental housing has been on the decline. Mapping housing policies into an overarching national-level strategy could help provide a more coherent picture of costs, benefits, and internal consistency

of measures, including links to other related policy areas such as public transportation.

- Effective policies that improve rental housing affordability will be a critical component to reverse accelerating divergences post-COVID. They must comprise measures that enhance long-term income opportunities for low-income households and the young to benefit from the structural transformation of the economy (including investments in education, re-skilling, childcare, etc.), as well as targeted rental housing assistance and measures to increase the affordable (social) rental housing stock across locations, especially with a view to facilitating movement to locations where new jobs are being created. At the same time, investment in rental housing would help accelerate economic activity and job creation in the recovery.
  - Until the recovery from the COVID-19 shock is fully underway, maintaining emergency income and liquidity measures to protect the most vulnerable renters and stem evictions remains important. Over time, gradually replacing rent moratoria and eviction stops with additional transfers and guaranteed loans to the most vulnerable would help curtail disincentives for new rental investment.
  - Upgrades in well-designed, targeted, and portable rental housing assistance could help address affordability pressures faced by the lowest-income groups, while supporting labor mobility.
  - The introduction or tightening of rent controls that gained popularity pre-COVID, although an easy rapid-response mechanism, is not guaranteed to lower rents for all vulnerable groups and over the long term. Evidence suggests that it protects current renters and is associated with lower rental housing supply.
  - In many countries there is room to raise the low stock of social rental housing to support those that have difficulties accessing the private market. The European Recovery and Resilience Facility provides an opportunity to invest in low-income housing where affordability is a major concern, either directly via the public sector or via financial incentives to private developers. Such policies would stimulate demand, create employment, and address economic disparities, while also reducing the carbon intensity of housing if the investment is steered toward greater energy efficiency.
  - Taxes on vacant properties can also help to raise rental supply in the long term, but the impact is not necessarily felt by low-income renters. The same is true for limitations on short-term vacation rentals and taxation of residential property purchase by foreign buyers as these measures tend to affect mostly high-priced properties in tourist hotspots.

- Other longer-term efforts to increase the rental supply include easing and simplifying land use regulations as well as accelerating rezoning and administrative processes, especially for affordable housing development.
- Where tax benefits are skewed particularly toward promoting home ownership and benefit mostly high-income earners, current policies should be reformed to better serve and protect lower-income households by redeploying resources toward enhancing access to affordable (rental) housing.

CHAPTER

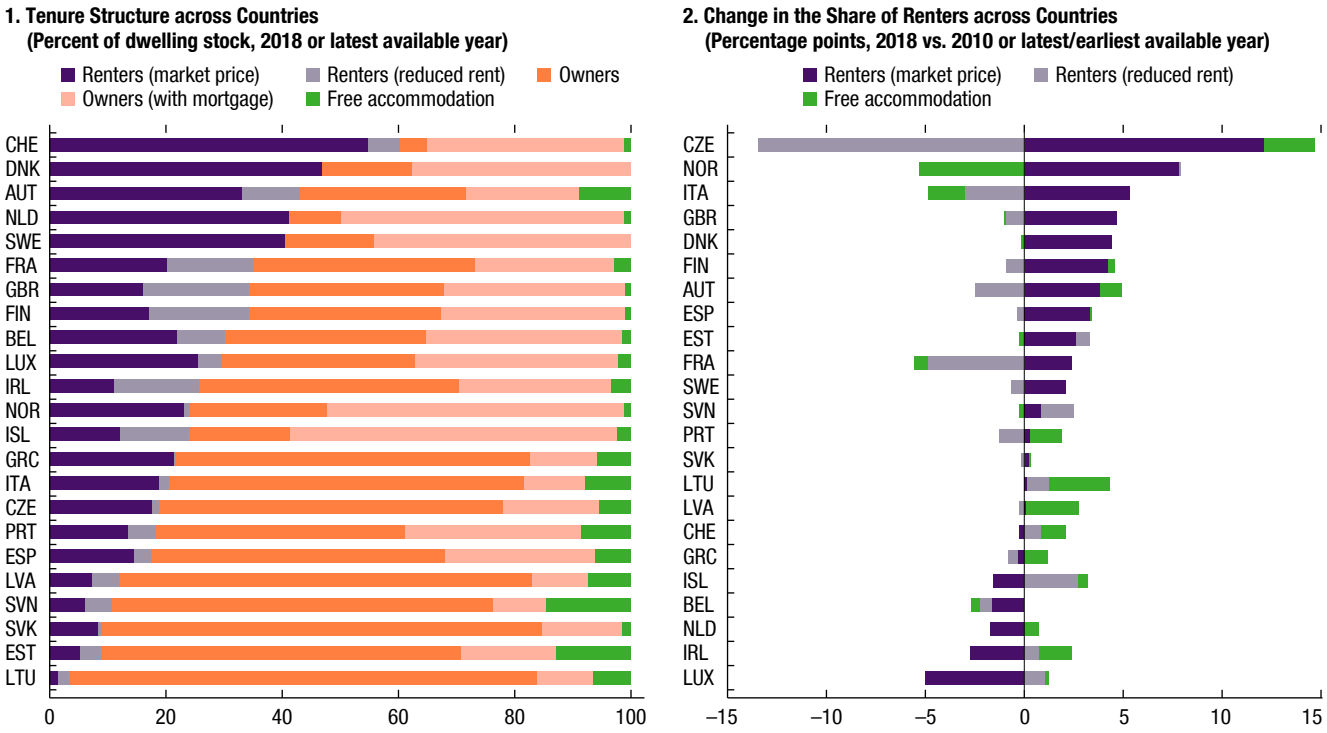
2 Key Characteristics of Rental Markets in Europe

The size of rental housing markets in Europe varies, reflecting in part different social preferences and economic opportunities.[1] Each country has its own culture, demographics, policies, housing finance systems and, in many cases, a history that favored homeownership as it is considered to be an effective way of accumulating wealth (Goodman and Mayer 2018). In general, the size of rental markets tends to be smaller in eastern and southern Europe while Nordic and German-speaking countries tend to have larger rental markets (Figure 3, panel 1). Preferences and opportunities of access to homeownership can also change over time, or from generation to generation. For example, Choi and others (2019) find that in the United States millennials are less likely to own a home than baby boomers and gen Xers in the same age group, possibly reflecting fewer opportunities to buy due to high house prices and weak employment opportunities.[2] In the United Kingdom home ownership dropped the most among the young in the middle-income bracket between 2015 and 1995 (Cribb, Hood, and Hoyle 2018). And in France, the gap between homeownership of young high- and low-income earners widened sharply over the past four decades with the share of low-income homeowners halving to 16 percent from 1973 (Bonnet, Garbinti, and Grobon 2019). The cross-country data of the past decade show that the share of rental markets in the total housing market has changed significantly in some countries (Figure 3, panel 2). The share of renters increased in the Nordic countries, Austria, Italy, and Spain since 2010, while it dropped in the Benelux countries and Ireland.

[1]See Annex 2 for a discussion and analysis of the role that rental markets play for the macroeconomy. In particular, rental markets can contribute positively to economic and financial stability as well as labor market mobility and efficient resource allocation. The impact on wealth and income inequality is ambiguous, however.

[2]Fischer and Gervais (2011) look at the reasons for a decline in young home ownership between 1980 and 2000 in the United States. They find that a trend toward marrying later mechanically lowered young home ownership after 1980. They also show that the large rise in earnings risk that occurred after 1980 probably accounts for the remaining decline in young home ownership. On the decline of home ownership, see also The Economist (2020).

Figure 3. Tenure Structure[1]



Sources: EU-SILC; and IMF staff calculations.
Note: In panel 1, 2017 data for Ireland, Slovak Republic, and the United Kingdom; 2016 data for Iceland. In panel 2, latest data point is 2018 except for: 2017 data for Ireland, Slovak Republic, and the United Kingdom; 2016 data for Iceland; earliest data point is 2010, except for: 2011 data for Greece, Iceland, and Italy. Data for Czech Republic reflects the rent deregulation law aimed at equalizing the rent of formerly regulated apartments with the market rate ones. Figure uses International Organization for Standardization (ISO) country codes.
[1]For Denmark, Netherlands, and Sweden, EU-SILC does not accurately capture the share of tenants in subsidized rental housing (see OECD 2020c). For Denmark and Netherlands, all renters at market-rate and social rental accommodations are put in the market-rate category. In Sweden, very few respondents to EU-SILC select the subsidized housing option (Salvi del Pero and others 2016).

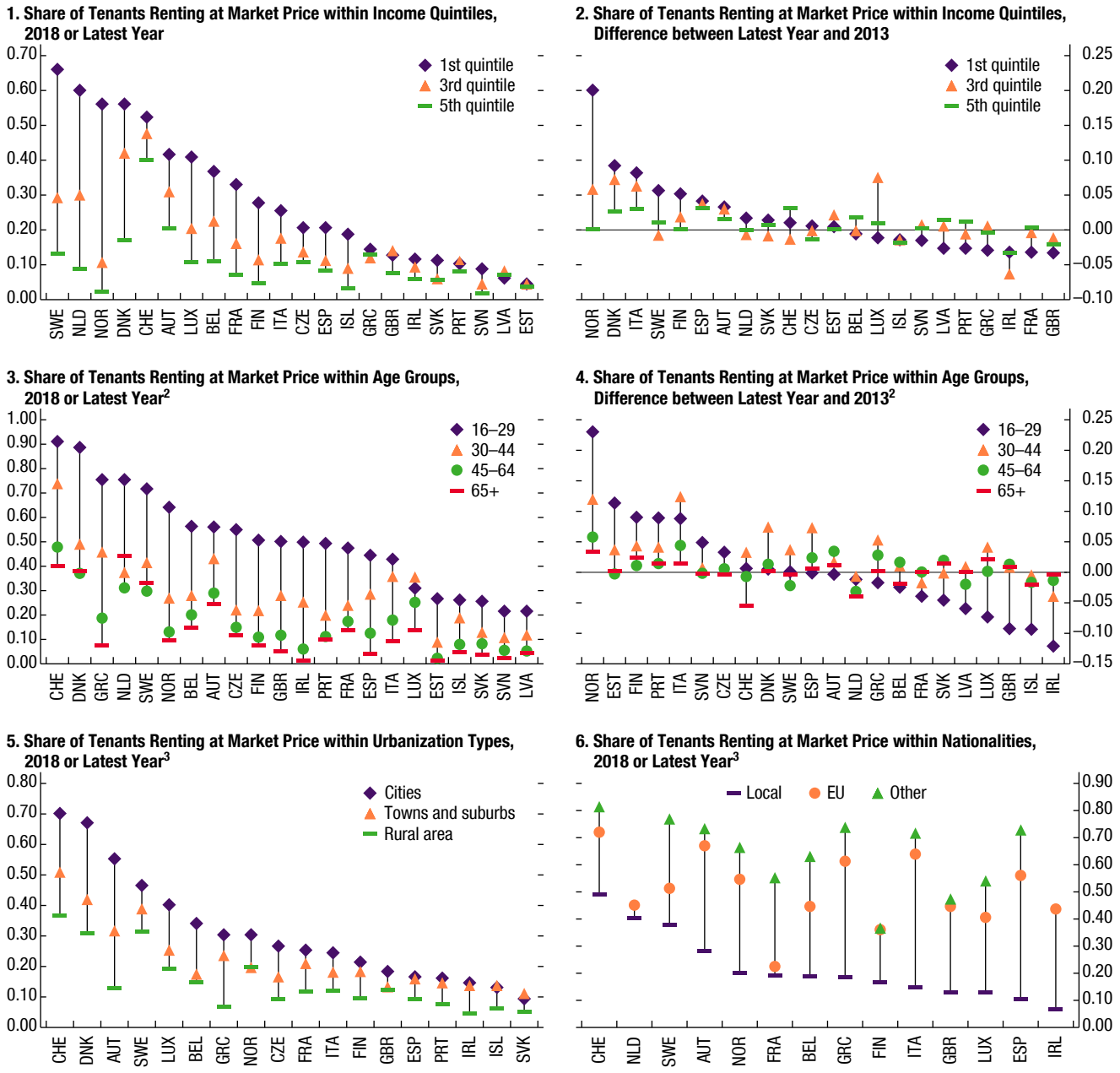
Low-income households are more likely to be renters. On average across the analyzed countries, about 30 percent of households in the bottom quintile of the disposable-income distribution are tenants paying market prices.[3] This fraction appears to be even larger in the Netherlands, some Nordic countries, and Switzerland, where in general more people tend to rent (Figure 4, panel 1; Annex 3, Annex Figure 3.1). Exceptions are especially a few Eastern European economies that have small rental markets and relatively even income distributions among renters. During 2013–18, the share of tenants has increased more visibly within the bottom quintile and the second quintile

[3]The analysis is based on EU-SILC data for the most recent year available at the time of writing, which for many countries is 2018. Choosing 2013 as the comparator year allows to largely abstract from the earlier boom-and-bust-housing cycle that many countries experienced around the global financial crisis. For the remainder of this chapter, the analysis excludes Lithuania because only about 1 percent of its population are tenants renting at market prices, and data are volatile.

in countries such as the Nordics, Italy, and Spain (Figure 4, panel 2). Meanwhile, the propensity to rent tends to decrease among richer families. For instance, within the top quintile of the income distribution, less than 10 percent of households are tenants paying market prices. The share of renters who benefit from reduced rents (that is, below market prices) varies widely suggesting a great dispersion in the supply of social and employer-provided subsidized rental housing. In general, low-income households are more likely to rent at reduced rates (Annex Figure 3.1); but in some countries (Austria, Denmark, Netherlands) a broad share of the population has access to some form of a traditionally large social housing market, even though this is not always well captured in the data (OECD 2020c).

Renting activity is also more intensive among young households, people living in cities, and foreigners. On average, about half of the people between 16 and 29 years old and close to one-third of those in the 30- to 44-year-old cohort are renters. By contrast, the share of renters in the cohorts older than 45 years is below one-fifth (Figure 4, panel 3). In the period from 2013 to 2018, the incidence of renting among those aged 30–44 years increased more strongly and in a larger number of countries compared to other age cohorts (Figure 4, panel 4). Other groups who tend to rent more are households who live in cities and foreign nationals (Figure 4, panels 5 and 6). Across the selected countries, the average share of renters in urban areas is more than twice as high as that in rural areas, and more than half of foreigners (from both EU and non-EU countries) are renters, compared to about one-fifth for the case of nationals.

Figure 4. Tenants in Europe: Some Facts and Recent Developments[1]



Sources: EU-SILC; and IMF staff calculations.
Note: Figure uses International Organization for Standardization (ISO) country codes.
[1]Due to data gaps, 2017 data are used for Ireland, Slovak Republic, and the United Kingdom; 2016 are used for Iceland.
[2]Due to data gaps, 2015 data are used for Sweden.
[3]Some countries or categories are omitted due to data gaps.

CHAPTER

3 Rental Housing Affordability: Key Facts

The share of income spent on rent is a standard measure for rental affordability. This paper uses this well-known indicator by focusing on the share of income spent exclusively on rents. In line with the definition adopted in many studies, tenants are considered *overburdened* if they devote 40 percent or more of their household disposable income to rental payments. Other studies use a less conservative threshold of 30 percent.[1]

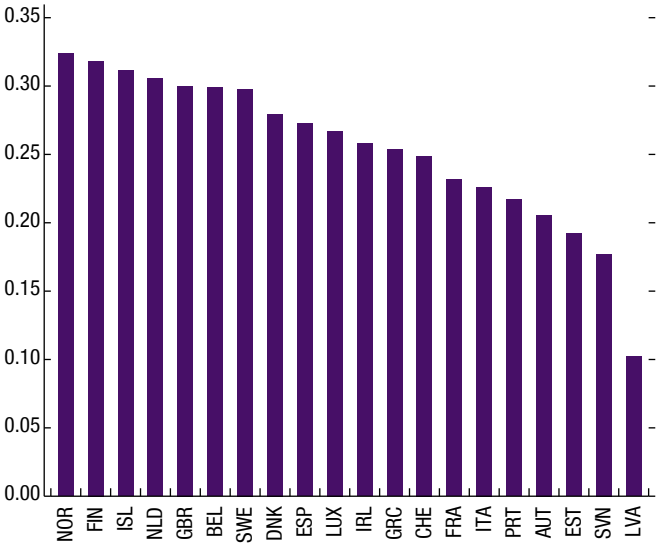
How Much Do Tenants Spend on Rents?

About one-quarter of disposable income is often spent on rent. In many advanced European economies, the median share of disposable income spent exclusively on rental payments is about 25 percent (Figure 5).[2] However, in some countries, including Nordic ones, that share is close to or above 30 percent and has increased after the global financial crisis. By contrast, the median share spent on rents is relatively low in Austria as well as in some countries wherein the overall incidence of renting is small (for example, Estonia, Latvia, Slovenia). When considering other rental costs, such as structural insurance, maintenance, repairs, and utilities, the spending share rises by about 10–15 percentage points (see Box 1).

[1]Unless otherwise stated, to assess affordability this paper focuses on equivalized disposable income including housing allowances (see Annex 1). Annex Figure 3.2 shows a few results based on the use of a 30 percent threshold to define overburdened tenants, for a simple comparison with the baseline results. Relevant literature on housing affordability indicators includes Quigley and Raphael (2004), Stone, Burke, and Ralston (2011), Metcalf (2018), Ben-Shahar, Gabriel, and Golan (2019), and Ezennia and Hoskara (2019).

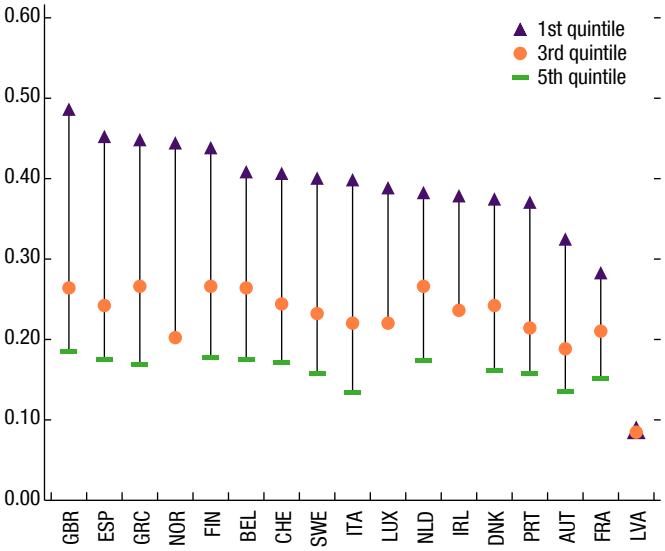
[2]For the remainder of this chapter, the analysis excludes the Czech Republic and Slovakia due to methodological issues related to the variable that captures rental payments in the EU-SILC data. For drawing attention to these problems, the authors are grateful to Marissa Plouin and her colleagues in charge of the OECD Affordable Housing Database.

Figure 5. Median Share of Disposable Income Spent on Rent Cost for Tenants Renting at Market Price, 2018 or Latest Year



Sources: EU-SILC; and IMF staff calculations.
Note: Due to lack of 2018 data, 2017 data were used for Ireland and the United Kingdom, and 2016 data were used for Iceland. Figure uses International Organization for Standardization (ISO) country codes.

Figure 6. Median Share of Disposable Income Spent on Rent for Tenants Renting at Market Price within Income Quintiles, 2018 or Latest Year



Sources: EU-SILC; and IMF staff calculations.
Note: Due to lack of 2018 data, 2017 data were used for Ireland and the United Kingdom. Figure uses International Organization for Standardization (ISO) country codes.

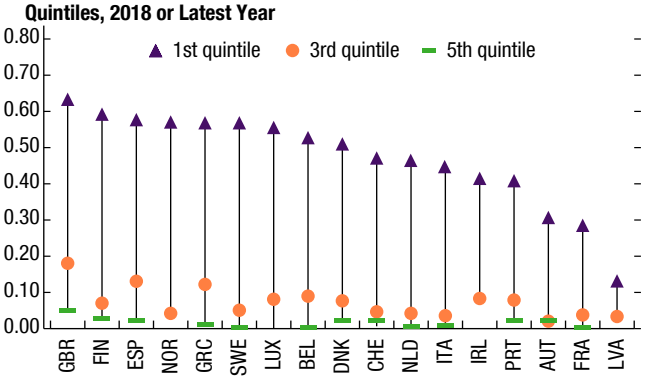
Who Is Overburdened by Rental Payments?

The burden of rental payments disproportionately affects low-income households and is pervasive across most countries. Across countries, on average, households in the bottom quintile of the income distribution who rent at market prices spend more than 40 percent of their disposable income on rents—with especially high spending shares in places such as the Finland, Greece, Norway, Spain, and the United Kingdom (Figure 6). Put differently, in 2018 more than half of the lowest-income renters were overburdened or very close to the 40 percent threshold in 14 out of 17 advanced European economies analyzed here. This burden is significantly smaller for higher-income households: those in the top income quintile spent slightly more than 10 percent of their disposable income on rental payments.

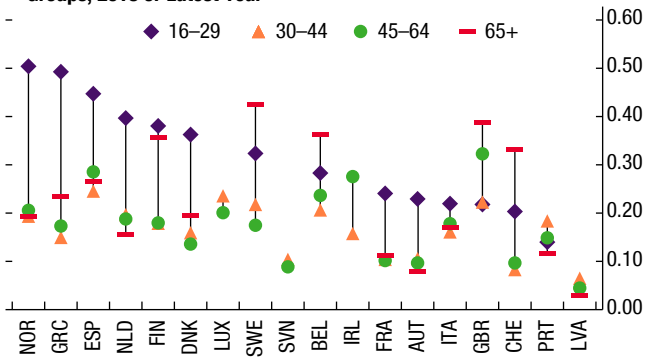
Rental affordability pressures are particularly widespread among young renters and in cities. To a large extent, highly overburdened groups coincide with segments of the population who are more likely to be tenants, especially low-income households, young cohorts, and people living in cities (Figure 7). By age cohorts, the share of the young who are overburdened frequently exceeds that of the elderly, except in some countries such as Belgium, Swe-

Figure 7. Rental Housing Affordability by Income, Age, Location and Nationality[1]

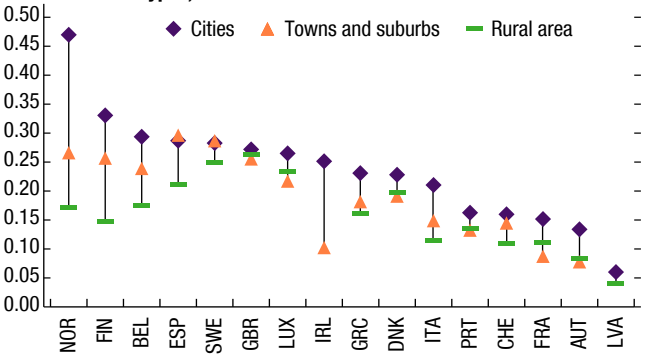
1. Share of Overburdened Tenants Renting at Market Price within Income Quintiles, 2018 or Latest Year



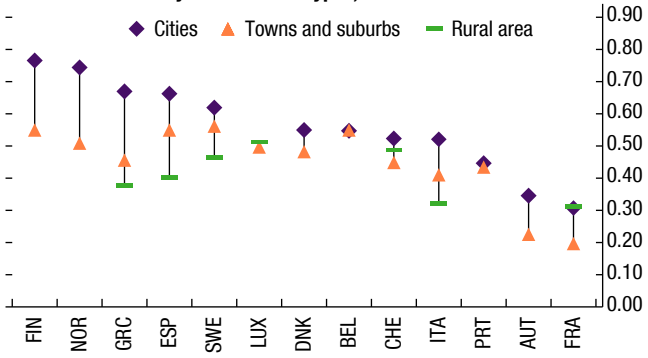
2. Share of Overburdened Tenants Renting at Market Price within Age Groups, 2018 or Latest Year[2]



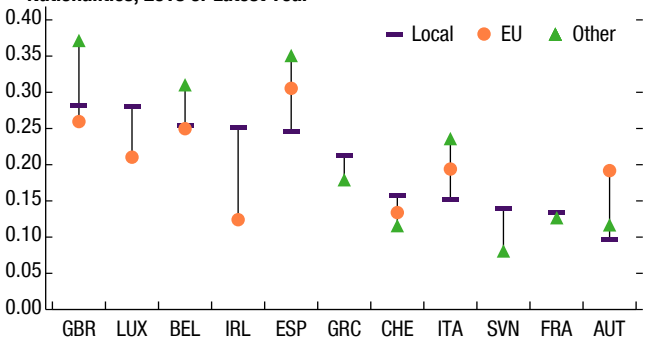
3. Share of Overburdened Tenants Renting at Market Price within Urbanization Types, 2018 or Latest Year[3]



4. Share of Overburdened Tenants Renting at Market Price in the Bottom Income Quintile by Urbanization Types, 2018 or Latest Year[3]

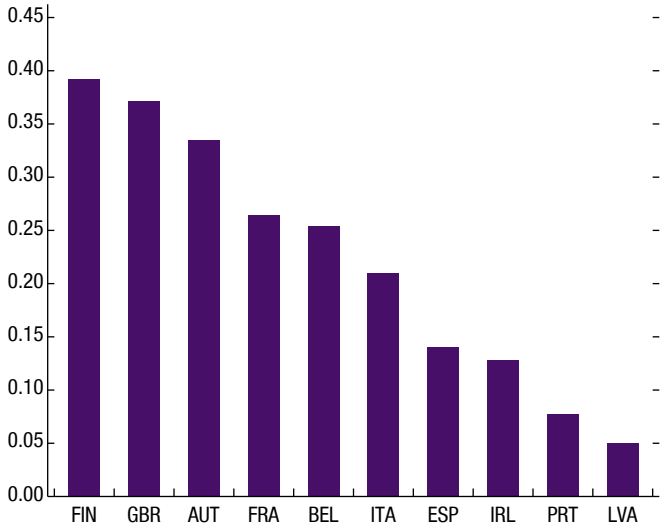


5. Share of Overburdened Tenants Renting at Market Price within Nationalities, 2018 or Latest Year[3]



Sources: EU-SILC; and IMF staff calculations.
Note: Figure uses International Organization for Standardization (ISO) country codes.
[1]Due to data gaps, 2017 data are used for Ireland and the United Kingdom; 2016 data are used for Iceland.
[2]Due to data gaps, 2015 data are used for Sweden.
[3]Some countries or categories are omitted due to data gaps.

Figure 8. Median Share of Disposable Income Spent on Rent for Tenants Renting at Reduced Rates, 2018 or Latest Year



Sources: EU-SILC; and IMF staff calculations.
Note: Due to lack of 2018 data, 2017 data were used for Ireland and the United Kingdom. Figure uses International Organization for Standardization (ISO) country codes.

den, and Switzerland (Figure 7, panel 2). The relative worse position of the young is arguably connected with the fact that inequality across generations in some European countries increased during the last decade (Chen and others, 2018). The overburden rate is also consistently higher in urban areas than in rural areas (Figure 7, panels 3 and 4). In some countries, the share of overburdened low-income renters living in cities has reached very high levels at 60–70 percent (in particular in the Nordics, Greece, and Spain). In general, there is no clear pattern of overburden rates among foreigners relative to nationals (Figure 7, panel 5).

Subsidized rents, where they are available, lower the overburden rate for low-income earners but do not eliminate it. The share of income that the low-income renters at subsidized rates pay on rent is nearly half (about 22 percent) compared to those in the same income bracket and paying market rent (Figure 8). Nevertheless, nearly one-fifth of all low-income renters with subsidized rents are overburdened (OECD 2020b). The share is particularly high in Finland and the United Kingdom (Figure 8), as well as in Iceland, Luxembourg, and Switzerland (OECD 2020c).[3] Some countries with severe rental affordability issues provide limited subsidized renting, for example, Greece and Spain.

How Has Affordability Evolved over Time?

The incidence of overburdened tenants has increased after the global financial crisis in half of the countries, particularly among low-income earners. Two groups of countries can be distinguished. The first group consists of those that suffered already from severe rental affordability issues before the global financial crisis and where the pressures have stayed high particularly for low-income renters (such as the Norway, Spain, and the United King-

[3]The latter three countries are not included in Figure 8 as the data do not meet the *minimum threshold of 100 observations* applied in Chapters 2 and 3 to report EU-SILC-based results. For more details, see Annex 1.

dom) (Figure 9, panels 1 and 2).[4] In the second group the share of overburdened renters was close to or below the European average but has increased significantly since the global financial crisis (in particular, Luxembourg, Slovenia, and Switzerland). While during 2013–18 poorer households faced more frequent and more significant increases in the median share of income devoted to rents, the share of income spent on rental housing has also risen for middle-income earners in half of the countries (Figure 10).

Rental affordability has tended to worsen for the young and people who live in cities. Data limitations narrow the set of countries for which a multiyear analysis of renters by age and location is feasible. But available data suggest that in half of the countries the share of overburdened young renters (16–29 years) and those living in cities has increased (Figure 9, panels 3 and 5). In five out of six countries more young renters in the lowest-income group were overburdened in 2018 than in 2013 (Figure 9, panel 4). In cities, the lowest-income group experienced an increase in the overburden rate in about half of the countries since 2013 (Figure 9, panel 6). It is worth noting that young people are more likely to move to cities than other people in other age groups (OECD 2020b).

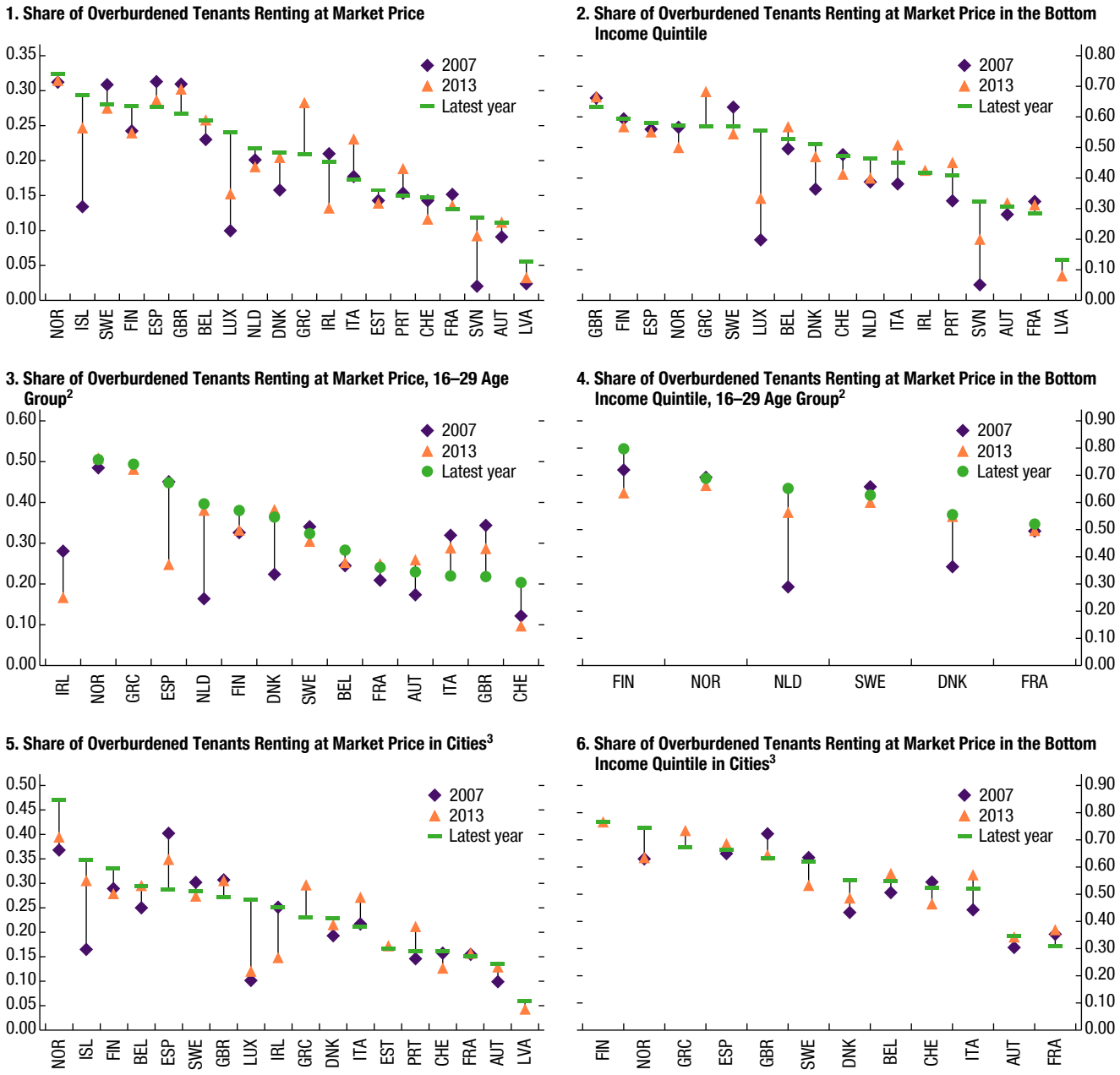
The affordability gap between renters and homeowners with mortgage has widened over the past decade. With monetary policy having been ultra-accommodative in advanced Europe since the global financial crisis the annual income share spent by homeowners has fallen. It dropped between 2½ and 1.6 percentage points between 2016–18 and 2011–13 for the median and low-income homeowners, respectively (Figure 11). Since the rental burden increased in the same period, in part because homeowners have not (fully) passed on their savings to renters, this has driven up the wedge between renters and homeowners.[5] In particular, for renters in the bottom income quintile (at market rates and at reduced market rates) the gap to the median homeowner widened by about 4 percentage points (Figure 11 and Annex 3, Annex Figure 3.3). This finding suggests distributional implications from the very low interest rate period in Europe linked to the tenure status.[6]

[4]López-Rodríguez and Matea (2019) and Salas (2020) have analyzed recent trends in rental prices and affordability in Spain, where the rental market has expanded since the 2009 housing bubble burst.

[5]See Box 2 for the relationship between rents and housing prices. The comparison should ideally be between renters and recent homebuyers with a mortgage. However, such a comparison is not feasible due to data constraints. Instead, focusing on housing costs for the prime age cohort (30–49) as a proxy—as households tend to buy homes during these ages—confirms the findings that housing cost has been lower and declining for homeowners.

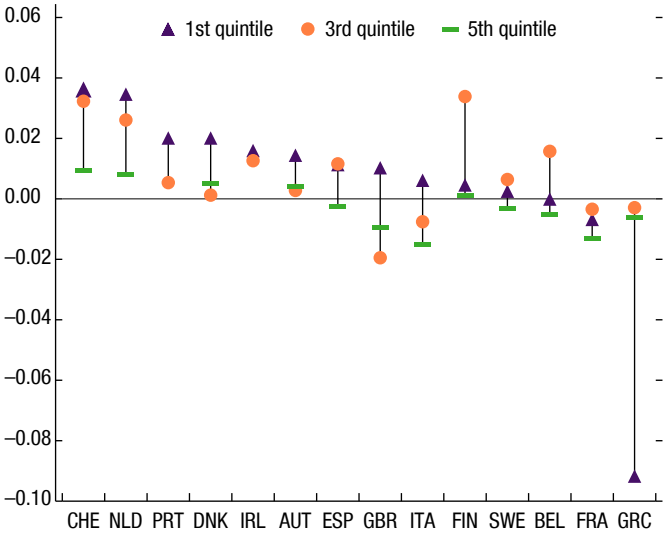
[6]The empirical evidence from unconventional monetary policies on inequality appears to be still inconclusive (see for example, Amaral 2017). Some studies suggest that quantitative easing has benefited lower-income households via the employment channel while the wealth channel has been small (for example, Lenza and Slacalek 2018).

Figure 9. Changes in Rental Housing Affordability in Europe by Income, Age, and Location[1]



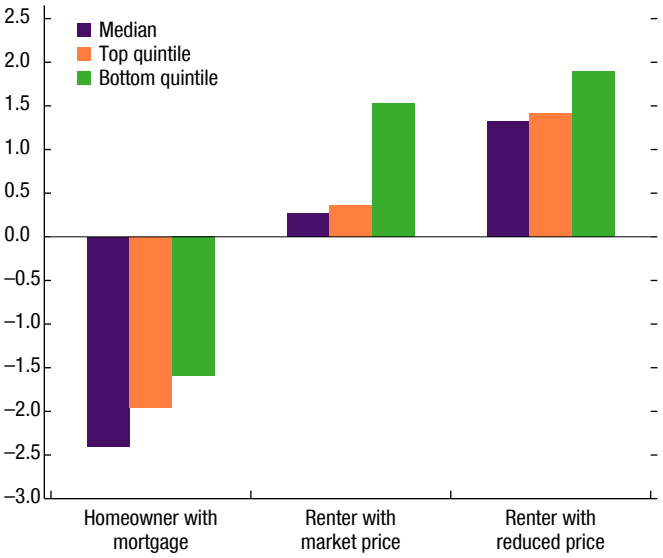
Sources: EU-SILC; and IMF staff calculations.
Note: Figure uses International Organization for Standardization (ISO) country codes.
[1]Latest year is generally 2018. But due to data gaps, 2017 data are used for Ireland and the United Kingdom; 2016 data are used for Iceland.
[2]Due to data gaps, 2015 data are used for Sweden.
[3]Some countries or categories are omitted due to data gaps.

Figure 10. Median Share of Disposable Income Spent on Rent for Tenants Renting at Market Price within Income Quintiles, Difference between Latest Year and 2013



Sources: EU-SILC; and IMF staff calculations.
Note: Due to lack of 2018 data, 2017 data were used for Ireland and the United Kingdom. Figure uses International Ogranization for Standardization (ISO) country codes.

Figure 11. Change in Housing Cost Burden across Income Groups[1]
(Percent of disposable income)



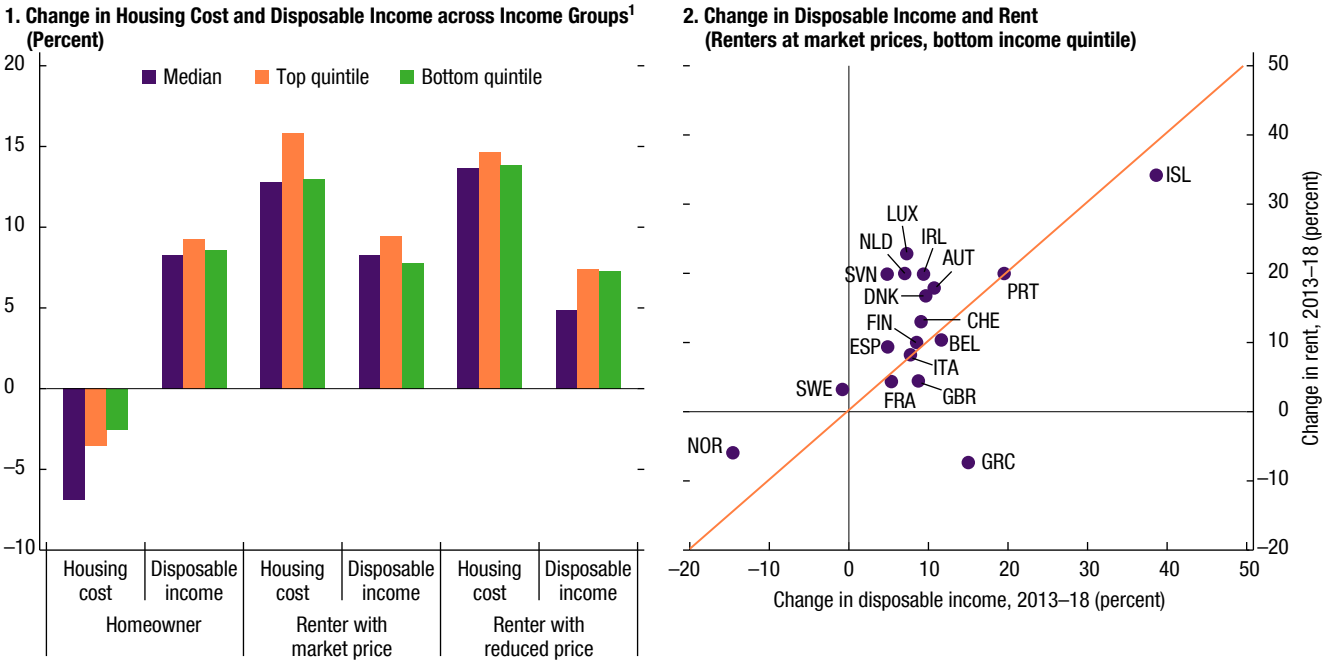
Sources: EU-SILC; and IMF staff calculations.
[1]Change between 2011–13 (average) and 2016–18 (average). Sample includes Austria, Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland.

The Role of Rental Costs and Disposable Incomes to Explain Changes in Rental Affordability

Pressure on affordability has arisen as a combination of rental cost increases and greater income dispersion, with significant regional differences. For the many groups of renters in advanced Europe—paying market or reduced rents—rental cost increased significantly more than disposable income, with low-income earners particularly impacted from this development (Figure 12). This stands in contrast to homeowners, of which many benefited from cost reductions while incomes rose. But developments have differed across and within countries, with rental cost increases having been primarily a driving force of affordability in urban centers and for low-income renters, while in many other locations the main factor was weak income growth. In some countries young people's affordability was squeezed simultaneously by higher rental payments and lower incomes (Annex 3, Annex Figure 3.4).

During 2013–18, rental costs have risen in the majority of advanced European economies in real terms. Based on EU-SILC data for 18 countries, the median rental payments of those paying market rents increased per year,

Figure 12. Developments in Incomes, Rental Costs and Affordability

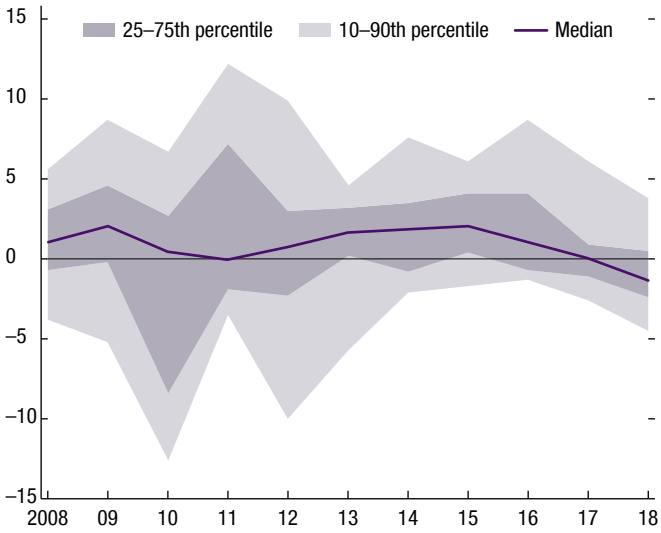


Sources: EU-SILC; and IMF staff calculations.
[1]Change between 2011–13 (average) and 2016–18 (average). Sample includes Austria, Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland.

on average, by about 1.3 percent in CPI-deflated terms during 2013–18 (Figures 13 and 14, panel 2).[7] This is about 0.3 percentage point higher compared to the previous five- year period (2008–12) though the dispersion across countries was much larger than in 2013–18. In 10 of the 18 economies, the median renter faced 9 to 67 percent higher real rental payments in 2018 than in 2007, with the largest surges observed in Portugal, Switzerland, Slovenia, and Luxembourg. In contrast, in six countries (Greece, Iceland, Ireland, Italy, Spain, United Kingdom) the real median rental cost at the latest data point was still below 2007 even though Iceland, Ireland, and the United Kingdom experienced strong increases since 2013 from depressed levels following the burst of housing bubbles. Results based on nominal rental payments generally point to similar qualitative conclusions (Figure 14, panel 1).

[7]Using EU-SILC data for all tenants (including those renting at subsidized rates) shows very similar increases as for renters at market rates, with Portugal's gap being the largest with stronger cost rises for those renting at subsidized rates. Using OECD rental price data (see footnote 10 in this chapter) gives somewhat different magnitudes and country rankings but confirms the broad story of real rent prices rises across about half the countries with great dispersion.

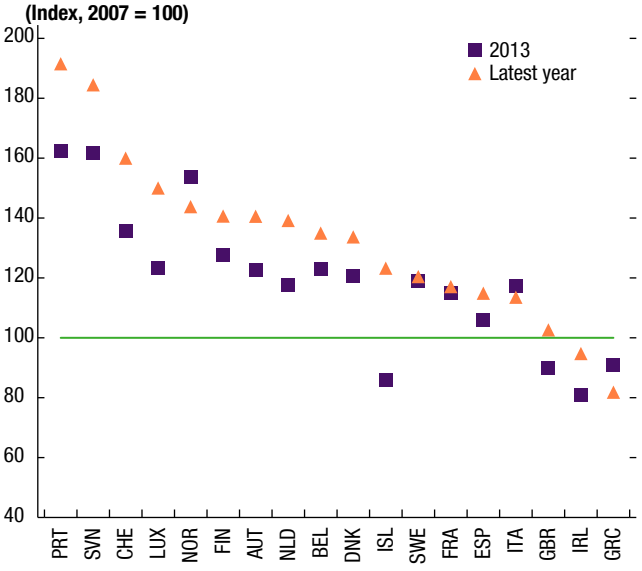
Figure 13. Tenants Renting at Market Prices: Annual Growth in Real Rental Payments
(Percent)



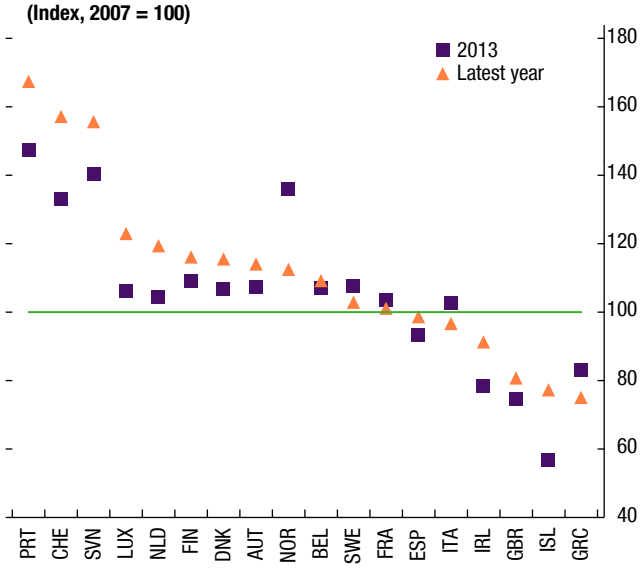
Sources: EU-SILC; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Country sample excludes Greece in 2008, Iceland in 2016–18, and Ireland and the United Kingdom in 2018.

Figure 14. Rental Cost Developments

1. Nominal Rental Payments: Tenants Renting at Market Prices
(Index, 2007 = 100)

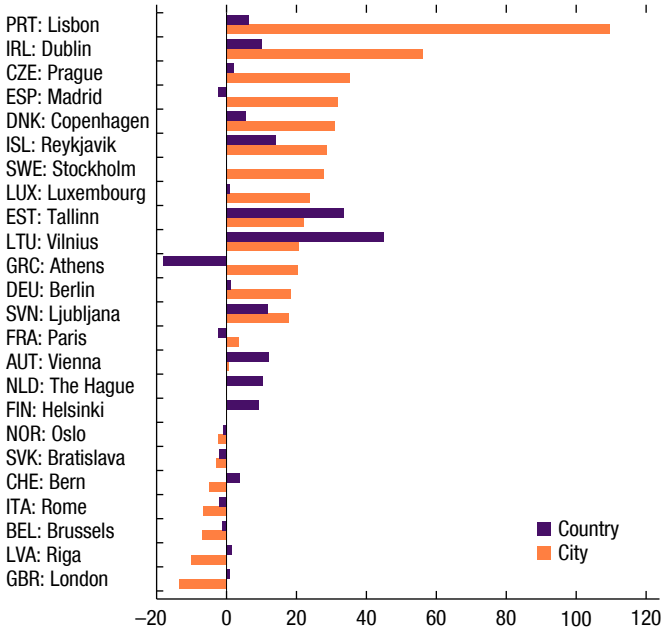


2. Real Rental Payments: Tenants Renting at Market Prices
(Index, 2007 = 100)



Sources: EU-SILC; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Medians by country. For Greece, 2008 = 100. Latest year is 2018 except for Ireland and the United Kingdom (2017) and Iceland (2016). Figure uses International Organization for Standardization (ISO) country codes.

Figure 15. Advanced Europe: Real Rental Price Growth in Selected Countries and Cities from 2013 to 2018
(Percent)



Sources: EARS data for cities (two-bedroom apartments); IMF, World Economic Outlook database; Organisation for Economic Co-operation and Development data for countries; and IMF staff calculations.
Note: Figure uses International Organization for Standardization (ISO) country codes.

Rental price surges have been concentrated in major European cities. The national-level data mask important local developments, such as a more pronounced deterioration of rental affordability in cities. To compare city-level rental price developments in a consistent manner, a unique source of survey-based data for European metropolises are used.[8] Despite significant dispersion across 24 selected European cities, in recent years real rental prices have been on an upward trend: the median real growth over 2013–18 was 1.4 percent per year, on average (Figure 15).[9] The cumulative median real growth over 2013–18 amounted to 18 percent for a representative two-bedroom apartment, with a few cities recording cumulative real increases of more than 30 percent. Average real rental price growth was especially high in Lisbon, Dublin, and Reykjavik during 2013–18, while a limited decline was registered in London, Riga, Rome, and Bern (Figure 15).

In recent years, rental price growth in several major cities was significantly higher than in countries as a whole. In half of the cases, rental price increases during 2013–18 in major cities surpassed country-level price growth, often by multiple times (Figure 15).[10] Examples are Lisbon, Dublin, Reykjavik,

[8]The analysis uses data from the Estate Agency Rent Surveys (EARS). Two key advantages of EARS are (1) its surveys reflect transaction prices, and (2) it is a rare example of a publicly available data set on rental prices that harmonizes the data across locations and years. However, EARS focus on a specific subset of the rental market, so the data may not necessarily give an accurate representation of the overall rental market or its low-income segment. See Annex 1.

[9]National consumer price indices (CPIs) were used to compute real rental prices. Where available, however, city-level CPIs (and in a few cases, CPIs excluding housing-cost components) were used for robustness checks, and the results were broadly similar.

[10]The country-level data come from the OECD house price database, based primarily on the rental-housing component of CPIs. These data imperfectly reflect ongoing market prices because they also capture subsidized prices and slow-moving prices from multiyear contracts. On the indexation of rental prices in some European

Stockholm, the City of Luxembourg, Dublin, Prague, Vilnius, and Madrid. In other countries, such as Italy and the United Kingdom, city-level prices declined, possibly reflecting in some cases reversals from growth in previous periods. Differences in the evolution of prices between large cities and the countries they belong to arguably reflect the local nature of rental markets and heterogenous pressures stemming, for example, from income dynamics, migration, urbanization, investment activity, and broader property market developments which in turn reflect national policies as well as the globalization of some European cities (see Chapter 4).[11]

How Will the COVID-19 Pandemic Impact Rental Affordability?

The COVID-19 pandemic has impacted disproportionally those professions that tend to have larger shares of renters, thereby hurting their affordability more. The pandemic has particularly affected contact-intensive service sectors, wherein workers tend to be less skilled, are hired more frequently under temporary contracts (often seasonal), and generally earn less. An analysis that combines European microdata on tenure status (renter, owner, free accommodation) with additional information on occupations shows that renters predominantly fall into categories of service workers and elementary occupations (Figure 16, panel 1).[12] These occupations already had lower median incomes compared to others before the pandemic (Figure 16, panel 2) and have faced greater employment destruction during the crisis.[13] Thus, rental affordability pressures are set to rise for these groups due to the concentration of their income losses unless rents fall rapidly. As rental price reductions will benefit mostly new renters rental affordability is likely to worsen in the short

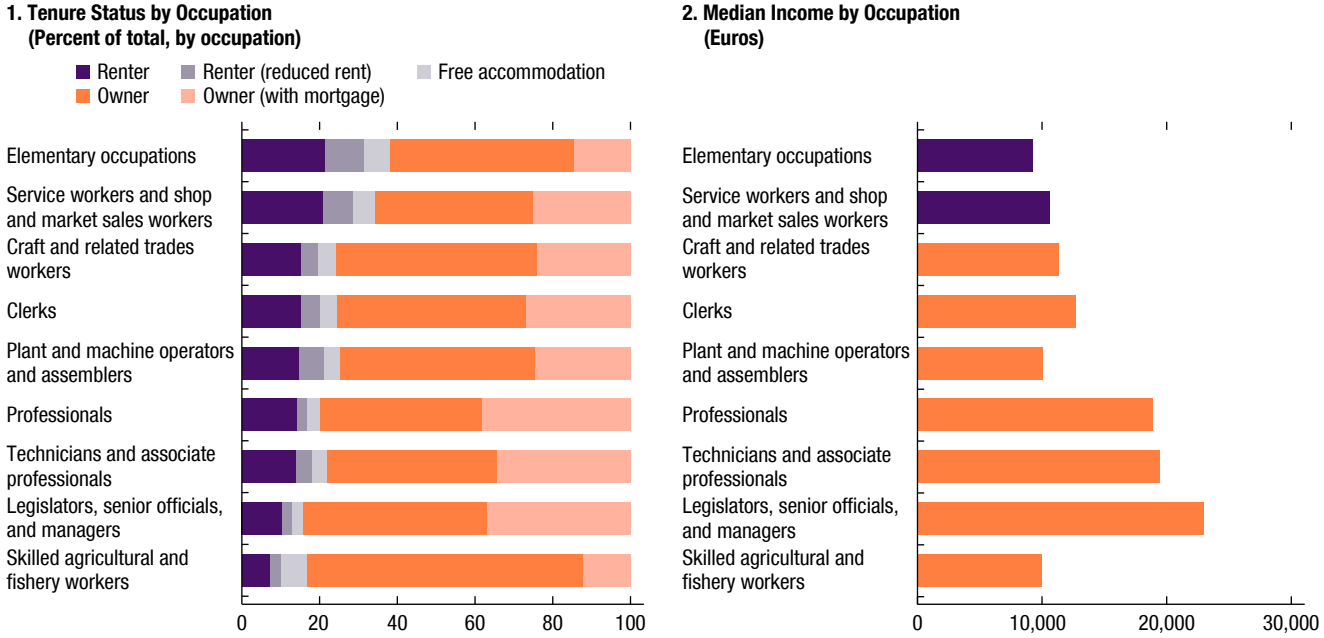
countries, see Roma (2019). Given these characteristics of the CPI-based data on rental prices, it is unsurprising that some studies relying on related metrics of house price-to-rental ratio and rental price-to-income ratio find relatively muted increases of rental prices and limited affordability problems for tenants (see, for example, Le Roux and Roma (2018) for an analysis of the euro area).

[11]Related to such differences, other studies have focused on house prices, especially in the United States, and documented persistent divergences in average price changes across locations within countries as well as within metropolitan areas, labeling those locations with persistent high price growth as "superstars" (Gyourko, Mayer, and Sinai 2013).

[12]This category includes occupations such as cleaners and helpers, food preparation workers, as well as laborers in manufacturing, transport, and construction.

[13]Brussevich, Dabla-Norris, and Khalid (2020) show that workers in the food and accommodation and wholesale and retail trade are the hardest hit from COVID-19 for having the least "teleworkable" jobs. Young workers, those with lower education levels, women, part-time workers, and those employed in small and medium enterprises are particularly vulnerable. Espinoza and Reznikova (2020) document that the likelihood for teleworking decreases for workers without tertiary education and with lower levels of numeracy and literacy skills. Using a teleworking index and model-based analysis, Palomino, Rodríguez, and Sebastián (2020) demonstrate that wage inequality in Europe is set to rise from the lockdown and social distancing impacts of the COVID-19 pandemic. Furceri, Loungani, and Ostry (2020) document the adverse distributional impacts of past pandemics.

Figure 16. Rental Housing and COVID-19



Sources: EU-SILC; and IMF staff calculations.
Note: Countries included are Austria, Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland. Panel 2 reports the median equivalized disposable income.

term. The earlier observed affordability gap to homeowners is expected to rise further via the income channel and an incomplete passing on of falling interest rates to renters (see also Box 2 on the link between housing and rental prices and findings in Chapter 4 that credit conditions in recent years have not significantly impacted rental affordability).

Certain structural developments could help to offset new pressures for renters but are highly uncertain. Early evidence indicates that in the wake of the Great Lockdown rental prices in several cities have started to decline or moderated their growth. So far, this phenomenon appears to be concentrated in tourist hotspots, while it is not yet a widespread trend.[14] Some

[14]For example, for Barcelona and Madrid new rental prices are reported to have dropped by about 12–13 and 8 percent, respectively, in November 2020 compared to pre-COVID (according to the real estate portals Idealista and Fotocasa) while for Spain as a whole rental prices still exceeded those in 2019. In Dublin average rents fell by 1 percent in the third quarter of 2020 (year over year) while for Ireland as a whole average rents were 1.4 percent higher compared to 2019, which is still a significant moderation from a 6 percent increase in 2019 (Residential Tenancies Board). In the city center of Rome rents dropped by 10.3 percent in 2020 compared to 2019 but they rose in other parts of the city (according to Idealista). In Zürich the rental price index increased marginally (by 0.1 percent) in 2020 compared to a 0.9 percent increase on average in Switzerland (Schweizer Bundesamt für Statistik, Stadt Zürich). In London the average rental price increase remained

COVID-19-related effects could induce a more protracted moderation in rental prices—especially if it leads to a sustained decline in tourism and business travel, a higher demand for properties outside congested cities, and conversion of commercial into residential real estate. In some large cities, investors have already purchased struggling hotels and appear set to turn some of them into rental properties (see, for example, Wall Street Journal 2020). It is unclear, however, how persistent and strong these behavioral changes will be once vaccines are widely available.[15]

Availability of affordable rental properties could facilitate optimal allocation of resources through supporting labor mobility, reducing pandemic scars. An ad hoc EU-SILC survey conducted in 2012, which surveyed if households had moved during the past five years—the time period that covers the global financial crisis—suggests that countries with a larger share of rental housing appear to have had a higher residential mobility, combined with lower unemployment rates (Annex 2). This finding mirrors "the Oswald hypothesis" (Oswald 1996, 1999), that high rates of homeownership can lead to lower employment, higher unemployment, and lower wages.[16]

broadly unchanged at 0.7 percent in 2020 compared to 1.1 percent in 2019 (Office for National Statistics, United Kingdom). Some caution is warranted with interpreting these data since differences in methodologies and sample size limit their comparability across countries.

[15]Ramani and Bloom (2021) document a significant drop in rents in centers of "expensive" cities and an increase in rents, though less intense, in their suburbs. They attribute this "donut effect" in shifting housing demand to the rise in working from home as the likely key driver.

[16]Several studies also find a negative association between homeownership and labor mobility in Europe (for example, Barceló 2006, Fidrmuc and Huber 2007). It should be noted that higher residential mobility also entails individual and social costs, such as the weakening of "social capital."

Box 1. Defining Housing Costs—Some Considerations

Housing costs can be defined in several ways. The narrow definition is based on mortgage and rental payments, whereas the broad definition includes also costs of mandatory services and charges, regular maintenance and repair, taxes, and utilities. There can also be differences in the narrow definition of housing costs—for example, the OECD and Eurostat treat principal repayments for homeowners differently in their definitions of housing cost (Box Table 1.1).

This paper uses a narrow definition of housing cost for renters and homeowners with mortgage principal repayments included for the latter.

The *narrow concept of rental costs* allows a comparison of the country data from EU SILC with city-level rental price data from the Estate Agency Rent Surveys (EARS) which is available only in the narrow definition. The narrow definition is also used in the econometric analysis in Chapter 4 (on the drivers of rental affordability) since there may not be common drivers behind broader rental costs, as some are policy determined (taxes and fees) and others market driven (maintenance costs).

The use of the *narrow concept of housing costs for homeowners, including mortgage principal payments* is motivated by making the affordability of housing comparable between homeowners and renters. Even though principal repayments are an accumulation of wealth and can therefore be considered as savings rather than expenses, they are fixed monthly outlays for homeowners.[1] The less-liquid nature of real estate assets, compared to financial assets, also makes cashflow management challenging for homeowners. In addition, some households may have no choice but to purchase a house due to the lack of adequate rental properties.

Box Table 1.1. Items Included in Different Definitions of Housing Costs

	Homeowners (with mortgage)	Renters
Broad definition	Principal + interest payments + mandatory services and charges, regular maintenance and repair, taxes, and utilities	Rental payments + mandatory services and charges, regular maintenance and repair, taxes, and utilities
Narrow definition		
OECD, US Census, this paper	Principal + interest payments	Rental payments
Eurostat	Interest payments	Rental payments

[1]The equivalent rent hypothesis suggests that accumulating wealth by purchasing a house should be equal to accumulating wealth by renting an identical house and investing any saved cashflows in financial assets (for example, stocks and bonds). According to this hypothesis, the level of rent that equalizes the final wealth accumulated by a homeowner is the sum of mortgage interest (less tax savings) and maintenance and other owner-related cost (see also Box 2).

CHAPTER

4 Main Factors Behind Declining Rental Affordability

Rental housing affordability is driven by relative movements of household income and rental costs, which can affect different income groups unequally. As shown in Chapter 3, rising rental costs alone do not necessarily translate into lower affordability if disposable incomes rise in tandem. Moreover, income dynamics have differed significantly across income groups making affordability issues more pressing for some than for others. If, for example, earnings for higher-income households rise faster than for lower-income households, then, absent a supply increase of affordable housing units, affordability may decrease for one group but remain largely unaffected for the other, as demand-driven rental cost increases affect average rents.

The analysis here adopts an empirical structural approach to explain observed changes in rental affordability in Europe, especially for low-income groups.[1] Since rental markets and correspondingly affordability issues are local and income group-specific phenomena, they are best analyzed with granular data. This section matches EU-SILC household survey data with corresponding data on the NUTS-2 region level from Eurostat for various structural indicators. This rich data set allows a focus on lower-income groups for which affordability has particularly worsened. Moreover, using granular data at the region level reveals patterns that could otherwise be masked in aggregate data.[2] However, since consistent granular data are scarce at the cross-country level, the analysis here is limited to advanced Europe. The empirical analysis uses an unbalanced panel of almost 1.5 million households across 204 regions between 2005 and 2018, providing a total of almost 100,000 individual-level

[1]For similar approaches and related literature, see for example Girouard and others (2006), Belke and Keil (2018), Egner and Gabrietz (2018), among others.

[2]However, even this level of disaggregation may be insufficient to prevent this from happening if, for example, regions contain very large cities as well as sizeable surrounding areas.

observations and 1,585 region-level observations, after accounting for missing and dropped observations.[3]

Hypotheses of the key potential drivers, as identified in the literature and raised in policy and media debates, are empirically tested. In particular, the analysis assesses the roles of rapidly growing economic activity, continuing urbanization, changing demographics, loose credit markets, tourism, and structural transformation in explaining rental affordability developments. It is noteworthy that the literature has mainly focused on the drivers of rental and housing *prices* in absolute terms where drivers affecting house and rental prices largely coincide (see also Box 2). In contrast, the analysis here puts emphasis on direct measures of affordability and then asks whether these drivers have disproportionate impacts on lower-income households. Some channels are very difficult to measure at the regional level forcing the analysis to rely on proxies to shed light on an admittedly complex and broad question.

Drivers of Affordability and Related Literature

Economic growth raises affordability issues for low-income renters if their incomes do not grow in line with rental costs.[4] From this perspective, a decline in rental affordability is yet another manifestation of growing income inequality across households (Couture and others 2019), on the back of unevenly distributed gains from economic growth, and not particularly a result of frictions or failures in rental markets. Nonetheless, growing inequality could also feed into the housing market when housing supply skews more toward higher value housing, further hindering low-income households' access to affordable rental units (Faber and Fally 2017, Dingel 2017).

Population size, density, and urbanization dynamics directly influence the number of housing units required in a certain region or city and hence affordability. Such a relationship is, for example, identified in overlapping generations models, which predict a positive association between the size of the working population and housing demand and prices (for example Park and others 2017). Moreover, population growth in many agglomeration centers is often explained by positive net migration. An urbanization trend (urban centers growing in size relative to and often at the cost of rural areas) has been observed in many cities. Saiz (2007) models the local impact of immigration on housing and tests its predictions in an instrumental

[3]The exact number of observations depends on the individual specification as some variables are not available for all time periods and/or regions.

[4]To the extent that the increased rental cost burden is not driven by shifting preferences toward higher-value housing (that is, homothetic preferences).

variables panel set up. He finds that an immigration inflow equal to 1 percent of a city's population is associated with increases in average rents and housing values of about 1 percent.[5] These drivers raise affordability concerns when growth in household income fails to keep up with the increased demand for housing.

Demographic developments and changes in social structures can influence housing demand even if the population size remains unchanged. Based on the lifecycle hypothesis of Ando and Modigliani (1963), people buy houses during their working age and sell them in their old age. Correspondingly, house prices should come under downward pressure as the share of the elderly increases. However, the opposite relationship could also be true. A higher share of elderly or divorced households could increase the demand for smaller units with a relatively higher rental price per area unit (Egner and Gabrietz 2018). Unfortunately, there is no consensus in the empirical literature on the sign or magnitude of this relationship as results vary with the methodologies, geographical coverage, and time periods (Park and others 2017). For example, Hiller and Lerbs (2016), using data for 87 German cities during 1995–2014, find that real urban house price appreciation tends to be substantially lower in cities that age more rapidly, while Egner and Gabrietz (2018) find changing signs in their regressions depending on the specification used. Similarly, Arestis and Gonzalez-Martínez (2017) find a significant negative impact of aging on house prices in Australia, Ireland, Japan, and Spain, but no significant results in 13 other OECD countries including the United States and United Kingdom. Park and others (2017), testing the predictions of an overlapping generations model, find that an increase in the old-age dependency ratio of 1 percent decreases house prices by 0.7 percent.

Tourism and short-term rental schemes can potentially increase the competition for available units in the market. Recently, property-sharing schemes such as Airbnb, which allow for the easy and temporary conversion of housing into tourist and short-term rental accommodations, have been put forward as factors driving up rental prices and exacerbating housing affordability problems by displacing existing residents. Calder-Wang (2019) develops and estimates a structural housing market model, in which landlords either offer units for rent on the traditional long-term rental market or on a short-term, Airbnb-like, rental market. Two channels work in opposite directions and may cause aggregate welfare to decrease, due to higher rents, or increase, when renters offer space in their homes and receive associated income. Using micro household and detailed Airbnb usage data, Calder-Wang finds that losses induced by higher rents dominate the gains from the host channel. Moreover, the increased rent burden falls most heavily on high-income, edu-

[5]Saiz (2003) presents further evidence that the relationship between immigration inflows and housing rents is indeed causal, that is, not driven by omitted variables or reverse causality.

cated, and white renters because they prefer housing and location amenities that are most desirable to tourists. Garcia-López and others (2019) present a model of the housing market where owners can decide to rent long term to residents or short term to tourists, which predicts that Airbnb reduces the supply of residential housing units. They find that in neighborhoods with average Airbnb activity, rents have increased by 1.9 percent while transaction (posted) prices have increased by 5.3 percent (3.7 percent) with the effect being considerably higher in neighborhoods with high Airbnb activity.[6] Barron, Kung, and Proserpio (2020) find that a 1 percent increase in Airbnb listings increases rents by 0.018 percent and house prices by 0.026 percent. Koster, van Ommeren, and Volkhausen (2018) find that banning Airbnb decreases prices by about 5 percent.

Relaxed credit conditions and accommodative monetary policy drive house prices up, potentially worsening affordability. Notwithstanding their positive effect on overall economic activity, lower interest rates and risk spreads raise the discounted present value of equity including housing. Rapidly appreciating asset prices may also encourage speculation, which pushes prices further up, making other forms of investments less attractive. In addition, lower credit costs are usually associated with easier access of households to credit, where the ease of obtaining mortgages in more developed financial markets makes it easier for households to overcome liquidity problems. Cheap financing and easy regulations could also spark the interest of international investors to engage in local markets thereby driving up rental prices. A wide literature has looked into the impact of this channel on more recent episodes of house price increases (Garriga, Gete, and Tsouderou 2020; McGibany and Nourzad 2004; Mian and Sufi 2018, 2014, 2009; Knoll, Schularick, and Steger 2014). Absent any liquidity constraints, in line with the predictions of the user cost of capital discussed in Box 2, lower interest and mortgage rates would drive rent prices down in parallel with the decline in the financing of home purchases. In contrast, liquidity constraints and financial frictions, which make it difficult for low-income households to leverage, put a limit to arbitrage in the housing market, allowing home buyers to benefit from looser credit conditions by a larger degree than renters.

Structural transformation in urban centers and the change in business demographics toward services that are characterized by higher labor skill and income[7] put upward pressure on housing costs and increase the rental cost burden on labor in more traditional and less productive sectors. This pattern has triggered waves of "gentrification" in many urban centers, especially in association with the growing role of innovation sectors and the higher desir-

[6]For neighborhoods in the top decile of Airbnb activity distribution, rents are estimated to have increased by 7 percent, while increases in transaction (posted) prices are estimated at 19 percent (14 percent).

[7]On structural transformation, see Smith (1987); Herrendorf, Rogerson, and Valentinyi (2014).

ability of urban centers to younger talents (The Economist 2016, Couture and others 2019). Further, this dynamic can be self-reinforcing through agglomeration effects if talent is attracted by the presence of high-growth companies, and firms are attracted to these regions and cities because of the presence of a larger pool of highly qualified workers. As the local housing market adjusts for the inflow of higher income groups, rent can become less affordable for lower income incumbents.[8]

Rental prices are also determined by supply-side factors. The supply of rental housing is very inelastic in the short term and can be increased only by creating more building space and/or allowing for denser construction. As such, the number of housing units per capita is a direct measure of supply in a given region or city as fewer units per renter translate into relatively higher demand for a given stock and thus higher rents. Building approvals and completions affect rental prices in the opposite direction. Construction costs and land prices also impact rents as they constitute a direct cost and hence profitability when building new rental units. Regulatory constraints in the form of building and land zoning restrictions that impede the densification in urban centers on the other hand are associated with increasing rent prices.

While good infrastructure generally promotes economic growth and income, and thus leads to higher house and rental prices, the effect of particular infrastructure projects can be ambiguous in the immediate vicinity. On an aggregate level, well-functioning transportation and telecommunications systems alongside neighborhood amenities such as parks, libraries, and schools (Black 1999) are positively related to rents and prices. However, the relationship is not always strictly positive as infrastructure projects can create both, negative and positive externalities for adjacent residential properties. For example, transport infrastructure attracts retail businesses and reduces commuting costs, but it also increases noise and may provide easier access to neighborhoods for criminals (Bowes and Ihlanfeldt 2001). On balance, the empirical literature generally tends to find a positive association between house and rental prices and transport infrastructure (Martínez and Viegas 2009), but differences among metro, tram, suburban railway, and bus stations (positive) and national rail stations, airports, and ports (negative) exist (Efthymiou and Antoniou 2013). While improvements in urban infrastructure are likely to be linked with growth in economic activity and income levels, the effect is unlikely to be consistently equal across income groups, leading to diversion in rental burden across the household distribution.

[8]In the absence of a supply response, the inflow of high-income households to cities would initially induce an increase in rents. While some of the cost impact for low-skilled and low-income residents could be offset by rising local incomes via the employment or wage channel, in reality the cost effect has generally outweighed the income effect as shown in this paper's empirical analysis.

Empirical Strategy

The determinants of rental affordability are analyzed by exploiting regional and time variation across a wide range of European countries. The novelty of the empirical strategy is that it matches EU-SILC household survey data with regional data on the NUTS-2 level from Eurostat for various structural indicators. Unlike earlier studies that typically use variation within a single country or a city, this approach utilizes information across a wider range of policy environments and regimes as well as controls for country-specific idiosyncrasies. These two advantages allow identifying the strength of the common structural factors in driving the rental cost burden for the average as well as low-income households, and to deliver more general conclusions that apply regardless of the institutional framework.

The estimated specifications are as follows:

$$\frac{rent}{income}_{HH,t} = \beta_1 Z_{r,t-1} + \beta_2 D_{HH,t-1}^{Lowest\ income\ quartile} + \beta_3 Z_{r,t-1} \times D_{HH,t-1}^{Lowest\ income\ quartile} + \eta_c + \eta_Y + \eta_{c\times Y} + u_{HH,t} \quad (1)$$

$$\frac{rent}{income}_{HH,t} = \beta_1 \frac{rent}{income}_{HH,t-1} + \beta_2 Z_{r,t-1} + \eta_c + \eta_Y + \eta_{c\times Y} + u_{HH,t} \quad (2)$$

In the first specification, β_1 reflects the impact of the structural determinants ($Z_{r,t-1}$) discussed above on the rental cost as a share of household income (that is, the rental cost burden). Furthermore, we include an interaction term between the structural factors and a dummy ($D_{HH,t-1}^{Lowestincomequartile}$) for the lowest-income quartile of the household distribution,[9] that is, β_3 uncovers the differential effects these structural factors may have on households whose financial position is particularly vulnerable. The second specification is a richer specification that accounts for the potential multicollinearity between the different channels and includes a dynamic term (lagged values of the rental cost burden) to account for the high degree of inertia in rental cost burden. This dynamic specification also allows us to control for other slow-moving omitted variables that raise dynamic (that is, lagged) endogeneity concerns.[10] All other explanatory variables also enter with a one-period lag to minimize simultaneity concerns and to allow for a period

[9]Using the equivalized disposable household income.

[10]Household characteristics that may determine the rental burden are one example. Overall, shocks to households, to the degree that they are idiosyncratic, are independent of aggregate variation. Hence, they do not exert an omitted variable concern for the structural estimation of the impact of aggregate factors (for example GDP, tourism intensity, etc.).

of time for the aggregate shocks to pass through to the rental market and household income.[11]

The specification controls for unobserved heterogeneity along the time and country dimensions. These forms of heterogeneity could possibly be correlated with the independent variables, simultaneously driving both rental burden and demand factors. The regressions include both year and country fixed effects to account for global shocks and country-specific differences. Finally, standard deviations are clustered at the regional level to account for possible heteroskedasticity and autocorrelation in the error terms.

Tables 1 and 2 present our estimation results. The impact of the different drivers is estimated in a block-wise manner, since adding more explanatory variables comes at the cost of degrees of freedom. Nonetheless, eventually pooling all independent variables of interest together in Table 2 controls for confounding factors and identify the conditional elasticities associated with each.

Regression Results

Higher economic output is associated with a higher rental cost burden particularly for low-income households. To capture the growth channel, the analysis assesses the impact of variations in GDP and the employment rate on rental affordability for the average household and the low-income group. Table 1, column 1 shows that a 1 percent increase in regional GDP per capita leads to a 4.3 percentage point increase in rental cost as a share of income for our benchmark group (that is, households belonging to the three upper-income quartiles). While this may in part be explained by homothetic preferences, whereby the share of consumption of luxury goods in income increases voluntarily as income level rises, the stronger impact observed for low-income households suggests otherwise. This income group experiences an increase of more than 7 percentage points (3.1 percentage points higher than the benchmark group) in response to the increase in economic activity, lending support to a strong role for the growth-inequality nexus in explaining deteriorating rental affordability (Figure 17). Employment appears to be a less relevant factor.

Urbanization and a decline in agricultural activities have a stronger impact on the rental burden of low-income households. The regressions include regional

[11]Generally, including a lagged dependent variable may cause the fixed-effects estimator to be inconsistent as these variables are necessarily correlated with the error term in the fixed-effects specification (Nickell 1981, Baltagi 2001). However, this concern is not directly relevant to the paper's baseline specification, which uses country (not household) fixed effects, while the regression is estimated at the household level. In addition, this Nickell bias diminishes at a rate 1/T and has its direct effect mainly on estimates of the autocorrelation coefficient.

Table 1. Regression Results for the Drivers of Rental Affordability

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$isQ1_{income_{r,t-1}}$	−0.049	0.024	−0.043	0.031*	−0.021	−0.278**	0.005	−0.41***	−0.044
	(−0.034)	(−0.096)	(−0.037)	(−0.017)	(−0.075)	(−0.135)	(−0.051)	(−0.15)	(−0.041)
employment rate$_{r,t-1}$	0.000	0.000							
	(−0.001)	(−0.001)							
log (*GDP per capita*)$_{r,t-1}$	0.042***	0.051***							
	(−0.013)	−0.012							
log (*GDP per capita*)$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$	0.031**								
	(−0.012)								
employment rate$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$		0.001							
		(−0.002)							
log (*population density*)$_{r,t-1}$			0.006**						
			(−0.002)						
log (*population density*)$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$			0.016**						
			(−0.007)						
Agricultural share$_{r,t-1}$				−0.797***					
				(−0.222)					
Agricultural share$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$				−0.223					
				(−0.504)					
old-age population share$_{r,t-1}$					0				
					(−0.001)				
old-age population share$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$					0.001				
					(−0.002)				
log (*tourists count*)$_{r,t-1}$						0.004**			
						(−0.002)			
log (*tourists count*)$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$						0.020*			
						(−0.008)			
long term interest rate$_{r,t-1}$							0.000		
							(−0.001)		
log (*avg. mortgage principle*)$_{r,t-1}$							0.013**		
							(−0.006)		
log (*avg. mortgage interest*)$_{r,t-1}$							0.004		
							(−0.009)		
log (*avg. mortgage interest*)$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$							0.006		
							(−0.008)		
tertiary education share$_{r,t-1}$								0.002**	
								(−0.001)	
tertiary education share$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$								0.005***	
								(−0.002)	
high-growth firms share$_{r,t-1}$									−0.001
									(−0.002)
high-growth firms share$_{r,t-1}$ × $isQ1_{income_{r,t-1}}$									0.008***
									−0.003
Number of observations	99,580	99,580	129,313	99,404	129,313	105,017	59,820	122,853	31,422
R^2 (full model)	0.112	0.111	0.085	0.113	0.083	0.09	0.089	0.093	0.079
Adj. R^2 (full model)	0.111	0.111	0.085	0.112	0.083	0.089	0.088	0.093	0.078

Source: IMF staff estimates.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

population density as well as the change in the agricultural share in regional gross value added as proxies for population-induced demand pressures. The results in Table 1 columns 3 and 4 indicate that increasing population density by 1 percent, or lowering the share of agriculture in gross value added by 1 percentage point leads to a significant increase in the average household rent burden in the benchmark group by 0.6 and 0.8 percentage point, respec-

Table 2. Regression Results for the Drivers of Rental Affordability—Full Model

	(1)	(2)
$\frac{rent}{income}_{HH,\,t-1}$	0.466***	0.508***
	(0.039)	(0.032)
employment rate$_{r,\,t-1}$	(0.001)	(0.002)
	(0.001)	(0.002)
log (*GDP per capita*)$_{r,\,t-1}$	0.046**	0.066**
	(0.021)	(0.033)
log (*polulation density*)$_{r,\,t-1}$	(0.006)	(0.012)
	(0.007)	(0.010)
Agricultural share$_{r,\,t-1}$	(0.385)	(0.525)
	(0.319)	(0.359)
old-age population share$_{r,\,t-1}$	(0.001)	(−0.003)*
	(0.001)	(0.002)
log (*tourists count*)$_{r,\,t-1}$	(0.002)	(0.006)
	(0.004)	(0.005)
long term interest rate$_{r,\,t-1}$	0.000	
	(0.002)	
log (*avg. mortgage principle*)$_{r,\,t-1}$	0.004	
	(0.005)	
log (*avg. mortgage interest*)$_{r,\,t-1}$	(0.003)	
	(0.013)	
teritiary education share$_{r,\,t-1}$		(0.001)
		(0.002)
high-growth firms share$_{r,\,t-1}$		(0.004)
		(0.004)
Number of observations	18,701	13,606
R^2 (full model)	0.305	0.327
Adj. R^2 (full model)	0.304	0.325

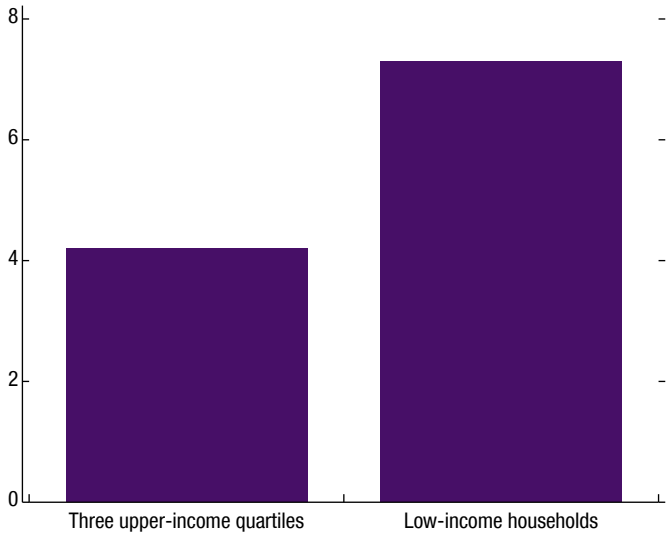
Source: IMF staff estimates.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

tively.[12] The impact is stronger on the rental burden of low-income households by 1.6 and 0.2 percentage points, respectively, when compared to other income groups (Figure 18). The result implies that structural transformation can leave low-income households in a less favorable position as their income level struggles to grow at the pace of the higher rental costs associated with increasing urbanization.

Demographics do not explain a significant portion of the variation in household rental affordability. To examine the role of demographic dynamics, the analysis estimates the effect of the share of older people (55 years and older) in the total population on the rental cost burden. However, the relevant coefficients are neither sizeable nor statistically significant either on average or for the low-income group; see Table 1, column 5.

[12]The decline in agricultural activities could increase the supply of land available for construction and zoning, which could lower rental costs. However, this decline in agriculture is more likely, as suggested by our results, to be driven by a structural transformation of economic activity toward manufacturing and services alongside urbanization. This process puts upward pressure on housing cost as a share of income, a characteristic of homothetic preferences.

Figure 17. Impact on Rental Affordability from Income Changes[1]
(Percentage points)



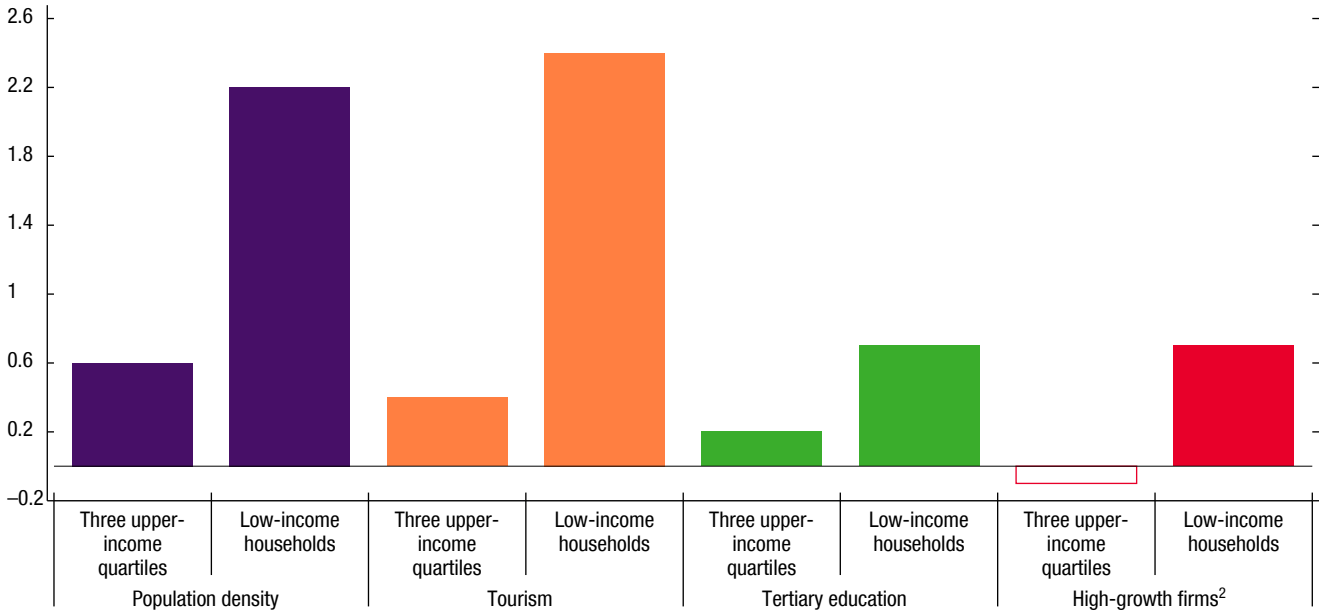
Source: IMF staff estimates as shown in Table 1, column 1.
[1]Percentage point impact on rent-to-income ratio as a result of a 1 percent increase in regional GDP per capita for the benchmark group (that is, households belonging to the three upper-income quartiles) and the lowest income quartile of households.

A higher incidence of tourism puts pressure on living costs, particularly for lower-income households. The number of tourist arrivals per region can proxy the impact of the tourism channel on rental affordability. Column 6 in Table 1 indicates that a 1 percent increase in the number of tourists is associated with an increase in the rent to income ratio by 0.4 percentage point for higher-income households. The effect on low-income households is even larger by 2 percentage points (Figure 18).

The results do not indicate that credit conditions are an important driver of rental affordability. Identifying the effects of credit conditions on rental affordability is complicated by the strong endogeneity between credit markets and macroeconomic indicators. To shed light on this channel, this paper uses the information provided by homeowners in every region who report the values of both their principal and interest payments. Assuming that the average maturity of outstanding mortgage debt across regions is similar, the magnitude of the average interest paid for every euro of principal provides a proxy for the cost of mortgage financing in the region. The specification controls for both the long-term interest rate and the value of the average principal paid by mortgage-paying households in a region and estimate the marginal effect of the average interest payments on households' rental cost burden. This indicator is found to play an insignificant role in explaining variations in rental affordability within the specification.[13] The result suggests that other frictions such as household liquidity constraints could form a strong barrier to arbitrage between housing and rental markets. Looser credit conditions lower the cost of home ownership; yet the shift in demand toward home ownership is limited by the extent that households have access to liquidity to meet down payment requirements.

[13]How the monetary policy rate affects rental markets is another key question that would require identification of ECB and national central banks' surprise actions, which lies beyond the scope of this paper's analysis.

Figure 18. Drivers of Rental Affordability[1]
(Percent impact from 1 percent change in variable)



Source: IMF staff estimates as shown in Table 1, columns 3, 6, 8, and 9, respectively.
[1]Percentage point impact on rent-to-income ratio from a 1 percent increase in population density and number of tourists as well as 1 percentage point increase in the share of population with tertiary education and share of high-growth firms for the households belonging to the three upper-income quartiles and the lowest income quartile of households.
[2]Firms with turnover growth rates of 10 percent or more. The impact for the three upper-income quartiles is not significant.

Structural transformation and the change in business demographics are associated with worsening rental affordability for low-income households. The evolution of business demographics and the rapid structural transformation toward services in major urban centers is measured here by using the share of population with tertiary education and the share of high-growth firms.[14] For households in the higher-income groups, a 1 percentage point increase in the population share with tertiary education leads to a 0.2 percentage point increase in the rent-to-income ratio (Table 1, column 8). The effect is stronger for low-income households, who experience a 0.7 percentage point increase. While the analysis does not find a significant effect of the share of the high-growth firms on the average higher-income household, the results in Table 1, column 9 suggest that low-income households appear to be particularly vulnerable; their average rent-to-income ratio rises by 0.8 percentage point for every 1 percentage point increase in the share of high-growth firms.

[14]High-growth firms are firms with turnover growth rates of 10 percent or more. Its share is calculated as the number of high-growth enterprises divided by the total number of active enterprises.

In the full specification stronger economic growth explains a large part of the variation in rental affordability. Table 2 shows the estimates of a full specification with all channels included. The results show that only GDP continues to have a statistically and economically significant effect on household rental cost affordability. This finding suggests a more dominant role for the growth-inequality channel. Despite the positive impact of the changing and growing economy on average household income, low-income households may not be able to fully reap the benefits as their incomes do not increase in line with rental costs. The consequence is a lack of inclusiveness as the benefits of income growth are not spread evenly. Thus, in addition to housing policies, which are discussed in the next section, stronger policies are needed to ensure that low-income households can benefit from the economic gains brought about by factors such as structural transformation, urbanization trends, and increasing tourism activities, which put pressure on rental affordability.[15]

[15]For a discussion on the roles of fiscal, structural, and labor market policies that enhance equality of opportunities and incomes see OECD (2018), IMF (2017), Chen and others (2018), Georgieva (2020), Bozio and others (2020).

Box 2. The Relationship Between Rental and House Costs—The User Cost of Capital

The textbook definition of the true one-year cost of owning, the so-called *imputed rent* or *user cost,* can be calculated as the sum of six components:[1] (1) a risk-free interest rate that the homeowner could have earned by investing in something other than a house, (2) yearly property taxes, (3) the offsetting tax deductibility of mortgage interest and property taxes, (4) yearly maintenance costs, (5) the expected capital gain (or loss) during the year, and (6) a risk premium that captures homeowners' higher risk of owning vs. renting. In a frictionless market, rents should equal this user cost.

Rents and house prices are governed by a no-arbitrage relationship: in equilibrium the expected annual cost of homeownership should equal the annual cost of renting. If the annual user cost increases without a corresponding increase in rents, it would be "cheaper" to rent than to buy.[2] Driven by this apparent arbitrage opportunity, more people would rent than buy thereby reducing demand for home purchases. This drives housing prices down and increases demand for rental housing, which drives up rents.

However, the ratio between the two prices can still vary over time. The relationship also implies that when, among other things, interest rates are low or expected capital gains are high, house prices should be high relative to rents reflected in a higher price-to-rent ratio.[3] Depending on the current constellation of underlying variables, it could therefore still be consistent to observe rising house prices, while rents remain constant. It also allows for a comparison of imputed to actually observed rents to gauge whether renting costs are in line with the cost of owning.

Imputed and observed rents diverge for often long periods of time. The assumptions of frictionless markets have been observed to not hold in many local markets, thus limiting arbitrage opportunities (Dìaz and Luengo-Prado 2008). For example, transaction costs can preclude risk-neutral investors from earning expected profits by buying a property to rent out for a year and, likewise, risk-neutral homeowners from earning expected profits by selling their homes and becoming renters for a year (Verbrugge 2008).

---

[1]For example, see Hendershott and Slemrod (1983); Poterba (1984); Himmelberg, Mayer, and Sinai (2005); Gallin (2008).

[2]The above model does not capture frictions such as access to financing or restrictions to ownership.

[3]Intuitively, homeownership is relatively attractive when the real interest rate is low because mortgage payments are lower and alternative investments yield less than in a high-interest environment.

CHAPTER

5 Policies in Support of Affordable Rental Housing

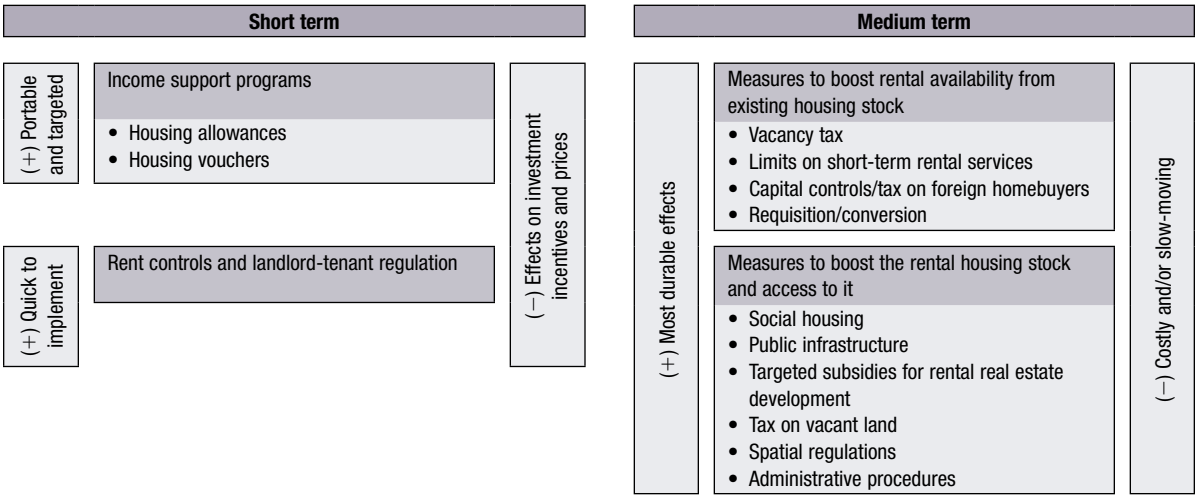
Every country in Europe uses policies to maintain and develop affordable housing. Affordable housing policies are a result of historical processes that have succeeded each other over a century or more to fulfill alternating social, political, and other special interests and needs. The set of measures in place are commonly complex, layered, and fragmented since they have often been designed and administered at subnational level constituting a powerful electoral tool. As of recently, more than 200 tax and expenditure programs aimed at making housing affordable both for renters and homeowners exist in the EU (Inchauste and others 2018).[1] In response to the COVID-19 crisis, governments have taken a host of primarily temporary support measures (OECD 2021).

Mapping housing policies into a national-level strategy could elevate it to key driver for an inclusive recovery from COVID-19, while providing a coherent picture of costs, benefits, and internal consistency of measures. Because housing policies juggle multiple aims, of which affordability and equal access to opportunities are only two aspects, national housing affordability objectives are seldom set in terms of households' coverage targets or affordability goals. However, given the relevance of safe, habitable, and affordable housing for work and life and its status of universal right, there is a need for national strategies for affordable housing that target market failures and grant support for the neediest, including by providing rental housing and regulating it.[2] In particular, countries need to ensure sufficient supply of rental housing across

[1]See López-Rodríguez and Matea (2020) for a recent comprehensive review of policies for the rental housing market. See also OECD (2020b); Andrews, Caldera Sánchez, and Johansson (2011); Salvi del Pero and others (2016); and Inchauste and others (2018) who focus on housing policies more broadly.

[2]The 1948 Universal Declaration of Human Rights (UDHR) and subsequent bills (The 1966 International Covenant on Economic, Social and Cultural Rights, ICESCR and The International Covenant on Civil and Political Rights, ICCPR) recognize adequate housing as a component of the human right to an adequate standard of living. More than 50 constitutions, including those of Belgium, France, Portugal, and Spain include

Table 3. A Map of Rental Housing Policies



locations to reduce coordination failures and fully reap macroeconomic benefits from rental markets. A recent example of developing a national policy for housing is Portugal, where the strategy includes protective measures for young people, the disabled, the elderly, and families with young children.[3] The pandemic has heightened the urgency for a comprehensive national approach to affordable housing, particularly rental, as it has exacerbated existing trends that risk leaving low-income earners and the young further behind. In particular, investment in affordable rental housing can counteract socioeconomic divergences, facilitate access to employment across locations, boost employment in the short term,[4] and lower carbon emission if investment targets greater energy efficiency.

This chapter reviews experiences with housing policies in support of more affordable renting and discusses the trade-offs that they may create. The literature uses different classifications to present the policies, for example, by type of instrument (financing, taxation) used or by the incentives they affect (demand vs. supply). The categorization adopted in this paper (Table 3) uses the time horizon with which policies affect affordability with particular focus on measures that can be prioritized in the short term to address urgent pressures. While potentially superior, other measures take longer to bear effects.

the right to adequate housing or outline the State's general responsibility to ensure adequate housing and living conditions for all (Report to the 58th Commission on Human Rights, E/CN.4/2002/59, § 2, 1 March 2002).

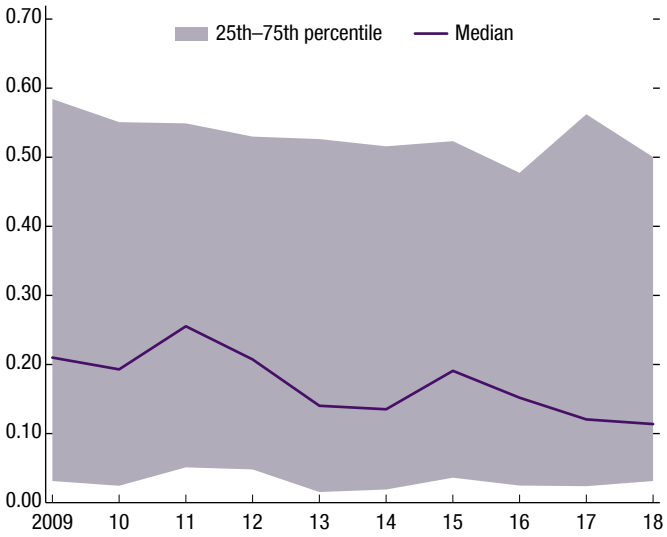
[3]Under the 2019 Basic Housing Law the Portuguese government becomes responsible for ensuring adequate housing for all citizens as guarantor of the right to housing. The law emphasizes the social function of housing, with the explicit goals of eradicating homelessness, prioritizing the use of public real estate for affordable housing, and prohibiting tenant evictions under specific circumstances.

[4]The October 2020 IMF *Fiscal Monitor* reports that per $1 million invested in energy-efficient new buildings, such as schools and hospitals, 2–13 jobs are created based on studies by IEA (2020) and Popp and others (2020).

Short-Term Affordability Measures

Income Support Programs

Figure 19. Share of Overburdened Tenants Renting at Market Price that Receive Housing Allowance
(Percent)



Sources: EU-SILC; and IMF staff calculations.
Note: Countries: Austria, Belgium, Denmark, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Some countries are omitted in certain years due to lack of sufficient data.

Income support programs have the potential to improve affordability for those most in need. The main goals of assistance programs targeted to housing are to eliminate poverty and reduce inequality. Targeted support for renters is generally delivered through subsidies that take the form of housing allowances or housing vouchers. In Europe, housing allowances are means- and/or income-tested transfers to households directed at supporting them in meeting their housing costs. In the United States, project-based housing allowances were sometimes attached to a specific unit of privately-owned housing; low-income families who moved into the housing paid a reduced rent on the basis of their incomes.[5] Vouchers, which are today the common form of housing income support in the United States, are portable subsidies that low-income families can use to reduce their rent expenses anywhere in the private market. They are sometimes given directly to landlords. Housing income support programs have been widespread in Europe and elsewhere across advanced economies, and their relevance has grown in time as income support has progressively replaced other forms of affordable-housing provision, including social housing. Over the last decade, however, the share of overburdened households renting at market prices who received housing allowances has tended to come down (Figure 19).

[5]In the case of the United States, the Section 8 program was administered as a project-based assistance program between 1974 and the mid-1980s when it was replaced by housing vouchers.

Figure 20. Poverty-Reducing Effect of Housing Allowances[1]
(Change at-risk-of poverty rates)

Source: Figari and others (2019).
[1]Change at-risk-of poverty rates comparing the baseline to a counterfactual without the policy.

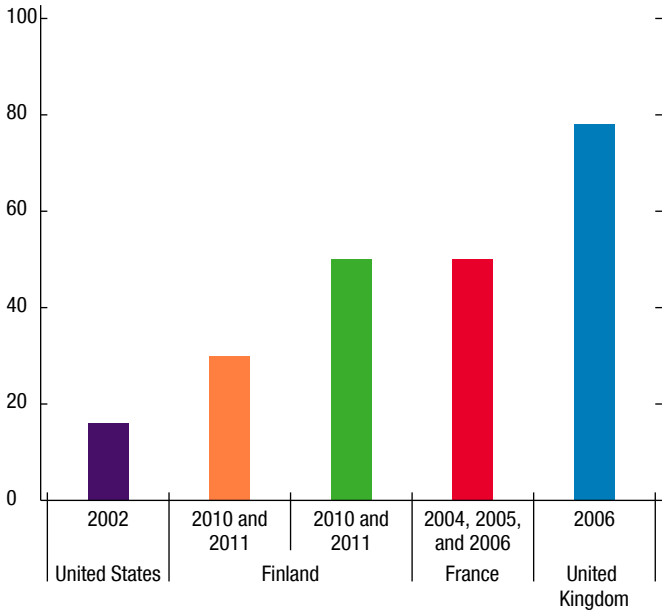
Housing income support programs have many positive aspects. When provided at the federal or state level, they can be used in many different locations, promoting neighborhoods amenities and school districts to people from different economic backgrounds. They can help provide affordable housing regardless of owner or regulation status, including through the private market. Their portability also facilitates labor mobility making them superior to homeownership, social housing, or local non-portable housing allowances in avoiding lock-in effects (Lui and Suen 2011).[6] Housing allowances make rental income in part of the rental sector more secure, which is especially important where eviction is difficult to enforce.

When well designed, housing income support can be an effective tool for providing targeted assistance. It is sufficiently flexible to accommodate support based on the exact income of each household taking into consideration households' size or status, such as single parents or students, and rent paid (Sayag and Zussman 2020). Recent evidence on rent subsidies in the United States and the United Kingdom suggests that they are effective in improving affordability for those who receive it (Ellen 2020). Figari and others (2019) show that housing allowances used in seven analyzed European countries had a material poverty reducing effect in five of them (Figure 20). In most of the analyzed countries they also had an inequality-reducing effect in the last decade or so, with the magnitude of the effects being a function of the size and design of the scheme assessed. However, housing income support does not come without distortions.[7]

[6]Blanchflower and Oswald (2013), for instance, find that rises in the home-ownership rate in a US state are a precursor to eventual sharp rises in unemployment in that state and lead to lower levels of labor mobility, greater commuting times, and fewer new businesses. Lui and Suen (2011) describe the lock-in effects caused by public housing following from the fact that the subsidy received is tied to specific housing units.

[7]Contrary to recent studies, Susin (2002) found that housing vouchers pushed up the rent paid by unsubsidized poor households in the average United States metropolitan area by 16 percent in the early 1990s, which more than offset the value of the total voucher program spent on the subsidized poor.

Figure 21. Capitalization of Rental Allowances
(Percent)



Source: Salvi del Pero and others (2016).

Despite evident advantages, housing allowances have the potential to raise rental prices, ultimately partially obliterating the positive effects in the long term. Housing allowances have been found to alter the distributions of rents, contributing to bunching around an expected rent value (McMillen and Singh 2020). Reviewing evidence from Finland, France, and the United Kingdom, Salvi del Pero and others (2016) find that landlords captured a sizeable share of housing allowances by increasing rents (Figure 21), which led to some "capitalization" or "capture" that occurred either because landlords settled with the renter for a higher price and/or because the demand for rental increased against a constrained stock. Linking allowances to a median rent in a specific area could potentially avoid their capitalization into rents. Other limits to this policy include lack of supply of "adequate" housing, and insufficient coverage and program size due to which renters may still default on payments, calling for additional design measures.

Rent Controls and Landlord-Tenant Regulation

Rent controls are widespread despite a wave of revisionism and opposition by economists that started in the 1990s (Arnott 1995). Compiling a historical database of housing market regulations covering 1910–2018, Kholodilin (2018) shows that almost all of the 47 countries studied adopted some form of rent control during that period. According to Kholodilin's measure of rent control, regulation appears to be stricter in countries with relatively large rental sectors (for example, Germany, Netherlands, and Sweden). Rent controls are a popular tool because they lend themselves to easily explainable

social objectives and avoid the drawback of subsidies being captured by the landlords. They are used with the aim of smoothing the effect of income volatility on living standards and fighting homelessness by increasing the bargaining power of renters against owners. Rent controls are sometimes used as a tool that favors social mixing; this outcome is not supported by evidence (Glaeser 2002, Sims 2011).[8]

A range of reference prices are used for controlling rent growth. The literature distinguishes between first-generation controls, namely rent ceilings or freezes by governments, and second-generation controls, introduced in the mid-1960s in which prices are generally free at contract setting but an upper bound is set for subsequent adjustments. The upper bound of rent growth can be the rate of increase of consumer prices during the preceding year (for example, Colombia, Czech Republic, France, Italy, Poland, Spain), mortgage interest rate (Switzerland), or an index of government bonds (Brazil). Base rents in the United States can grow at a fixed annual rate within the life of a contract, similar to rental brakes in Germany, or the overall cumulated increase can be capped. Rent controls are often guided by national principles with specific characteristics determined at regional or local level.

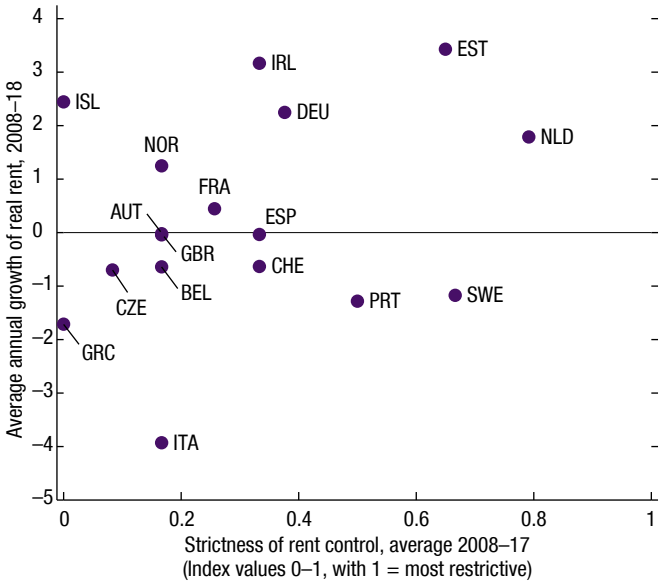
In recent years, rent controls have experienced a comeback despite well-known trade-offs.[9] In February 2020 the city of Berlin froze rents for five years (with some exceptions including for modernization; mietendeckel.berlin.de/) and gave tenants the opportunity to demand reductions if rents were determined to be too high. However, in April 2021 the German Constitutional Court struck down Berlin's rent cap since it is federal law that regulates rents. In Spain, new rules introduced in 2019 extended the link to the inflation rate from three to seven years. An initiative in the Netherlands would give municipalities with tight housing markets the power to cap prices for new rental contracts. In Canada, the Vancouver government has been considering locking in lower rents by requiring developers to ensure that up to 25 percent of units in new projects are rented at rates affordable to lower-income families—a strategy called "inclusionary zoning," implemented in Seattle since 1998 in exchange for a rebate on property tax. Similar measures are also being contemplated in other cities and countries.

There is no clear evidence that rent controls have led to lower rents, rather they seem to be associated with lower housing supply (Box 3). Average rent

[8]One exception to that evidence is perhaps Favilukis, Mabille, and Van Nieuwerburgh (2019). Using a model calibrated for the New York metropolitan statistical area, they show that rent controls can be part of a toolkit with redistributive effects to tackle rental housing affordability problems. At the same time, they point out that, compared to other housing policies, rent controls also create more housing and labor supply distortions and more housing misallocation.

[9]See for example Bloomberg (2019a, 2019b) and The Economist (2019).

Figure 22. Rent Control and Real Rent



Sources: EU-SILC; Kholodilin, Weber, and Sebastian (2018); and IMF staff estimates.
Note: Figure uses International Organization for Standardization (ISO) country codes.

levels (considering differences in quality of dwellings) are not lower in countries with stricter rent controls. Instead, rent regulations tend to redistribute savings on rents away from new tenants (or tenants with shorter expected duration) to incumbents or longer-stay tenants (Basu and Emerson 2000), echoing the tendency for landlords to initially set higher rents to compensate for the erosion of real rents suffered during occupancy. Thus, rent regulations may cause a divide between established households benefiting from rent-controlled, higher-secured tenancies and new households that have access to housing primarily through the unregulated market (Turner and Malpezzi 2003). A study focused on Germany shows that the introduction of a rental brake in 2015 did not affect rental price growth in the short term; at worst, price growth accelerated both in municipalities subject to the rental brake and in neighboring areas (Konstantin, Mense, and Michelsen 2016). In some cases, the regulation may have been ineffective because reference prices for rent increases were not available in some areas or tenants' options to enforce their rights were not strong. Figure 22 shows little correlation between the strictness of rent controls and rent price changes.

Where tight rental price controls were deregulated, the overall effect was largely favorable, with some caveats concerning the pace of liberalization and the modalities. Deregulation of strict controls in the Czech Republic and Finland improved landlords' profits, leading to a quick increase in supply and improved accessibility to private rental options (Kettunen and Ruonavaara 2015). However, complete deregulation may push consumers

to owner-occupancy and have other unintended consequences.[10] Experience suggests that liberalization should be gradual with rental price growth either indexed to reference rents (as in France and Italy) or CPI (as in Germany, Netherlands, and Spain for some contracts) or by permitting all rents to be raised within limits, such as by allowing the landlord to cover his or her operating costs including repairs. Linking rent increases directly to landlords' investments into housing, as in Germany, is also an option that encourages active maintenance. Liberalization can also proceed asymmetrically, by freeing prices only on new rental units or newly built housing as a first step and grandfathering existing rent-controlled units for the duration of the contract (as in Egypt in 1996 which resulted in a very gradual transition). In any case, pairing rental price increases with housing assistance for those in need (as in France in 1948) would be necessary (De Boer and Bitetti 2014).

Rent controls should be assessed in the context of overall landlord-tenant regulation, balancing the power between landlords and renters.[11] It should ensure that rental agreements are of sufficiently long tenure to provide certainty and that eviction procedures are not overly harsh. Overly tight regulation and frequent changes in rental regulation both affect the supply responsiveness to price signals in the housing market. Efficient, fair, and swift conflict resolution appears also paramount for unlocking rental markets full potential.[12] Germany was quoted in the past as an example of well-balanced rent regulations (De Boer and Bitetti 2014), as reasonable profits can be made by landlords, and there is room for market forces in the determination of rent prices, but there is at the same time considerable security for tenants about the lease and future price increases. However, Germany has been shifting toward stricter controls in recent years.

Short-Term Renter Support During COVID-19

Governments in Europe and elsewhere responded to the COVID-19 crisis with emergency renter- and owner-support programs. Many countries have adopted moratoria on evictions as well as on rent and mortgage payments, though to a lesser extent. Temporary rent freezes or automatic contract extensions or renewals have also been applied (OECD 2020a). While these measures provide lifelines and shelter people from homelessness and help others stay in their homes, some can create longer-term distortions and delay

[10]Full liberalization in Spain in 1985 resulted in a period of volatility and uncertainty so that soft controls had to be reintroduced (Urban Tenancy Act 1994).

[11]Cuerpo, Kalantaryan, and Pontuch (2014) and Inchauste and others (2018) offer evidence on rental market regulations in Europe, including indicators of rent controls and tenant-landlord relations.

[12]The court's procedures in Washington, DC, have been found to burden tenants and favor landlords as opportunity costs associated with court compliance pressures tenants into waiving rights and resources and not showing up in court (Fleming-Klink 2019).

Table 4. Key Measures Taken to Support Renters During the COVID-19 Crisis

	Rent Freeze Or Moratorium	Utility Bills Moratorium/Relief	Eviction Ban	Changes To Rent Assistance
Austria	x	x	x	/
Belgium	x	x	x	/
Czech Republic	x	/	x	/
Denmark	/	/	/	/
Estonia	/	/	/	/
Finland	/	/	/	/
France	/	/	x	/
Germany	/	/	x	/
Greece	/	x	/	x
Iceland	x	/	/	/
Ireland	x	x	x	x
Italy	/	/	/	/
Latvia	/	/	/	/
Lithuania	/	x	/	x
Luxembourg	x	/	x	x
Netherlands	/	/	x	/
Norway	/	/	/	/
Portugal	x	/	x	/
Slovenia	/	/	/	/
Spain	x	/	x	x
Sweden	/	/	/	/
Switzerland	x	/	x	x
United Kingdom	x	/	x	x

Sources: Organisation for Economic Co-operation and Development (2021); and IMF staff based on information from national authorities.

investment decisions to create needed supply. Targeted rental assistance has been more limited so far and could be expanded. Below are some examples of measures taken to support renters (Table 4).

- Many countries **temporarily suspended evictions** of residential tenants in both social and private housing during the lockdown under different requirements (Austria, Belgium, Czech Republic, France, Germany, Ireland, Luxembourg, Netherlands, Portugal, Spain, Switzerland, United Kingdom).[13] In the United States, landlords who receive forbearance under the CARES Act were barred from serving eviction notices to tenants during the period of forbearance, which was extended to January 2021. The law also prohibits all landlords with federally backed mortgages from evicting renters. A moratorium on evictions was placed in all but six US states.
- The use of **rent moratoria** was the second most frequently used measure. For example, Austria instituted it for residential renters until the end of 2020. In Spain, rent and mortgage debt moratoria were tied to specific unemployment and income criteria. In Iceland, it appears that the large rental companies voluntarily rescheduled payments without reduction in

[13]In Belgium evictions were suspended in Brussels and in the Flemish and the Walloon regions. Ireland also increased the notice period for tenancies of less than six months from 28 to 90 days.

rent and with no interest rate penalty. In Switzerland, payment periods for rents and leases on residential premises were extended by 60 to 90 days.

- **A moratorium on utility payments** was established in Austria until June, prohibiting cut-off of services to the unemployed during COVID-19 and exempting low-income households from the green electricity tax. Spain guaranteed that basic utilities would be provided to all, and no households would be cut off while the state of emergency was in place. In Slovenia the price of electricity was cut by 20 percent to help households experiencing a decline in income. The Flemish government in Belgium waived utility bill payments for one month for the unemployed between March and July. In Lithuania, the central government recommended that municipalities offer the option to defer utility payments.
- In Ireland a **freeze of rent increases** was introduced for the duration of the pandemic.
- Some US states introduced **rental assistance** for families in need (Massachusetts) including rent vouchers (New York[14]) to cash-strapped tenants who lost income because of the pandemic. The United States has also expanded renter support through the social benefits system. Other forms of support to the poor, such as the introduction of a national minimum income scheme in Spain and enhanced support for families with children in Germany and Austria, were also taken in other European countries. To facilitate access to rent support in Germany the Federal Association of Housing and Real Estate Companies established an online platform for applications. In Lithuania, support for the acquisition or rental of housing was boosted by raising the level of rental costs eligible for reimbursement.

Medium-Term Measures to Boost Rental Availability within a Given Housing Stock

More rental housing can be made available through better use of the existing vacant space. A first step to designing policy responses would be to take stock of vacant properties—including public buildings—their location and identify the disincentives that are creating the vacancies. Some cities are making an effort to register vacant housing, for example, Brussels, Dublin, and Rome.[15] Reasons for high (temporary) vacancy rates could be speculation in

[14]As in the federal Section 8 voucher program, the subsidy is paid directly to the landlord.

[15]The estimates for Brussels range between 15,000 and 30,000 units in 2018 (article). In Italy, a 2016 census in the city of Rome revealed 161 vacant buildings, half of which were owned publicly and 260 abandoned buildings in Milan. Dublin's vacant sites register includes 26 properties required to pay a levy in 2019 introduced by the Urban Regeneration and Housing Act of 2015, with a further 260 sites being considered as eligible for the tax. The Irish government has a national strategy for the use of vacant housing for 2018–21 (strategy).

the housing markets or domestic and foreign demand for secondary residencies. Vacancies may also be induced by excessive taxation of landlords' rental income or uncertainty over future tax policies. Thus, a high vacancy rate can coexist with strong price increases and a low housing supply elasticity.

Several tax measures aim at raising the supply of rental accommodations without resorting to construction of new housing. One measure to incentivize the use of existing properties for rental purposes is a tax on residential property vacancies. It has been applied in France, Ireland, Israel and the United Kingdom as well as in some cities in North America (for example, Vancouver, Oakland). Recent analysis for France estimates that the tax lowered the vacancy rates (by 13 percent between 1997 and 2001) without short-term effects on rental prices and with an increase in the supply of rental units in the long term (Segú 2020).[16] Taxing residential property purchases by foreigners has been adopted with the goal to stifle demand, for example, in several Canadian cities since 2016. Anecdotal evidence suggests that while foreign purchases declined, prices continued to rise. Also, this instrument is generally targeted at high-priced housing segments and would have less impact on low-income renters.[17]

Targeted regulations can contribute to a greater share of existing housing being made available for renting. For example, in Germany the use of dwellings for nonresidential purposes was prohibited in some high-density areas (Kholodilin 2018). Tighter rules on short-term rentals (such as Airbnb)—as adopted in Berlin, Barcelona, Dublin, and Paris—are more recent, with some studies documenting downward pressure on rents and home prices in areas where short-term rental presence is important (Garcia-López and others 2019). The impact of such measures on low-income renters is likely to be rather limited, however, since low-price rental property tends to be scarce in touristic hotspots. These measures would thus tend to benefit middle- and high-income renters at the expense of middle- and high-income landlords. Where renter–landlord regulations are not adequately balanced, for example, as they overly restrict evictions, balancing the rights could also increase rental housing supply.

Forced conversion of underused or abandoned facilities into social housing are a last resort for areas facing severe shortage of rental housing and high vacancies. However, in places where structural emigration and population

[16]In 2017, Australia adopted a vacancy fee on foreign owners of residential real estate where the property is not occupied or available on the rental market for at least six months of the year. No detailed impact assessment is yet available.

[17]The Netherlands employed another financial incentive to offer rental housing by exempting rent paid to landlords from income tax (De Boer and Bitetti 2014). Disadvantages are its fiscal costs and, similar to mortgage relief, the creation of a bias toward one form of tenure status.

decline are at the core of vacancies, buildings' transformation into affordable housing must engender and renew social and economic activity, which could be done through "gentle requisitioning" and conversion supported by fiscal incentives (as in Belgium, Germany, and Italy). Other possible medium-term measures include incentives to transform commercial properties into dwellings and a "solidarity lease," wherein the renter is a nonprofit entity subletting to low-income tenants as used in France.[18]

Medium-Term Measures to Boost the Housing Stock

Over the medium term, it will be necessary to increase the physical stock of housing to address structural demand pressures and boost rental supply. Aside from building social housing dedicated to rental, governments can provide incentives to households and firms for new construction through financing facilitation and subsidies or by disincentivizing holding of vacant land. Since most of these are costly fiscal measures, they should be targeted to income groups for which rental affordability is a concern.

Financing Private Construction and Tax Incentives

Support to households for homeownership tends to be non-targeted and thus regressive. It mainly consists of tax incentives, particularly in the form of mortgage interest deductibility. While such measures can stimulate new housing supply, the measures are generally broad-based and can be regressive, benefiting particularly high-income households with better access to mortgages (Fatica 2015, OECD 2020a). Although mortgage interest tax relief is being phased out gradually in some countries, across much of Europe it remains an important tool, including in Belgium, Denmark, the Netherlands, and Sweden. In the Netherlands, a study finds it had a significant inequality-increasing impact (Figari and others 2019). Exemptions from capital gains tax produce similar effects as well as imputed rents that are untaxed or special depreciation allowances for new rental housing construction (for example, in Germany).[19] Thus, it is important that measures aimed at facilitating household and corporate financing target construction of new homes to avoid fueling demand pressure against a given stock, thus pushing prices up and worsening affordability.

[18]The entity bears the rental risk and maintains the property while the landlord receives a below-market rent with some tax benefits.

[19]Measures that are not targeted at increasing supply but enhance access to credit and fuel demand for a given housing stock, risk pushing up prices up and worsen affordability. For example, Andrle and Plašil (2019) show that house prices in Canada responded rapidly to the households' ability to borrow.

Various forms of targeted subsidies have been used to incentivize real estate developers to supply affordable rental housing. Examples of measures are grants, loan guarantees or low-interest loans, or sale of land at below-market prices. The US Low-Income Housing Tax Credit is one such instrument enacted in 1986 that grants developers a credit when they build housing with ceilings on tenants' incomes and rents. In Canada, the city of Vancouver has supported purpose-built rental housing since 2012 through the Rental 100 program, recently under review, offering incentives for the construction of 100 percent rental housing buildings.[20] Providing land for construction at lower prices or in the form of long-term leasing can also lower investors' costs and spur new construction. Switzerland recently adopted legal provisions to advance renovation of existing properties and promote construction of new apartments, by allowing municipalities suffering housing shortages to acquire land for construction, set quotas for the construction of non-profit apartments, and give owners who voluntarily build such apartments a bonus of up to 10 percent on the gross living area.

Creating tax disincentives to encourage the use of vacant land for construction has faced difficulties in practice. International experience with taxes on vacant land shows that these are costly and difficult to implement because they require assessing both improvements to the building site and the land value, also raising issues of how to treat different types of land equally (Amirtahmasebi and others 2016).[21]

Social Rental Housing

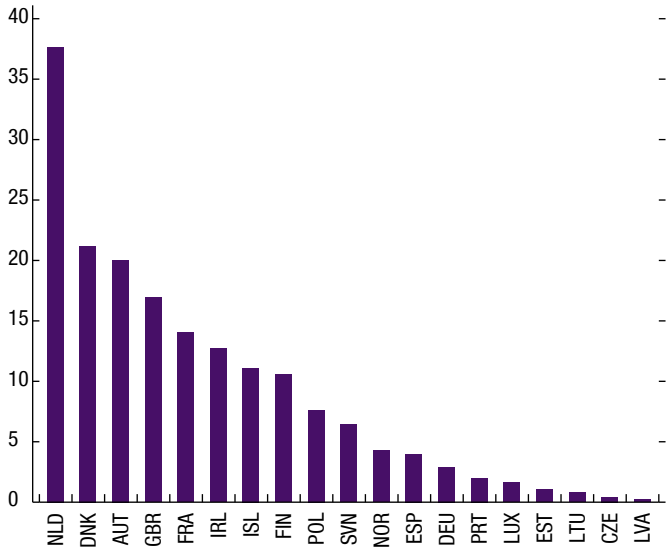
Social rental housing can take several forms and can address market failures. It primarily consists of publicly financed residential accommodation units provided by the government or by nonprofit institutions and rented at below-market prices.[22] Social rental housing is often combined with subsidies to dwellers and coupled with social housing legislation and overall housing sector strategy. Some governments develop social housing on their own and others through public-private partnerships. Through social housing provision, government intervention ensures stable access to affordable housing for groups that, even with housing allowances, would be shut out

[20]According to anecdotal evidence, while rental housing availability in Vancouver has increased, affordability has not improved as the new units are offered at market rent values. Arvai (2018) analyzes affordability in some Canadian regions.

[21]Washington, DC, recently passed a land value tax with the hope of fostering rehabilitation and greater use of abandoned land. However, the tax was said to merely have brought substantial revenue to the city, because property values are increasing and owners have preferred to either pay the tax or ask for an exemption rather than implement changes to the property (ACT 21–556, The Council of D.C., December 2016).

[22]OECD (2020c) defines social housing "as residential rental accommodation provided at sub-market prices that is targeted and allocated according to specific rules, such as identified need or waiting lists."

Figure 23. Social Rental Housing Stock, 2018 or Latest Available Year
(Percent of total housing stock)



Source: Organisation for Economic Co-operation and Development, Affordable Housing Database.
Note: Figure uses International Organization for Standardization (ISO) country codes.

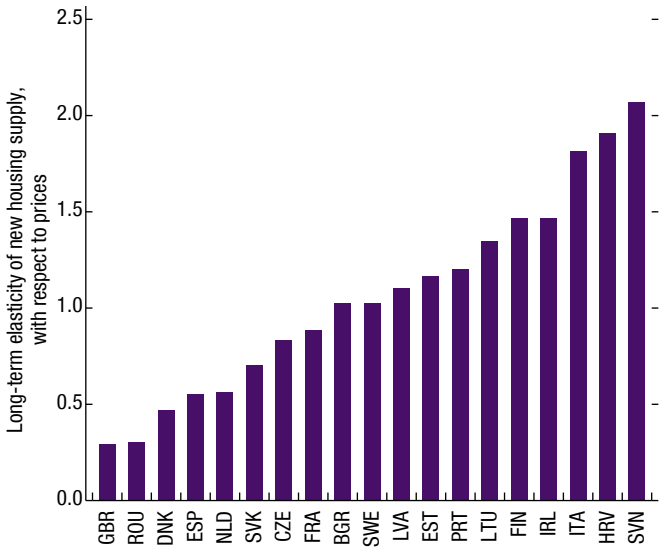
of most market-based housing due to stigma or shortages of adequate housing (for example, based on family size or desired location) (Barton 1996). Thus, social housing addresses shortages where housing supply is inelastic to price signals (OECD 2020c). Nevertheless, since social housing can be costly and less flexible than housing allowances, it can be only one element of a comprehensive affordable housing strategy. The size of its contribution compared to housing allowances remains heavily debated, depends on local circumstances, and varies considerably across countries (Figure 23). If not properly designed, large-scale social rental housing can also create poverty traps and cement social problems.

Some countries aim to reverse the trend over the past decades that has lowered the stock of social housing.[23] For example, in Germany the social rental housing stock halved since 2006 to about 1.1 million units (Deutscher Bundestag, 19/122 34). Recently, however, Germany allocated funds to build 100,000 new social housing units during 2020–21 and is selling federally owned properties to local authorities at reduced prices to build affordable housing. In France where the stock of social housing was broadly stable as a share of total housing over the past decade (OECD 2020c), for example, the city of Paris has aimed to create 7,000 new public housing units per year between 2016 and 2020, of which 5,000 are in especially prosperous areas. In Spain, the authorities plan to increase the very low stock of social rental housing, including by mobilizing public land and collaborating with private investors. The impact of social housing on the nonsubsidized rental market is mixed and depends on its size. Salvi del Pero and others (2016) find that social housing can crowd out the private rental market, where the social sector is very large such as in

[23]For a recent overview on social housing see OECD (2020c), which notes that different definitions of social housing and data limitations make cross-country comparisons difficult. For the period from 2010 to about 2018, they observe a decrease in the stock of social housing in some advanced European economies (Denmark, Finland, Germany, Norway, United Kingdom) and a slight rise in three countries in which the stock was already high (Austria, France, Netherlands).

the Netherlands. However, there is also evidence that governments can raise the total number of units in a market without crowding out the provision of equal-quality low-income housing that would otherwise have been supplied by the private sector (Sinai and Waldfogel 2005).

Figure 24. Responsiveness of Housing Supply to Price Increases, Selected EU Countries



Source: Inchauste and others (2018).
Note: Figure uses International Organization for Standardization (ISO) country codes.

The provision of social housing has not always been strictly targeted, which can create distortions. Where large segments of the population are eligible for social housing this has often created excess demand and difficulties in access for the young and hampered labor mobility. Often eligibility criteria for social housing are applied only at entry and, as incomes grow over time, households tend to remain in the system even when they move into higher-income quintiles.[24] Countries with the largest social housing stocks (more than 20 percent of total housing) had traditionally universal systems that over time have become somewhat more targeted (OECD 2020c). The Netherlands has the largest social housing sector, representing nearly 38 percent of the total housing stock (OECD Affordable Housing Database 2018). The other two cases are Denmark, wherein general housing at cost-based rents aims at a broad range of the population and Austria, wherein 80 percent of the population is eligible (Mundt 2018).

Spatial Regulation and Access to Transportation

Changing zoning regulation and other spatial policies has the potential to affect housing supply elasticities and boost construction (Figure 24). Con-

[24]This distortion can be addressed by introducing fixed-term tenancies with review of eligibility after a certain number of years, already adopted in some countries for new contracts.

straints on residential development, while exclusionary, may have positive net welfare effects and serve to protect public health and limit crowding of people. They also help regulate access to public services, such as transportation, as well as school and hospital access. However, by affecting density, zoning regulation increases land prices and pushes up marginal construction costs, ultimately swelling house prices and generally resulting in higher volatility of house prices compared to volatility of new construction.[25] Beyond shaping housing markets, spatial regulation affects migration patterns (Hsieh and Moretti 2017), defining employment and wage growth in metropolitan areas.

The range of regulations affecting housing density in urban areas has grown over time reflecting crowding patterns and special interests. Gyourko and Molloy (2015) report a proliferation of regulations at the local level in the United States since the 1970s including, for example, height restrictions, minimum lot size requirements, caps on the number of housing units, urban growth boundaries and green zones, open-space designations, and density restrictions. Environmental regulations and bureaucratic procedures can also raise costs (Sunding 2005). Expanding use of local land often encounters "not in my backyard" opposition by vested interest, as homeowners are overrepresented in subnational governments.[26] In these cases, collaboration among owners, communities, associations, and renters/residents can serve to reconcile the right to ownership with the right to housing while internalizing the environmental impact of construction into decision-making.

Restrictive spatial regulation can contribute to deterioration in rental affordability through its effect on prices, but this link is difficult to measure. Areas with more regulation tend to have higher rents which could, however, also reflect generally higher housing prices. Empirical studies on this issue are sparse and find a lower correlation of rents with regulation compared to the correlation of rent with average house prices (Molloy 2019). The problem in associating spatial regulation to affordability arises because regulation affects house prices and rents but also income distribution, by forcing lower-income households out of the tightly regulated areas to keep housing expenditures low (Gyourko, Mayer, and Sinai 2013). As their commuting times and cost go up, affordability can worsen but this deterioration is not captured by housing cost indicators. The problem is compounded by the fact that different types of regulation can also have diverging effects on households. Moreover, the same ratio of housing expenses to income can be associated with different consumption patterns for housing. When affordability worsens, people may opt to consume less housing (resulting in crowding, for instance).

[25]For a comprehensive review of studies examining the empirical relationship among regulations, house prices, and construction with US data, see Gyourko and Molloy (2015). Evidence of spillover of demand to other localities, which reduces price increases in the regulated locality, was found by Lin and Wachter (2020).

[26]See Ortalo-Magné and Prat (2014) on political economy considerations.

Thus, higher house and rental prices can coexist with unchanged regulation intensity and expenditure shares. Because of these complications, few studies have attempted to analyze the direct link between spatial regulation and housing affordability, making evidenced-based policymaking difficult. Better collection of regulatory information, especially across countries, could enhance the empirical analysis.

Does greater supply of housing, including homeownership, translate into greater availability of rental units and how does it affect rent levels? Transition of housing into the rental sector has been found to occur more frequently in the United States when house prices declined. Roughly 2 percent of the existing single-family detached housing stock was estimated to transition into the rental sector with each passing decade (Rosenthal 2014). Anenberg and Kung (2018) found that rent elasticity to housing supply is, however, low and suggested improving amenities in other locations (including transport) to relieve price pressures in high-price areas by creating close substitutes.

Investment in public infrastructure can spur construction and use of vacant housing and act as income support. Closely intertwined with housing and urban policies, provision of modern and green transport infrastructure is a powerful tool that can divert part of housing demand away from crowded metropolitan areas where jobs are located into less-inhabited regions with vacant housing, thus decompressing prices and congestion. Such a policy can act as income support in as much as it lowers living expenses in a broader sense but, as it takes time to materialize, it cannot be used to combat immediate affordability pressures. Over time, improved access to transport can contribute to new housing developments, potentially increasing housing supply overall, though the impact on land and housing prices of such development may be difficult to predict.[27]

[27]A literature review by Higgins and Kanaroglou (2016) on the effect on increased transportation access on land prices in the United States suggests that the results are heterogenous, which may be explained by omitted variables across studies.

Box 3. Side Effects of Rent Controls

Effect on incentives: Rent controls inhibit further development of affordable housing by lowering the net return on such investments (affecting investment as well as maintenance of rent-controlled units). Rent controls may be circumvented by landlords and may induce workarounds, such as conversion of dwellings into nonresidential premises (for example, medical practices or offices). Landlords are also found to decrease supply of rental through sales (Diamond, McQuade, and Qian 2019).

Effects on redistribution: Though rent controls may be a superior redistribution tool to transfers financed through distortionary taxation,[1] such controls are often poorly targeted to needy population and exit strategies are not envisaged. This affects negatively young cohorts that most often have lower incomes/assets and struggle to enter the property ladder. Rent controls can be considered a subsidy to the tenant paid by the landlord and may also redistribute resources among different categories of tenants (in rent-controlled versus free market). By keeping owners' income low, rent controls lower tax revenue, further limiting government resources that could be used for targeted redistribution.

Effects on resource allocation: Rent controls increase tenancy duration and can contribute to misallocation of units (by size and quality) due to lock-in effects. The lock-in also inhibits labor mobility across cities and regions.[2] Rent controls are in many countries introduced at the national or state level, while housing markets are of local nature. Misallocation across demographic groups under price controls can produce worse outcomes than rationing due to undersupply of rental housing (Glaeser and Luttmer 2003).

Market fragmentation: When rent control on the existing stock is maintained while new construction is exempted from it, a dual rental market is created with low rents in the rent-controlled segment and high rents for uncontrolled units. The Netherlands is an example of a strongly controlled social rental sector and rental sector duality coupled with high incentives for home ownership. Chapelle, Wasmer, and Bono (2019) argue that the dual rent-controlled market in Paris prevents the first best allocation of households, as prices do not play their regulating roles, and contributes to scarcity in the flexible rent sector.

[1]Micheli and Schmidt (2015) show the negative welfare effects of distortionary taxation due to lower working capital and output prevail in the steady state. However, land/housing supply is assumed to increase in the model, which may not be the case under rent control.

[2]De Boer and Bitetti (2014) document low mobility for social renters in countries with high levels of regulation. Diamond, McQuade, and Qian (2019) document a 20 percent decline in labor mobility in San Francisco due to rent control.

CHAPTER

6 Conclusions

Preventing rising inequality from the pandemic requires an affordable housing rental market as it contributes to economic inclusion and stability. It promotes access to economic opportunities, particularly for low-income earners and the young, by preserving a sufficient income share for other spending and by promoting access to education, health care, and transportation. Importantly affordable rental housing across locations can support labor mobility by fostering the transition from education to employment and from job to job. This feature of the rental market can be key in facilitating economic transformations, which are set to accelerate as a result of the COVID-19 pandemic, and prevent greater income inequality.

Pressure on rental housing affordability has become a challenge across many European economies. While country and regional differences are large, in most economies analyzed here a large and rising share of low-income renters, the young, and those living in cities is overburdened. In several locations affordability for middle-income groups is also low and declining. These groups have faced particularly slow income growth amid rising rental prices. Disparities between renters and homeowners have widened over the past decade in an environment of low interest rates and housing policies that tend to be regressive and favor home ownership. Rental housing support for the segment of tenants most in need has often not kept up with affordability pressures. These trends and inequities will likely only worsen following the disproportionate COVID-induced contraction of service sectors where many renters are employed. Potential structural shifts could bring some relief for rental costs—such as less city tourism, move to the suburbs and transformation of commercial into residential real estate—but it is still highly uncertain how strong and lasting these changes will be. Moreover, they are unlikely to benefit the most vulnerable groups primarily.

Rising economic output pre-COVID did not translate into disposable income gains that compensated sufficiently for rising rental costs; other trends such as urbanization and tourism also played a role. Exploiting a panel of household and region-level European data, the paper finds that low-income households have not been able to fully reap the benefits of the changing and growing economies as their incomes have not increased in line with rental costs. In addition, greater urbanization, structural transformation toward high-skilled services and higher incidence of tourism have pushed up affordability pressures for renters, particularly for lower-income households. Credit conditions are not found to have significantly impacted rental affordability suggesting barriers between housing and rental markets. Overall, the findings suggest a dominant role for the growth-inequality channel. The consequence has been a lack of inclusiveness as the benefits of income growth were not spread evenly.

A concerted effort is needed to arrest the affordability pressures and make affordable rental housing a pillar for an inclusive recovery in Europe.

- Stronger policies are needed to ensure that low-income households and the young can benefit from the economic gains brought by factors such as structural transformation, urbanization trends, and increasing tourism activities, which put pressure on rental affordability. Measures include access to better education, active labor market policies, and public transportation that enhance mobility and income prospects. But these are not enough and need to be accompanied by specific housing policies which in turn create access to employment, education, and health care.
- In the short term, raising level and coverage of portable housing allowances appears to be the most powerful immediate policy tool that lends itself to quick deployment and effective targeting. Providing sufficient coverage and benefits to renters via housing allowances will be critical to protect low-income renters throughout the expected lengthy economic recovery in Europe. Where the crisis has exposed gaps, these should be filled permanently. Housing allowances would also help avoid cliff effects that could arise once the COVID-19 emergency responses, such as broad income support, short-time work schemes, and rent moratoriums, are being lifted. Allowances should usefully be accompanied by other targeted measures, such as loan guarantees. Until the economic recovery is firmly entrenched, protection of the most vulnerable renters requires special attention to stem evictions. Other measures altering price signals should be avoided or should be temporary and targeted, including rent controls, as they tend to get circumvented over time or discourage investment and rental supply in the long run.

- Efforts aimed at increasing the supply of affordable housing should be undertaken to alleviate demand pressures more permanently. Governments could invest in more social housing and adjust financial incentives, for example, taxing vacant properties and shifting some housing subsidies that favor high-income homeowners toward private investment in rental housing development. There is also scope for boosting physical housing supply by relaxing spatial regulation in densely populated areas, though these measures do not come without political obstacles.
- In the EU, the national recovery and resilience plans supported by the Next Generation EU program provide an opportunity to make investment in social housing and public infrastructure an integral part of the recovery strategy, with a view to supporting inclusive growth by creating employment, providing more affordable housing and better access to jobs across locations. If the housing investment is steered toward greater energy efficiency it would also reduce the sector's carbon intensity.
- Regardless of the measures contemplated, an overarching housing strategy is needed at the national level, to provide a consistent framework for setting objectives, devising budgets, selecting policy tools cognizant of their trade-offs, and contemplating mechanisms to evaluate policies' effectiveness and fairness.

There is also need to close data gaps on rental markets to devise better policies. Regulatory restrictiveness, including zoning regulation and tenant-landlord relations, is difficult to measure, yet it affects rental prices and shapes consumption and investment incentives. Some efforts have been devoted to collecting and updating regulatory information across countries, but most databases are focused on a narrow set of markets. Furthermore, in some countries data on the recipients of housing allowances or social housing are not available (or published) in a centralized form, complicating the analysis of targeting effectiveness. Compiling and publishing these statistics, along with transaction-based data on rental prices, would allow for a more thorough evaluation of policies and inform decision-making.

Annex 1. Selected Sources of Data on Rental Costs

Eurostat EU Statistics on Income and Living Conditions

The EU Statistics on Income and Living Conditions (EU-SILC) is the reference source for comparative statistics on income distribution and social inclusion in the European Union (EU). EU-SILC was launched in 2003 on the basis of an informal agreement between Eurostat and six Member States (Austria, Belgium, Denmark, Greece, Ireland, and Luxembourg) and Norway. It was formally launched in 2004 in 15 countries and expanded in 2005 to cover all of the then EU-25 Member States, together with Norway and Iceland. Bulgaria launched EU-SILC in 2006 while Romania, Switzerland, and Turkey introduced the survey in 2007. Germany is included in EU-SILC but is excluded from the analysis in this paper due lack of access to the microdata administered by the German Federal Statistical Office.

EU-SILC provides two types of annual data:

- Cross-sectional data pertaining to a given time or a certain time period with variables on income, poverty, social exclusion, and other living conditions
- Longitudinal data pertaining to individual-level changes over time, observed periodically over a four-year period

EU-SILC focuses mainly on income. Detailed data are collected on income components, mostly on personal income, although a few household income components are included. Information on social exclusion, housing conditions, labor, education, and health information is also obtained.

The reference population in includes all private households and their current members residing in the territory of the countries at the time of data collec-

tion. Persons living in collective households and in institutions are generally excluded from the target population. Some small parts of the national territory amounting to no more than 2 percent of the national population, and the national territories may be excluded. All household members are surveyed, but only those aged 16 years and older are interviewed.

As it is usual in empirical studies based on microdata, for this paper some observations were removed at the outset following a number of criteria. For example, households with negative or zero gross disposable income were ignored. Further details are available upon request. While most of the analysis relies on data at the household level, some of these data were matched with personal-level information (for instance, on age and citizenship).

To assess rental affordability, unless otherwise mentioned, this paper focuses on households' *equivalized* disposable income—that is, the total income (including housing allowances) after tax and other deductions that is available for spending or saving, divided by the number of household members converted into equalized adults. A similar adjustment for household size and non-response factors is also applied to the variable that captures rental costs.[1]

For the EU-SILC-based figures in Chapters 2 and 3, a minimum threshold of 100 observations is used to report the results. Related to this threshold, countries may be excluded from figures if they report insufficient granular data for a relevant category of analysis; for example, in figures depicting results for the first, third, and fifth income quintiles, countries are included only if data are available for at least two of these three income quintiles (whereas if data are only available for one of the income quintiles, then a country is simply dropped from the figure).

For additional information, see: https://ec.europa.eu/eurostat/web/microdata/european-union-statistics-on-income-and-living-conditions

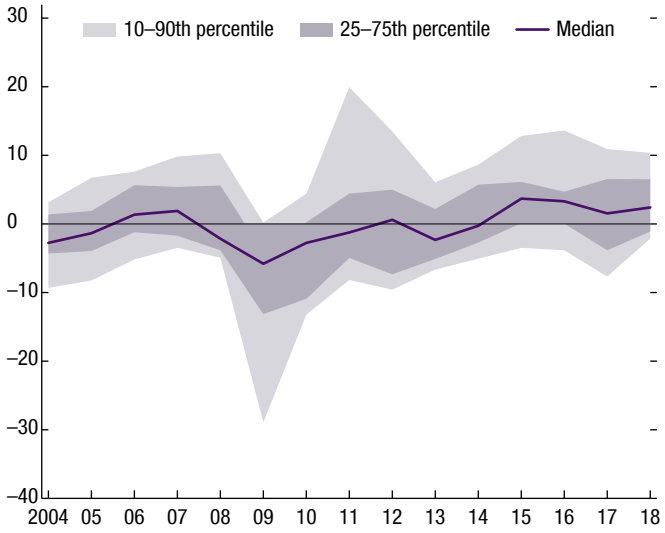
EARS: Estate Agency Rent Surveys

These surveys are carried out in collaboration among Eurostat, the International Service for Remunerations and Pensions (ISRP) at the OECD, and the National Statistical Offices. They are part of wider work conducted to compare the relative cost of living of international civil servants between their place of employment and that of Brussels.

[1]Deducting housing allowances from disposable income and rental costs does not significantly affect key findings reported in Chapter 3. However, this robustness exercise points to milder affordability problems than in the baseline results for some countries, including Nordic ones such as Finland and Denmark.

EARS rely on rental surveys carried out annually, around mid-year, through face-to-face interviews with real estate agencies. Eurostat and ISRP are the overall coordinators of surveys, aiming to ensure a consistent approach across cities and years. The sample sizes are undisclosed, but a valid and representative sample is ensured across all cities.

Annex Figure 1.1. Advanced Europe, Cities: Annual Real Rental Price Growth
(Percent)



Sources: EARS (two-bedroom apartments); IMF, World Economic Outlook database; and IMF staff calculations based on selected cities.

The data reflect transaction-based monthly rental prices, excluding charges and utilities, for an unfurnished property. The frequency is annual, and the data start in 2003. It covers up to 54 cities (35 of them in advanced economies, as per the WEO 2019 classification).

EARS include rental price data for 1-, 2- and 3-bedroom apartments, non-detached houses, and detached houses. Annex Figure 1.1 depicts the rental price-growth dispersion from 2004 to 2013 across 24 cities in advanced Europe, based on 2-bedroom apartments. (Though not shown, the median price growth in 2019 was slightly higher than in 2018.) In general, the analysis in this paper focuses on 2-bedroom apartments, assumed as the most representative dwelling, but the results based on the other types of dwelling were often robust. The quality of the dwellings included in EARS is "good to very good, but not luxurious," and their general characteristics are narrowly defined. Although these characteristics are reviewed annually, at least some of them (such as size) have remained stable over time.

The neighborhoods surveyed for EARS are residential areas of good quality, favored by expatriates and professional workers such as international civil servants, university staff, doctors, managers, etc., who pay their rent themselves

(that is, not paid by their employers). These neighborhoods are reviewed annually, but the selection has remained stable over time.

For the analysis in this paper, one important caveat is in order. Since EARS focus on a specific subset of the rental market, as described above, at least for some cities the data may not necessarily provide an accurate representation of the overall rental market or its low-income segment. Related to this limitation, there could be discrepancies with other data sources on city-level rental prices. Illustratively, for the case of London, the EARS data shown in Chapter 3 point to a decline in real rental prices from 2013 to 2018; whereas, by contrast, data from the UK Office for National Statistics (Experimental Index of Private Housing Rental Prices) point to a moderate increase in such prices over the same period.

For additional information, see: https://ec.europa.eu/eurostat/web/civil-servants-remuneration/estate-agency-rent-surveys

OECD Analytical House Price Indicators

Rental prices in this OECD database are based on consumer price indices for actual rentals for housing (COICOP 04.1). If this indicator is missing for a country, another is chosen—usually, the CPI aggregate for housing including actual rentals for housing (COICOP 04.1), imputed rentals for housing (COICOP 04.2) and maintenance and repair of the dwelling (COICOP 04.3). The data are originally in quarterly frequency (seasonally adjusted), and are averaged to convert to annual frequency. The data cover OECD countries and, where available, start in 1959.

Arguably, these CPIs imperfectly reflect ongoing market rental prices, not least because the data also capture subsidized prices and slow-moving prices from multiyear contracts.

Annex 2. The Macroeconomic Role of Rental Markets

Rental markets can address multiple social needs. Whether temporarily or permanently, renting is a valuable choice for individuals and families who face liquidity constraints. To the extent that homeownership may constitute a final objective as a preferable form of savings and wealth accumulation, renting can be conceived as a vehicle allowing households to make informed decisions about where and when to buy, while helping build savings necessary for home purchase in the transition. The rental market lends itself naturally to urban policies aimed at improving the social mix of neighborhoods and promoting inclusion.[1]

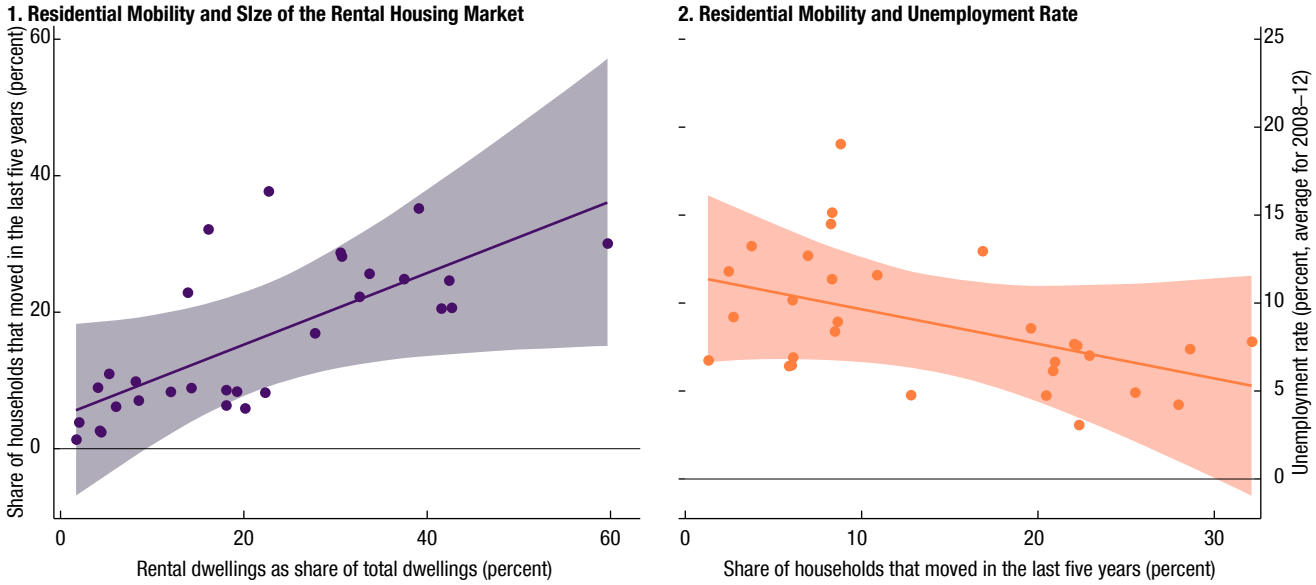
Beyond enhancing social inclusion directly, key macroeconomic benefits from rental housing arise mainly from two channels. First, rental housing promotes labor mobility, including by allowing people with matching skills to move to areas where jobs are available, thereby lowering structural unemployment and enhancing productivity and potential growth (see, for example, Hsieh and Moretti 2017, Czerniak and Rubaszek 2018). Second, compared to housing markets, rental markets tend to be less susceptive to the asset-price boom-bust cycle and can thereby contribute to financial stability and a smoother business cycle (Gallin 2008, Ambrose, Eichholtz, and Lindenthal 2013). Such a stabilization "side benefit" would arise mainly when the policies primarily aimed at financial stability, such as macroprudential and supervisory measures, are not fully effective.

A sizable supply of rental housing across locations fosters labor mobility, which in turn might reduce structural unemployment.[2] Transitional labor

[1]Gabriel and Painter (2020) discuss societal consequences of the deterioration in rental housing affordability, with a focus on the United States.

[2]See, for example, Caldera Sánchez and Andrews (2011), Andrews, Caldera Sánchez, and Johansson (2011), Blanchflower and Oswald (2013), and Czerniak and Rubaszek (2018).

Annex Figure 2.1. Rental Market, Internal Mobility Rates, and Unemployment[1]



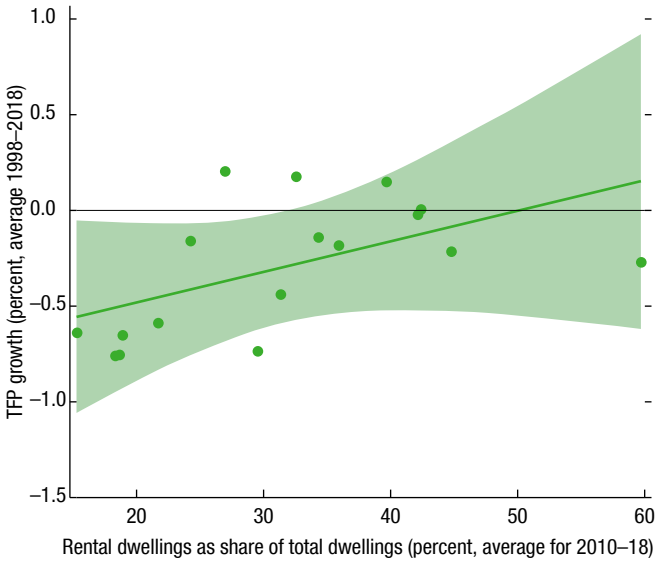
Sources: Eurostat; EU-SILC; and IMF staff calculations.
[1]The *x*-axis for panel 1 and the *y*-axis for panel 2 refer to the share of households that moved during 2008–12. Rental dwelling as share of total dwellings is as of 2012.

markets warrant flexible accommodation to optimize resource allocation across regions and skills, in particular in the transition from education to employment for the low-skilled and young individuals. Absent language and other barriers, matching of skills across regions and countries and, more generally, employment opportunities, are also improved if families are not locked into ownership. Indeed, an ad-hoc EU-SILC survey conducted in 2012, which surveyed if households had moved during the past five years, shows that countries with a larger share of rental housing appear to have had a higher residential mobility (Annex Figure 2.1, panel 1). Plotting the share of households moved and unemployment rates shows that countries with larger residential mobility tended to have lower unemployment rates (Annex Figure 2.1, panel 2). This finding mirrors "the Oswald hypothesis" (Oswald 1996, 1999), that high rates of homeownership can lead to lower employment, higher unemployment, and lower wages.

Higher labor mobility can in principle also raise potential output. When affordable rental housing allows workers (youth, in particular) to move to the areas where high-skilled jobs are created, investment is stimulated, employment levels and labor productivity levels rise (Hsieh and Moretti, 2017). Indeed, the long-term average of total factor productivity (TFP) growth rates in advanced European economies tends to be higher in countries with larger

rental markets (Annex Figure 2.2).

Annex Figure 2.2. Total Factor Productivity Growth and Rental Market Size



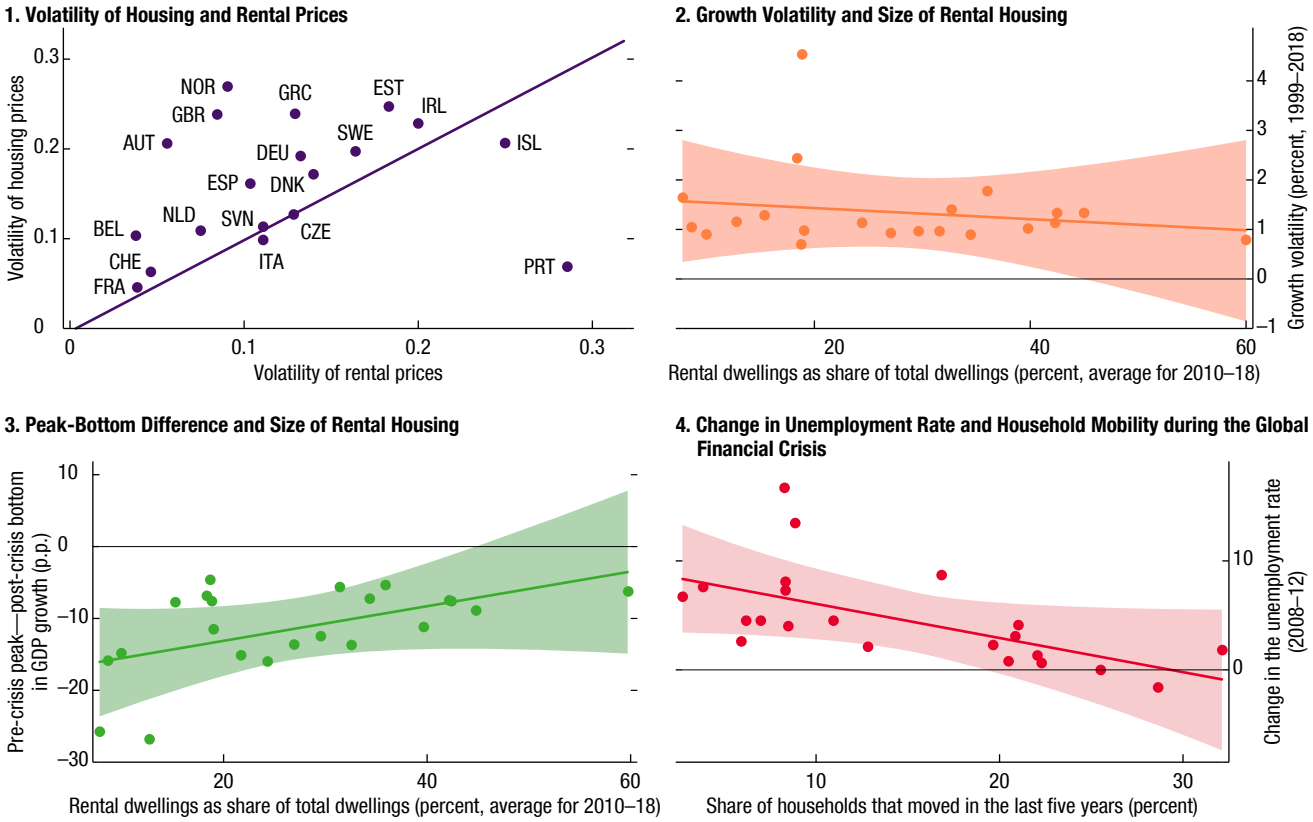
Sources: EU-SILC; The Conference Board Total Economy Database™ (Adjusted version), April 2019; and IMF staff calculations.

Sizable rental housing could help dampen the effect of real estate bubbles. Some studies (Gallin 2008, Ambrose, Eichholtz, and Lindenthal 2013) indicate that rental prices were less volatile than housing prices. Developed rental housing markets—such as the ones in Austria and Germany—attenuated price fluctuations in the overall housing sector (Czerniak and Rubaszek 2018). Based on EARS and Haver Analytics data, it is possible to show that in nearly all advanced European economies, the volatility of housing prices was higher than of rental prices during 2008–18 (Annex Figure 2.3, panel 1).[3] Thus, while macroprudential policies are the targeted policy tool to lessen real estate price cycles, sizeable rental may have the added benefit of providing security against short-term price volatility and their macroeconomic implications. Indeed, the data show that countries with a larger rental housing share seem to have experienced lower real GDP growth volatility among advanced European economies (although the relationship is weak) (Annex Figure 2.3, panel 2). The evidence also shows that countries with larger rental housing experienced a smaller decline in growth during the global financial crisis (Annex Figure 2.3, panel 3).[4] This perhaps reflects that higher labor mobility can smooth the business cycle as lower frictions (or greater flexibility) promote a faster return to the steady state and less pronounced increase in unemployment (Annex Figure 2.3,

[3]Based on 355 years of data in Amsterdam, Ambrose, Eichholtz, and Lindenthal (2013) find that market correction of the mispricing occurs mainly through housing prices, not rents.

[4]These findings are consistent with the analysis by Cournède, Sakha, and Ziemann (2019) who show that countries with sharper declines in residential investment in the aftermath of the global financial crisis, in several countries driven by the burst of a housing price bubble mostly for owner-occupied housing, generally needed more time to recover from the crisis and regain the precrisis level of real GDP.

Annex Figure 2.3. Growth and Rental Market Size

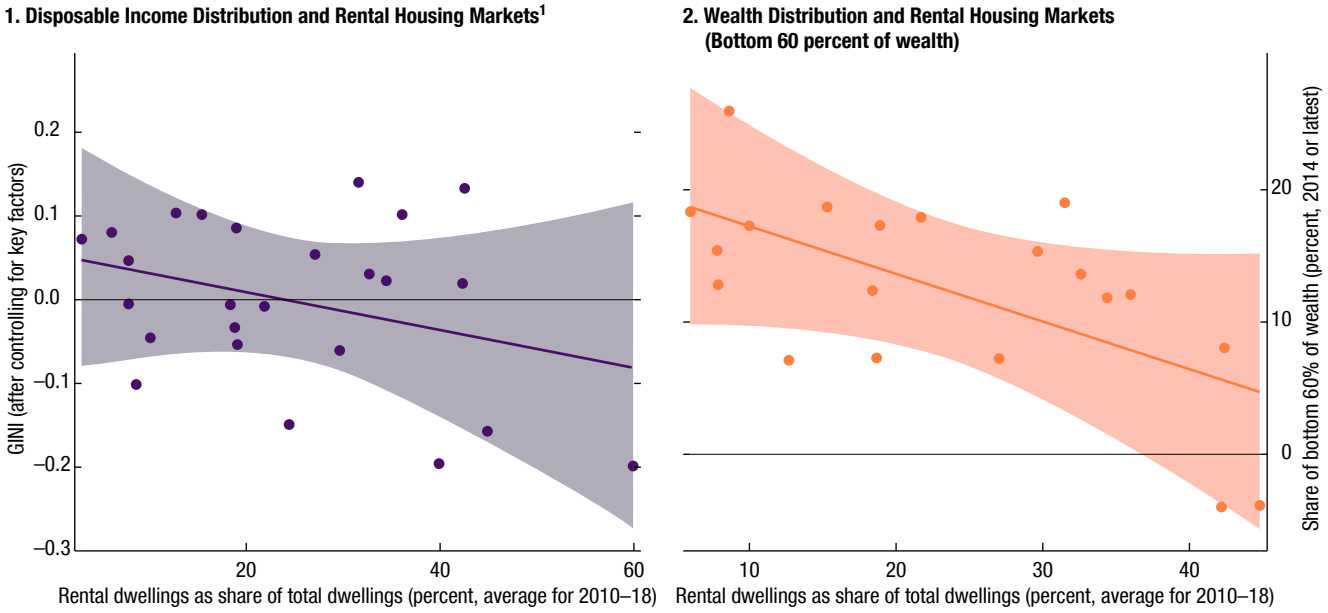


Sources: EARS; Eurostat; EU-SILC; Haver Analytics; and IMF staff calculations.
Note: Panel 3 excludes Greece. Growth volatility is calculated as the standard deviation divided by the historical mean.

panel 4). Hence, a well-functioning affordable rental market can be an important catalyst for the economic recovery from the COVID-19 pandemic, which will likely require some relocation of resources as economies shift to more digital and greener activities.

The interaction between sizeable rental housing markets and inequality is complex and depends on the equality measure. Higher labor mobility and lower unemployment, associated with sizeable supply of rentals across locations, would generally help improve overall social inclusion. The availability of housing accommodation in particular allows people to move to more prosperous locations (Bayoumi and Barkema 2019), possibly helping reduce income inequality. Indeed, advanced European economies with larger rental housing markets tend to have lower market-income inequality, once controlling for key factors determining income inequality—that is, per capita GDP, unemployment rate, old-age dependency ratio, the share of tertiary education, trade openness, and marginal tax rate (Annex Figure 2.4, panel

Annex Figure 2.4. Inequality and Rental Housing Markets

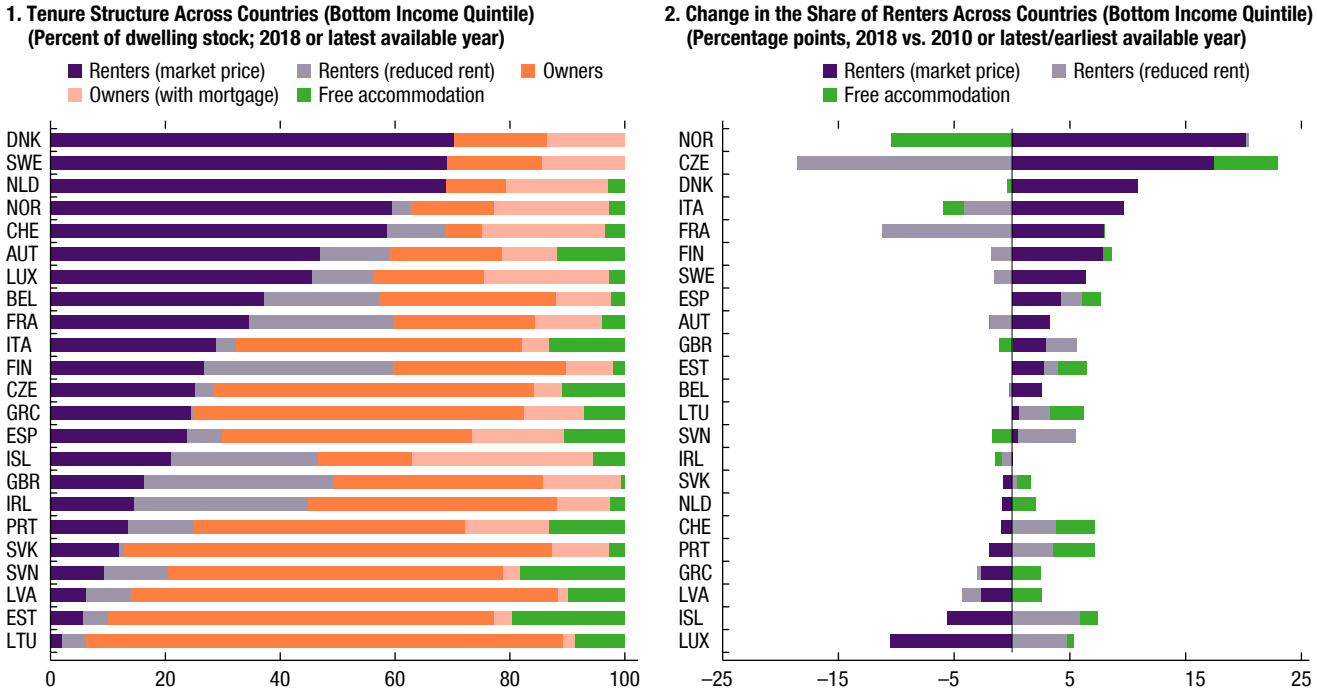


Sources: EU-SILC; and IMF staff calculations.
[1]"Gini (after controlling for key factors)" are the country fixed effects extracted from regressing the disposable income Gini with factors that commonly explain inequality (that is, per capita income, old age dependency ratio, tax wedge, unemployment rate, education attainment, and trade openness).

1). However, the literature (for example, Causa, Woloszko, and Leite 2019) also finds that countries with larger rental housing markets tend to have higher wealth inequality as homeownership is an efficient way to build wealth and governments also tend to provide incentives for homeownership. This finding is illustrated for advanced Europe in the scatter plot in Annex Figure 2.4, panel 2.

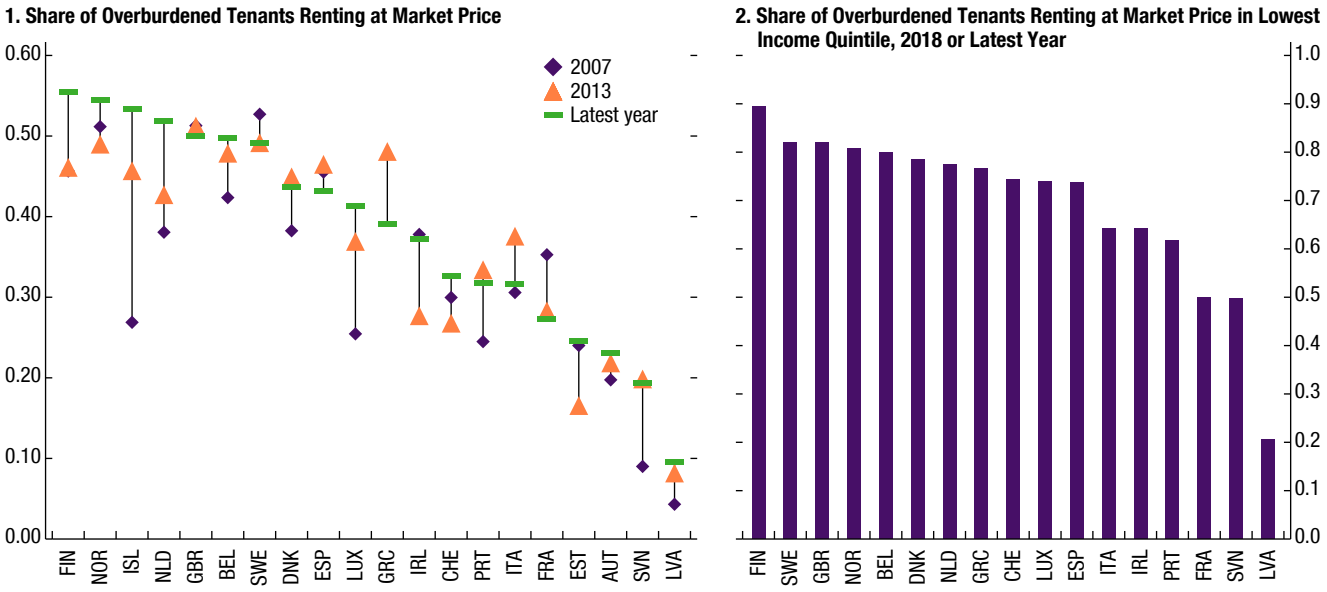
Annex 3. Background Charts on Tenure Structure and Rental Affordability

Annex Figure 3.1. Tenure Structure for the Bottom Income Quintile[1]



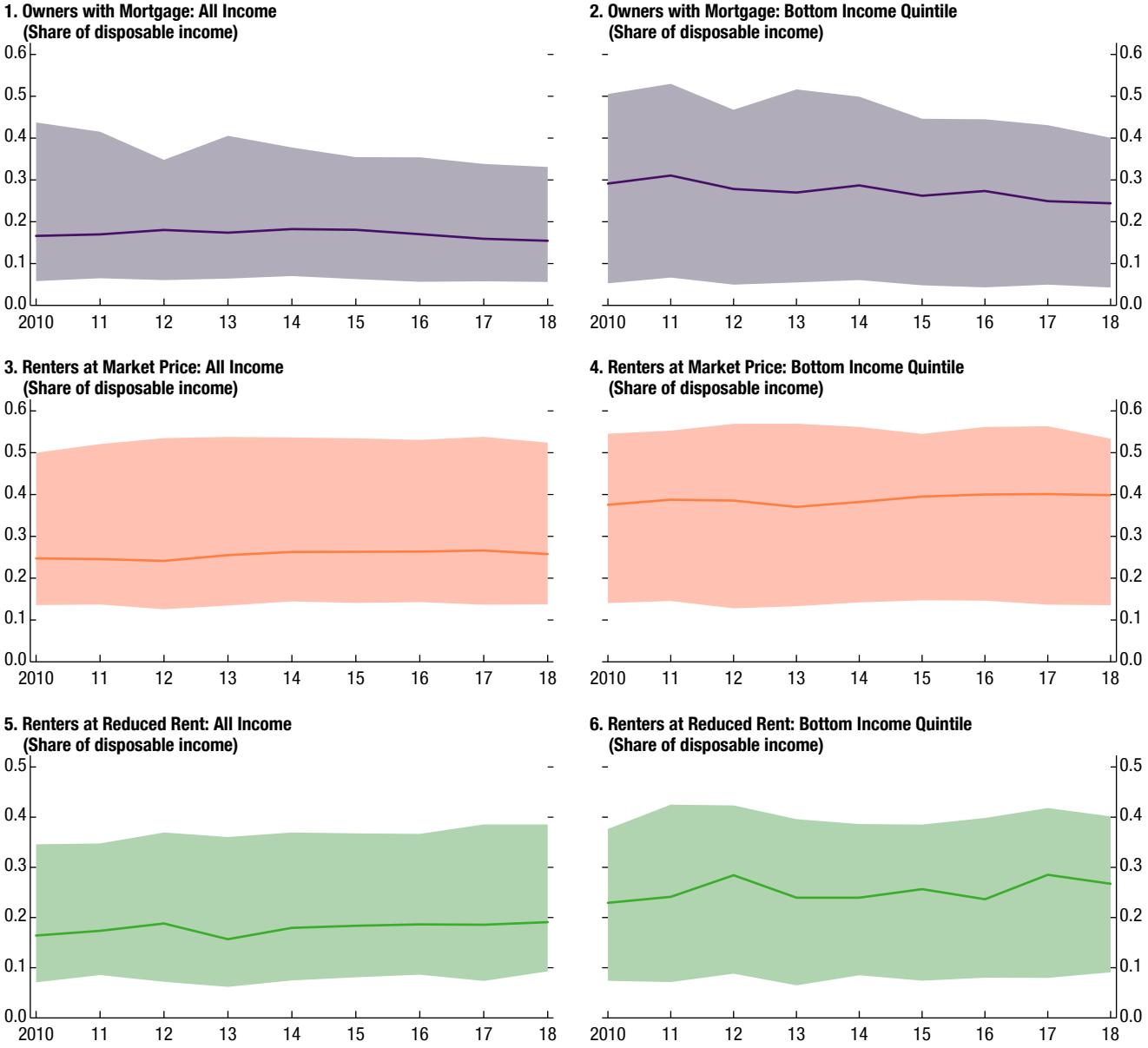
Sources: EU-SILC; and IMF staff calculations.
Note: In panel 1, 2017 data for Ireland, Slovakia, and the United Kingdom; 2016 data for Iceland. In panel 2, latest data point is 2018 except for: 2017 data for Ireland, Slovakia, and the United Kingdom; 2016 data for Iceland; earliest data point is 2010, except for: 2011 data for Greece, Iceland, and Italy. Data for Czech Republic reflects the rent deregulation law aimed at equalizing the rent of formerly regulated apartments with the market rate ones.
[1]For Denmark, Netherlands, and Sweden, EU-SILC does not accurately capture the share of tenants in subsidized rental housing (see OECD 2020c). For Denmark and Netherlands, all renters at market-rate and social rental accommodations are put in the market-rate category. In Sweden, very few respondents to EU-SILC select the subsidized housing option (Salvi del Pero and others 2016).

Annex Figure 3.2. Selected Results Based on 30-Percent Threshold to Define Overburdened Tenants



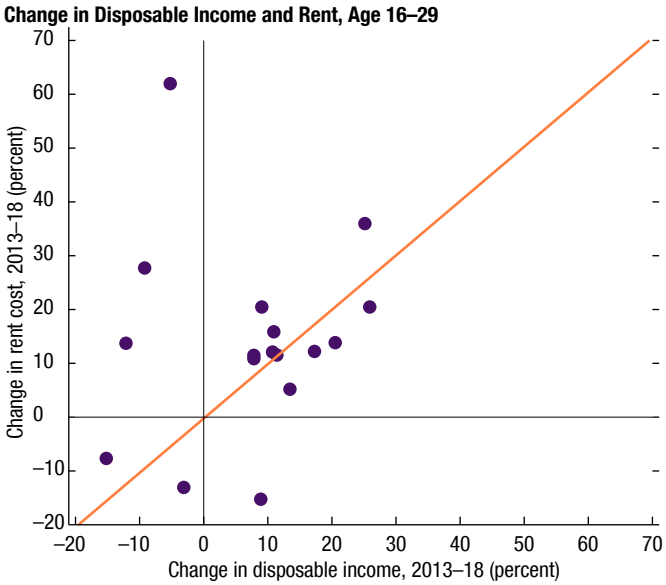
Sources: EU-SILC; and IMF staff calculations.
Note: For both panels in the figure, tenants are considered overburdened if they devote 30 percent or more of their household disposable income to rental payments. The baseline results of the paper use a 40 percent threshold (see Figure 9, panel 1, and Figure 1, panel 2). On the left chart, "latest year" is 2018, except for Ireland and the United Kingdom (2017), and Iceland (2016). Figure uses International Organization for Standardization (ISO) country codes.

Annex Figure 3.3. Development of Housing Costs for Renters and Homeowners across Income Groups



Sources: EU-SILC; and IMF staff calculations.
Note: Solid lines represent medians. Shaded areas: lower bound = median for the bottom quintile; upper bound = median for the top quintile. Housing costs are based on a narrow definition: for homeowners it includes principal repayments and mortgage interest payments, while for renters it includes rental payments. Sample includes Austria, Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, and Switzerland.

Annex Figure 3.4. Developments in Incomes and Rental Costs in the Youngest Cohort



Sources: EU-SILC; and IMF staff calculations.
Note: Sample includes Austria, Belgium, Denmark, Finland, France, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, and Switzerland.

References

Albouy, David, Gabriel Ehrlich, and Yingyi Liu. 2016. "Housing Demand, Cost-of-Living Inequality, and the Affordability Crisis." NBER Working Paper 22816, National Bureau of Economic Research, Cambridge, MA.

Amaral, Pedro. 2017. "Monetary Policy and Inequality." Economic Commentary 2017–01, Federal Reserve Bank of Cleveland, Cleveland, OH.

Ambrose, Brent W., Piet Eichholtz, and Thies Lindenthal. 2013. "House Prices and Fundamentals: 355 Years of Evidence." *Journal of Money, Credit and Banking* 45 (2–3): 477–91.

Amirtahmasebi, Rana, Mariana Orloff, Sameh Wahba, and Andrew Altman. 2016. Regenerating Urban Land: A Practitioner's Guide to Leveraging Private Investment. Washington, DC: The World Bank.

Anenberg, Elliot, and Edward Kung. 2018. "Can More Housing Supply Solve the Affordability Crisis? Evidence from a Neighborhood Choice Model." *Regional Science and Urban Economics* 80: 103363.

Ando, Albert, and Franco Modigliani. 1963. "The 'Life Cycle' Hypothesis of Saving: Aggregate Implications and Tests." *American Economic Review* 53 (1): 55–84.

Andrews, Dan, Aida Caldera Sánchez, and Åsa Johansson. 2011. "Housing Markets and Structural Policies in OECD Countries." OECD Economics Department Working Paper 836, Organisation for Economic Co-operation and Development, Paris.

Andrle, Michal, and Miroslav Plašil. 2019. "Assessing House Prices in Canada." IMF Working Paper 19/248, International Monetary Fund, Washington, DC.

Arestis, Philip, and Ana Rosa Gonzalez-Martinez. 2017. "Importance of Demographics for Housing in the OECD Economies." *Bulletin of Economic Research* 69: 1–22.

Arnott, Richard. 1995. "Time for Revisionism on Rent Control?" *Journal of Economic Perspectives* 9 (1): 99–120.

Arregui, Nicolas, Ruo Chen, Christian H. Ebeke, Jan-Martin Frie, Daniel Garcia-Macia, Dora M. Iakova, Andreas Jobst, Louise Rabier, James Roaf, Anna Shabunina, and Sebastian Weber. 2020. "Sectoral Policies for Climate Mitigation in the EU." IMF Department Paper 20/14, International Monetary Fund, Washington, DC.

Arvai, Zsofia. 2018. "How to Improve Housing Affordability in Canada's Dynamic Regions," Canada: Selected Issues, IMF Country Report No. 18/222, International Monetary Fund, Washington, DC.

Baltagi, Badi. 2001. *Econometric Analysis of Panel Data*. New York: John Wiley.

Barceló, Cristina. 2006. "Housing Tenure and Labour Mobility: A Comparison Across European Countries." Documentos de Trabajo 0603, Bank of Spain, Madrid.

Barron, Kyle, Edward Kung, and Davide Proserpio. 2020. "The Effect of Home-Sharing on House Prices and Rents: Evidence from Airbnb." http://dx.doi.org/10.2139/ssrn.3006832

Barton, Stephen E. 1996. "Social Housing Versus Housing Allowances: Choosing Between Two Forms of Housing Subsidy at the Local Level." *Journal of the American Planning Association* 62 (1): 108–19.

Basu, Kaushik, and Patrick M. Emerson. 2000. "The Economics of Tenancy Rent Control." *The Economic Journal* 110 (466): 939–62.

Bayoumi, Tamim, and Jelle Barkema. 2019. "Stranded! How Rising Inequality Suppressed US Migration and Hurt Those Left Behind." IMF Working Paper 19/122, International Monetary Fund, Washington, DC.

Belke, Ansgar, and Jonas Keil. 2018. "Fundamental Determinants of Real Estate Prices: A Panel Study of German Regions." *International Advances in Economic Research* 24 (1): 25–45.

Ben-Shahar, Danny, Stuart Gabriel, and Roni Golan. 2019. "Housing Affordability and Inequality: A Consumption-Adjusted Approach." *Journal of Housing Economics* 45 (C): 1–12.

Black, Sandra E. 1999. "Do Better Schools Matter? Parental Valuation of Elementary Education." *The Quarterly Journal of Economics* 114 (2): 577–99.

Blanchflower, David G., and Andrew J. Oswald. 2013. "Does High Home-Ownership Impair the Labor Market?" NBER Working Paper 19079, National Bureau of Economic Research, Cambridge, MA.

Bloomberg. 2019a. "Berlin Plans Five-Year Rent Freeze in Response to Anger Over Housing Crunch." June 18. https://www.bloomberg.com/news/articles/2019-06-18/berlin-proposes-rent-freeze-on-public-ire-over-housing-squeeze

Bloomberg. 2019b. "Spain Is Latest Battleground in Global Affordable Housing Fight." June 18. https://www.bloomberg.com/news/articles/2019-06-19/spain-is-latest-battleground-in-global-affordable-housing-fight

Bonnet, Carole, Bertrand Garbinti, and Sébastien Grobon. 2019. "Rising Inequalities in Access to Home Ownership among Young Households in France, 1973–2013." Working Paper 711 Banque de France, Paris.

Bowes, David R., and Keith R. Ihlanfeldt. 2001. "Identifying the Impacts of Rail Transit Stations on Residential Property Values." *Journal of Urban Economics* 50 (1): 1–25.

Bozio, Antoine, Bertrand Garbinti, Joanathan Goupille-Lebret, Malka Guillot, and Thomas Piketty. 2020. "Predistribution vs. Redistribution: Evidence from France and the U.S." CEPR Discussion Paper 15415, Center for Economic and Policy Research, Washington, DC.

Brussevich, Mariya, Era Dabla-Norris, and Salma Khalid. 2020. "Who will Bear the Brunt of Lockdown Policies? Evidence from Tele-workability Measures Across Countries." IMF Working Paper 20/88, International Monetary Fund, Washington, DC.

Calder-Wang, Sophie. 2019. "The Distributional Impact of the Sharing Economy on the Housing Market." Job Market Paper, Joint Center for Housing Studies of Harvard University, Cambridge, MD.

Caldera Sánchez, Aida, and Dan Andrews. 2011. "To Move or Not to Move: What Drives Residential Mobility in the OECD?" OECD Economics Department Working Paper 846, Organisation for Economic Co-operation and Development, Paris.

Causa, Orsetta, Nicolas Woloszko, and David Leite. 2019. "Housing, Wealth Accumulation and Wealth Distribution: Evidence and Stylized Facts." OECD Economics Department Working Paper 1588, Organisation for Economic Co-operation and Development, Paris.

Chapelle, Guillaume, Etienne Wasmer, and Pierre-Henri Bono. 2019. "Spatial Misallocation and Rent Controls." *AEA Papers and Proceedings* 109: 389–92.

Chen, Tingyun, Jean-Jacques Hallaert, Alexander Pitt, Haonan Qu, Maximilien Queyranne, Alaina Rhee, Anna Shabunina, Jérôme Vandenbussche, and Irene Yackovlev. 2018. "Inequality and Poverty Across Generations in the European Union." IMF Staff Discussion Note 18/01, International Monetary Fund, Washington, DC.

Choi, Jung, Jun Zhu, Laurie Goodman, Bhargavi Ganesh, and Sarah Strochak. 2019. "Millennial Homeownership Why Is It So Low, and How Can We Increase It?" Urban Institute. https://www.urban.org/sites/default/files/publication/98729/2019_01_11_millennial_homeownership_finalizedv2_0.pdf

Cournède, Boris, Sahra Sakha, and Volker Ziemann. 2019. "Empirical Links between Housing Markets and Economic Resilience." OECD Economics Department Working Paper 1562, Organisation for Economic Co-operation and Development, Paris.

Couture, Victor, Cecile Gaubert, Jessie Handbury, and Erik Hurst. 2019. "Income Growth and the Distributional Effects of Urban Spatial Sorting." NBER Working Paper 26142, National Bureau of Economic Research, Cambridge, MA.

Cribb, Jonathan, Andrew Hood, and Jack Hoyle. 2018. "The Decline of Homeownership among Young Adults." IFS Briefing Note 224, The Institute for Fiscal Studies, London.

Cuerpo, Carlos, Sona Kalantaryan, and Peter Pontuch. 2014. "Rental Market Regulation in the European Union." Economic Papers 515, European Commission, Brussels.

Czerniak, Adam, and Michał Rubaszek. 2018. "The Size of the Rental Market and Housing Market Fluctuations." *Open Economies Review* 29 (2): 261–81.

De Boer, Rik, and Rosamaria Bitetti. 2014. "A Revival of the Private Rental Sector of the Housing Market?: Lessons from Germany, Finland, the Czech Republic and the Netherlands." OECD Economics Department Working Paper 1170, Organisation for Economic Co-operation and Development, Paris.

Diamond, Rebecca, Tim McQuade, and Franklin Qian. 2019. "The Effects of Rent Control Expansion on Tenants, Landlords, and Inequality: Evidence from San Francisco." *American Economic Review* 109 (9): 3365–94.

Díaz, Antonia and María J. Luengo-Prado. 2008 "On the User Cost and Home Ownership," Review of Economic Dynamics, 11, 584–613.

Dingel, Jonathan I. 2017. "The Determinants of Quality Specialization." *The Review of Economic Studies* 84 (4): 1551–82.

Dustmann, Christian, Bernd Fitzenberger, and Markus Zimmermann. 2018. "Housing Expenditure and Income Inequality." IZA Discussion Paper Series No. 11953, IZA Institute of Labor Economics.

Efthymiou, D., and C. Antoniou. 2013. "How do Transport Infrastructure and Policies Affect House Prices and Rents? Evidence from Athens, Greece." *Transportation Research Part A: Policy and Practice* 52: 1–22.

Egner, Björn, and Katharina J. Grabietz. 2018. "In Search of Determinants for Quoted Housing Rents: Empirical Evidence from Major German Cities." *Urban Research & Practice* 11 (4): 460–77.

Ellen, Ingrid G. 2020. "What Do We Know about Housing Choice Vouchers?" *Regional Science and Urban Economics* 80: 103380.

Espinoza, Ricardo, and Laura Reznikova. 2020. "Who Can Log In? The Importance of Skills for the Feasibility of Teleworking Arrangements across OECD Countries." OECD Social, Employment and Migration Working Paper 242, Organisation for Economic Co-operation and Development, Paris.

European Commission (EC). 2020. "A Renovation Wave Initiative for Public and Private Buildings." https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12376-Commission-Communication-Renovation-wave-initiative-for-the-building-sector

Ezennia, Ikenna Stephen, and Sebnem Onal Hoskara. 2019. "Methodological Weaknesses in the Measurement Approaches and Concept of Housing Affordability used in Housing Research: A Qualitative Study." *PLoS ONE* 14 (8): e0221246.

Faber, Benjamin, and Thibault Fally. 2017. "Firm Heterogeneity in Consumption Baskets: Evidence from Home and Store Scanner Data." NBER Working Paper 23101, National Bureau of Economic Research, Cambridge, MA.

Fatica, Serena. 2015. "Housing Taxation: From Micro Design to Macro Impact." *Quarterly Report on the Euro Area* 14 (1): 27–33.

Favilukis, Jack, Pierre Mabille, and Stijn Van Nieuwerburgh. 2019. "Affordable Housing and City Welfare." NBER Working Paper 25906, National Bureau of Economic Research, Cambridge, MA.

Fidrmuc, Jan, and Peter Huber. 2007. "The Willingness to Migrate in the CEECs: Evidence from the Czech Republic." *Empirica* 34 (4): 351–69.

Figari, Francesco, Katarina Hollan, Manos Matsaganis, and Eszter Zolyomi. 2019. "Fiscal vs. Social Welfare: Support for Affordable Housing in Seven EU Countries." *Social Policies* 1: 67–92.

Fischer, Jonas D. M., and Martin Gervais. 2011. "Why Has Home Ownership Fallen Among the Young?" *International Economic Review* 52 (3): 883–912.

Fleming-Klink, Isaiah. 2019. "Dismissed: How Rent Courts Process and Punish Low-Income Tenants in Washington, DC." Senior thesis, Georgetown University, Washington, DC.

Furceri, Davide, Prakash Loungani, and Jonathan D. Ostry. 2020. "How Pandemics Leave the Poor Even Farther Behind." IMF Blog, May 11. https://blogs.imf.org/2020/05/11/how-pandemics-leave-the-poor-even-farther-behind/

Gabriel, Stuart, and Gary Painter. 2020. "Why Affordability Matters." *Regional Science and Urban Economics* 80: 1–6.

Gallin, Joshua. 2008. "The Long-Run Relationship Between House Prices and Rents." *Real Estate Economics* 36: 635–58.

Garcia-López, Miquel-Àngel, Jordi Jofre-Monseny, Rodrigo Martínez-Mazza, and Mariona Segú. 2019. "Do Short-Term Rental Platforms Affect Housing Markets? Evidence from Airbnb in Barcelona." IEB Working Paper 2019/05, Institut d'Economia de Barcelona, Barcelona, Spain.

Garriga, Carlos, Pedro Gete, and Athena Tsouderou. 2020. "Investors and Housing Affordability." Federal Reserve Bank of St. Louis Working Paper 2020–047A, Federal Reserve Bank of St. Louis, St. Louis, MO.

Georgieva, Kristalina. 2020. "Reduce Inequality to Create Opportunity." IMF Blog, January 7. https://blogs.imf.org/2020/01/07/reduce-inequality-to-create-opportunity/

Girouard, Nathalie, Mike Kennedy, Paul van den Noord, and Christophe André. 2006. "Recent House Price Developments: The Role of Fundamentals." OECD Economics Department Working Paper 475, Organisation for Economic Co-operation and Development, Paris.

Glaeser, Edward L. 2002. "Does Rent Control Reduce Segregation?" Harvard Institute of Economic Research Discussion Paper 1985, Harvard University, Cambridge, MA.

Glaeser, Edward L., and Erzo F. P. Luttmer. 2003. "The Misallocation of Housing Under Rent Control." *American Economic Review* 93 (4): 1027–46.

Goodman, Laurie S., and Christopher Mayer. 2018. "Homeownership and the American Dream." *Journal of Economic Perspectives* 32 (1): 31–58.

Gyourko, Joseph, Christopher Mayer, and Todd Sinai. 2013. "Superstar Cities." American Economic Journal: Economic Policy 5 (4): 167–99.

Gyourko, Joseph, and Raven Molloy. 2015. "Regulation and Housing Supply." *Handbook of Regional and Urban Economics* 5: 1289–337.

Hendershott, Patric H., and Joel Slemrod. 1983. "Taxes and the User Cost of Capital for Owner-Occupied Housing." *AREUEA Journal* 10 (4): 375–93.

Herrendorf, Berthold, Richard Rogerson, and Ákos Valentinyi. 2014. "Growth and Structural Transformation." In *Handbook of Economic Growth*, edited by Philippe Aghion and Steven N. Durlauf, 855–941. Amsterdam: Elsevier.

Higgins, Christopher D., and Pavlos S. Kanaroglou. 2016. "Forty Years of Modelling Rapid Transit's Land Value Uplift in North America: Moving Beyond the Tip of the Iceberg." *Transport Reviews* 36 (5): 610–34.

Hiller, Norbert, and Oliver W. Lerbs. 2016. "Aging and Urban House Prices." *Regional Science and Urban Economics* 60: 276–91.

Himmelberg, Charles, Christopher Mayer, and Todd Sinai. 2005. "Assessing High House Prices: Bubbles, Fundamentals and Misperceptions." *Journal of Economic Perspectives* 19 (4): 67–92.

Hsieh, Chang-Tai, and Enrico Moretti. 2019. "Housing Constraints and Spatial Misallocation." *American Economic Journal: Macroeconomics* 11 (2): 1–39.

Inchauste, Gabriela, Jonathan Karver, Yeon Soo Kim, and Mohamed Abdel Jelil. 2018. "Living and Leaving: Housing, Mobility and Welfare in the European Union." World Bank, Washington, DC.

International Energy Agency (IEA). 2020. "Sustainable Recovery: World Energy Outlook Special Report." https://www.iea .org/reports/sustainable-recovery

International Monetary Fund (IMF). 2017. *Fiscal Monitor: Tackling Inequality*. Washington, DC, October.

International Monetary Fund (IMF). 2020a. "Public Investment for the Recovery." In *Fiscal Monitor: Policies for the Recovery*. Washington, DC, October.

Kettunen, Hanna, and Hannu Ruonavaara. 2015. "Discoursing Deregulation: The Case of the Finnish Rental Housing Market." *International Journal of Housing Policy* 15 (2): 187–204.

Kholodilin, Konstantin A. 2018. "Measuring Stick-Style Housing Policies: A Multi-country Longitudinal Database of Governmental Regulations." DIW Discussion Paper 1727, German Institute for Economic Research, Berlin.

Kholodilin, Konstantin A., Jan Philip Weber, and Steffen Sebastian. 2018. "Rental Market Regulation over the last 100 Years in an International Comparison." *DIW Weekly Report* 8 (45): 453–64.

Knoll, Katharina, Moritz Schularick, and Thomas Steger. 2017. "No Price Like Home: Global House Prices, 1870–2012." *American Economic Review* 107 (2): 331–53.

Konstantin, Konstantin A., Andreas Mense, and Claus Michelsen. 2016. "Market Break or Simply Fake? Empirics on the Causal Effects of Rent Controls in Germany." Discussion Papers of DIW Berlin 1584, DIW Berlin, German Institute for Economic Research, Berlin.

Koster, Hans R. A., Jos van Ommeren, and Nicolas Volkhausen. 2018. "Short-term Rentals and the Housing Market: Quasi-experimental Evidence from Airbnb in Los Angeles." CEPR Discussion Paper 13094, Center for Economic and Policy Research, Washington, DC.

Lenza, Michele, and Jiri Slacalek. 2018. "How Does Monetary Policy Affect Income and Wealth Inequality? Evidence from Quantitative Easing in the Euro Area." ECB Working Paper 2190, European Central Bank, Frankfurt.

Le Roux, Julien, and Moreno Roma. 2018. "Recent House Price Increases and Housing Affordability." *ECB Economic Bulletin* 1: 29–34.

Lin, Desen, and Susan Wachter. 2020. "Land Use Regulation, Regulatory Spillover and Housing Prices," https://ssrn.com/abstract=3363947.

López-Rodríguez, David, and María Matea Rosa. 2019. "Recent Developments in the Rental Housing Market in Spain." *Economic Bulletin* 1–19, Bank of Spain, Madrid.

López-Rodríguez, David, and María de los Llanos Matea. 2020. "Public Intervention in the Rental Housing Market. A Review of International Experience." Documentos Ocasionales 2002, Bank of Spain, Madrid.

Lui, Hon-Kwong, and Wing Suen. 2011. "The Effects of Public Housing on Internal Mobility in Hong Kong." *Journal of Housing Economics* 20 (1): 15–29.

Martínez, Luis Miguel, and Jose Manuel Viegas. 2009. "Effects of Transportation Accessibility on Residential Property Values: Hedonic Price Model in the Lisbon, Portugal, Metropolitan Area." *Transportation Research Record* 2115 (1): 127–37.

McGibany, James M., and Farrokh Nourzad. 2004. "Do Lower Mortgage Rates Mean Higher Housing Prices?" *Applied Economics* 36 (4): 305–13.

McMillen, Daniel, and Ruchi Singh. 2020. "Fair Market Rent and the Distribution of Rents in Los Angeles." *Regional Science and Urban Economics* 80: 103397.

Metcalf, Gabriel. 2018. "Sand Castles before the Tide? Affordable Housing in Expensive Cities." *Journal of Economic Perspectives* 32 (1): 59–80.

Micheli, Martin, and Torsten Schmidt. 2015. "Welfare Effects of Rent Control—A Comparison of Redistributive Policies." *Economic Modelling* 48: 237–47.

Mian, Atif, and Amir Sufi. 2009. "The Consequences of Mortgage Credit Expansion: Evidence from the US Mortgage Default Crisis." *The Quarterly Journal of Economics* 124 (4): 1449–96.

Mian, Atif, and Amir Sufi. 2014. "House Price Gains and US Household Spending from 2002 to 2006." NBER Working Paper 20152, National Bureau of Economic Research, Cambridge, MA.

Mian, Atif, and Amir Sufi. 2018. "Finance and Business Cycles: The Credit-driven Household Demand Channel." *Journal of Economic Perspectives* 32 (3): 31–58.

Molloy, Raven. 2020. "The Effect of Housing Supply Regulation on Housing Affordability: A Review." *Regional Science and Urban Economics* 80.

Mundt, Alexis. 2018. "Privileged but Challenged: The State of Social Housing in Austria." *Critical Housing Analysis* 5 (1): 12–25.

Nickell, Stephen. 1981. "Biases in Dynamic Models with Fixed Effects." *Econometrica* 49 (6): 1417–26.

Organisation for Economic Co-operation and Development (OECD). 2018. "Opportunities for All: A Framework for Policy Action on Inclusive Growth." Paris. https://www.oecd.org/economy/opportunities-for-all-9789264301665-en.htm

Organisation for Economic Co-operation and Development (OECD). 2020a. "Housing Amid COVID-19: Policy Responses and Challenges." OECD Policy Responses to Coronavirus (COVID-19), Paris. https://www.oecd.org/coronavirus/policy-responses/housing-amid-covid-19-policy-responses-and-challenges-cfdc08a8/

Organisation for Economic Co-operation and Development (OECD). 2020b. "Housing and Inclusive Growth." Paris. https://www.oecd.org/social/housing-and-inclusive-growth-6ef36f4b-en.htm

Organisation for Economic Co-operation and Development (OECD). 2020c. "Social Housing: A Key Part of Past and Future Housing Policy." Employment, Labour and Social Affairs Policy Briefs, Paris. http://oe.cd/social-housing-2020

Organisation for Economic Co-operation and Development (OECD). 2021. "Building for a Better Tomorrow: Policies to Make Housing More Afford-

able." Employment, Labour and Social Affairs Policy Briefs, Paris. http://oe.cd/affordable-housing-2021

Ortalo-Magné, Francçois, and Andrea Prat. 2014. "On the Political Economy of Urban Growth: Homeownership versus Affordability." *American Economic Journal: Microeconomics* 6 (1): 154–81.

Oswald, Andrew J. 1996. "A Conjecture on the Explanation for High Unemployment in the Industrialized Nations: Part 1." University of Warwick Working Paper 475, University of Warwick, Coventry, United Kingdom.

Oswald, Andrew J. 1997. "Thoughts on NAIRU." *Correspondence to Journal of Economic Perspectives* 11: 227–28.

Palomino, Juan C., Juan G. Rodríguez, and Raquel Sebastián. 2020. "Wage Inequality and Poverty Effects of Lockdown and Social Distancing in Europe." INET Oxford Working Paper 2020–13, Institute for New Economic Thinking at the Oxford Martin School, Oxford.

Park, Soonyoun, Saw Woon Park, Heeho Kim, and Sunhae Lee. 2017. "The Dynamic Effect of Population Ageing on House Prices: Evidence from Korea." *Pacific Rim Property Research Journal* 23 (2): 195–212.

Popp, David, Francesco Vona, Giovanni Marin, and Ziqiao Chen. 2020. "The Employment Impact of Green Fiscal Push: Evidence from the American Recovery Act." NBER Working Paper No. 27321. National Bureau of Economic Research, Cambridge, MA.

Poterba, James M. 1984. "Tax Subsidies to Owner-Occupied Housing: An Asset-Market Approach." *The Quarterly Journal of Economics* 99 (4): 729–52.

Quigley, John M., and Steven Raphael. 2004. "Is Housing Unaffordable? Why Isn't It More Affordable?" *Journal of Economic Perspectives* 18 (1): 191–214.

Ramani, Arjun, and Nicholas Bloom. 2021. "The Donut Effect: How COVID-19 Shapes Real Estate." SIEPR Policy Brief.

Roma, Moreno. 2019. "Rent Inflation in the Euro Area Since the Crisis." *ECB Economic Bulletin* 4: 61–65.

Rosenthal, Stuart S. 2014. "Owned Now Rented Later? Housing Stock Transitions and Market Dynamics." Research Institute for Housing America, Washington, DC.

Saiz, Albert. 2003. "Room in the Kitchen for the Melting Pot: Immigration and Rental Prices." *Review of Economics and Statistics* 85 (3): 502–21.

Saiz, Albert. 2007. "Immigration and Housing Rents in American Cities." *Journal of Urban Economics* 61 (2): 345–71.

Salas, Jorge. 2020. "Rental Housing Affordability in Spain," Spain: Selected Issues, IMF Country Report No. 20/299, International Monetary Fund, Washington, DC.

Salvi del Pero, Angelica, Willem Adema, Valeria Ferraro, and Valérie Frey. 2016. "Policies to Promote Access to Good-Quality Affordable Housing in OECD Countries." OECD Social, Employment and Migration Working Paper 176, Organisation for Economic Co-operation and Development, Paris.

Sayag, Doron, and Noam Zussman. 2020. "Who Benefits from Rental Assistance? Evidence from a Natural Experiment." *Regional Science and Urban Economics* 80: 103395.

Segú, Mariona. 2020. "The Impact of Taxing Vacancy on Housing Markets: Evidence from France." *Journal of Public Economics* 185.

Sinai, Todd, and Nicholas S. Souleles. 2005. "Owner-Occupied Housing as a Hedge Against Rent Risk." *Quarterly Journal of Economics* 120 (2): 763–89.

Sinai, Todd, and Joell Waldfogel. 2005. "Do Low-Income Housing Subsidies Increase the Occupied Housing Stock?", *Journal of Public Economics* 89: 2137–2164.

Sims, David P. 2011. "Rent Control Rationing and Community Composition: Evidence from Massachusetts." *The B.E. Journal of Economic Analysis and Policy* 11 (1): 1–30.

Smith, Neil. 1987. "Gentrification and the Rent Gap." *Annals of the Association of American Geographers* 77 (3): 462–65.

Susin, Scott. 2002. "Rent Vouchers and the Price of Low-Income Housing." *Journal of Public Economics* 83 (1): 109–52.

Squire Patton Boggs. 2020. "COVID-19 Government Measures in Real Estate Europe." https://www.squirepattonboggs.com/en/insights/publications/2020/04/covid19-government-measures-in-real-estate-europe

Stone, Michael E., Terry Burke, and Liss Ralston. 2011. "The Residual Income Approach to Housing Affordability: The Theory and the Practice." University of Massachusetts Boston.

Sunding, David. 2005. "The Economics of Environmental Regulations of Housing Development." *Housing and Society* 32 (1): 23–38.

The Economist. 2016. "Leaving for the City." September 3.

The Economist. 2019. "Regulating Rent: Control Your Instinct." September 21.

The Economist. 2020. "Home Ownership: End of An Era." January 18.

Turner, Bengt, and Stephen Malpezzi. 2003. "A Review of Empirical Evidence on the Costs and Benefits of Rent Control." *Swedish Economic Policy Review* 10: 11–56.

Verbrugge, Randal. 2008. "The Puzzling Divergence of Rents and User Costs, 1980–2004." *Review of Income and Wealth* 54 (4): 671–99.

Wall Street Journal. 2020. "Empty Hotels Get Second Life as Tiny Apartments During Pandemic." December 22. https://www.wsj.com/articles/empty-hotels-get-second-life-as-tiny-apartments-during-pandemic-11608633002