Brick by Brick

BUILDING BETTER HOUSING POLICIES

OECD

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Table of contents

Acknowledgments 3

Executive Summary 9

1 Designing Policies for Efficient, Inclusive and Sustainable Housing 12
- Housing has become less affordable 15
- Why have housing costs risen so much in so many countries? 17
- Housing affects economic performance in many ways 20
- Housing affects inequalities 24
- Housing has sizeable environmental consequences 26
- What can governments do? 28
- Annex 1.A1. Definitions and sources of indicators 44
- References 46
- Notes 48

2 Promoting Housing Affordability 49
- Assess housing affordability across different tenure and household types 51
- Address the barriers to affordable housing 58

3 Enhancing Resilience 68
- Recognise the role of housing for economic stability 69
- Address housing threats to macroeconomic resilience 71
- Deploy macroprudential tools 72
- Align structural housing-related policies with the goal of economic resilience 75
- References 78
- Notes 78

4 Boosting Housing Market Efficiency 79
- Make housing affordable 80
- Learn from other countries' housing policies 87
- Foster societal, technological and environmental transformations 89
- References 93
- Notes 95

5 Measuring the Role of Housing in the Distribution of Wealth 96
- Quantify the importance of housing wealth in household balance sheets 98
- Analyse the link between housing and wealth inequality 99
- Weigh opportunities and risks of housing debt 103

References 107
Notes 107

6 Lifting Obstacles to Residential Mobility 108
Do not hinder residential mobility 110
Housing matters for mobility and homeowners are much less mobile than renters 110
Embrace policies that favour residential mobility 114
References 119
Notes 119

7 Reconciling Housing and the Environment 120
Recognise the strong environmental impact of housing 122
Identify policies that lead to improvements in environmental quality and housing affordability 126
Anticipate the impact of housing policies on the environment 135
Environmental policies also affect other dimensions 137
References 139
Notes 146

8 Improving the Governance of Housing 147
Streamline governance across and within government levels 148
Promote flexible land-use planning 154
Annex 8.A1. Definitions 158

9 Upgrading the Evidence Base 160
Collect more data on house price trends and levels across countries 162
Better assess housing vulnerability among households 164
Measure local land-use regulations 167
References 170
Notes 171

Tables

Table 1.1. Most policy interventions have effects that cut across multiple dimensions 30
Table 1.2. Policy indicators to gauge the scope for possible policy interventions 32
Table 7.1. Examples of environmentally related land-use policies affecting the housing market 128
Table 7.2. Impact of relevant environmentally related land-use policies on housing markets 128
Table 7.3. Environmentally related policies regarding urban construction and energy efficiency affecting the housing market 131
Table 7.4. Impact of relevant environmentally related construction or energy efficiency policies on housing markets 131
Table 7.5. Examples of environmentally related transport policies affecting the housing market 133
Table 7.6. Impact of relevant environmentally related transport policies on housing markets 134
Table 7.7. Examples of housing related policies affecting the environment 135
Table 7.8. Impact of relevant housing related land-use policies on the environment 136
Table 8.1. Governance of spatial or land-use plans 153
Table 9.1. Availability of house price indices for the 37 OECD member countries 162
Table 9.2. A harmonised typology of homelessness: ETHOS Light 166

Figures

Figure 1.1. House prices and rents have risen faster than inflation in most OECD countries 15
Figure 1.2. Housing increasingly weighs on household budgets 16

Figure 1.3. Low-income households spend much of their earnings on housing 17
Figure 1.4. Housing supply has not kept pace with income growth in most countries 18
Figure 1.5. Supply elasticities differ across metropolitan areas 19
Figure 1.6. House prices can evolve very differently across regions 19
Figure 1.7. Governments are investing less in housing 20
Figure 1.8. House prices and business cycles are tightly linked 21
Figure 1.9. A rebound followed the construction crash in many countries 22
Figure 1.10. Mortgages account for the bulk of household debt 23
Figure 1.11. High homeownership countries feature low residential mobility 24
Figure 1.12. Low-income households face a housing quality challenge 25
Figure 1.13. High-homeownership countries tend to exhibit low wealth inequality 26
Figure 1.14. CO2 emissions from housing vary considerably across countries 27
Figure 1.15. Building energy codes and standards vary in stringency across the world 27
Figure 1.16. Urban areas have expanded differently across OECD countries 28
Figure 1.17. Housing affects inclusiveness, efficiency and sustainability 29
Figure 1.18. Indicators gauging inclusiveness, efficiency and sustainability outcomes and policies 31
Figure 1.19. Marginal effective taxation of residential property 34
Figure 1.20. The governance of land-use lacks efficiency in many countries 36
Figure 1.21. Rental market regulations are often restrictive 37
Figure 1.22. Most measures to alleviate the housing impact of COVID-19 targeted tenants and homeowners 38
Figure 1.23. Necessary energy-efficiency upgrading of buildings will weigh on affordability 40
Figure 1.24. Much of the EU housing stock was built many decades ago 42
Figure 2.1. Housing crowds out other consumption expenditures 52
Figure 2.2. House prices have increased over time in most OECD countries 54
Figure 2.3. Low-income households face a dual housing affordability and quality challenge 56
Figure 2.4. Public investment in housing development has halved since 2001, while spending on housing allowances has risen slightly 59
Figure 2.5. The size of the social housing stock varies considerably across countries 63
Figure 3.1. House prices and business cycles are tightly linked 70
Figure 3.2. House price cycles have often been associated with severe recessions 70
Figure 3.3. Housing markets influence resilience through many channels 71
Figure 3.4. Resilience differs across countries 72
Figure 3.5. Macroprudential measures often target mortgage loans 74
Figure 3.6. Rental market regulations and housing taxation vary considerably across countries 75
Figure 3.7. Tightening LTV caps usually reduces credit and house price growth 77
Figure 4.1. House price-to-income ratios have risen in most countries 81
Figure 4.2. Average commuting times vary considerably across countries 82
Figure 4.3. Segregation in high in many metropolitan areas 83
Figure 4.4. Selected housing policy indicators 85
Figure 4.5. Past and projected developments of housing demand drivers 86
Figure 4.6. Baseline changes in the housing stock, house prices and price-to-income ratios 86
Figure 4.7. Simulated impact of reform scenarios on price-to-income ratios by 2050 89
Figure 4.8. Relief measures during COVID-19 90
Figure 4.9. Necessary energy upgrading of buildings will weigh on affordability 92
Figure 5.1. Wealth inequality is much higher than income inequality 98
Figure 5.2. High-homeownership countries tend to exhibit low wealth inequality 100
Figure 5.3. Housing wealth is much more equally distributed than non-housing wealth 100
Figure 5.4. Homeownership is more equally distributed across income groups in high-homeownership countries 101
Figure 5.5. Housing is the chief asset of the middle class 102
Figure 5.6. Mortgage debt is the largest part of household debt 103
Figure 5.7. Participation in mortgage markets increases with household income 104
Figure 5.8. Access to mortgage finance is particularly important for young cohorts 105
Figure 5.9. Mortgage debt can make low-income households financially vulnerable 106
Figure 6.1. Housing is the most important reason for moving 111
Figure 6.2. Selected OECD countries display wide variation in residential mobility 112
Figure 6.3. Homeowners are much less mobile than renters 113
Figure 6.4. High-homeownership countries tend to have low residential mobility 113
Figure 6.5. The probability to move depends on taxes, transaction costs and housing supply 114
Figure 6.6. Estimated regional migration elasticities to local house prices at origin and destination 117

Figure 6.7. Rental market regulations and social housing also affect the probability to move 118
Figure 7.1. Energy intensity of the residential sector varies considerably across countries 123
Figure 7.2. Link between energy intensity and carbon footprint 124
Figure 7.3. Housing accounts for the bulk of emissions in many countries 125
Figure 7.4. Exposure to emissions has been reduced in most countries 125
Figure 7.5. Urbanisation threatens biodiversity 126
Figure 7.6. Environmental policies affect housing markets 127
Figure 7.7. House price evolution under alternative land-use policy scenarios in Auckland 130
Figure 8.1. Social housing responsibilities are spread across government levels 149
Figure 8.2. Social housing spending is decentralised in most countries 150
Figure 8.3. The objectives of spatial planning vary among OECD countries 152
Figure 8.4. In most countries, multiple ministries are involved in housing policymaking 154
Figure 8.5. House prices are higher where built-up density is low 155
Figure 8.6. Japan has high rates of housing starts 156

Boxes

Box 1.1. Housing Trends and Challenges for the Future 13
Box 1.2. The COVID-19 crisis severely hit the housing sector 21
Box 1.3. Housing reforms pursue multiple objectives: Inclusiveness, efficiency and sustainability 29
Box 1.4. The OECD Housing Indicator Dashboard 31
Box 1.5. Austria supplies much social housing through limited-profit housing associations 33
Box 1.6. Tax reforms for better housing performance: the case of the Netherlands 35
Box 1.7. Some of the COVID-19 responses involve long versus short-term trade-offs 38
Box 1.8. Macroprudential interventions to cool housing markets: The cases of Sweden and Canada 39
Box 1.9. Using green mortgages to support the energy upgrading of dwellings 41
Box 2.1. Homelessness in the OECD 57
Box 2.2. What does the COVID-19 pandemic mean for housing affordability? 60
Box 2.3. Social housing in the OECD 62
Box 2.4. Supporting long-term investments in affordable and social housing through revolving funds: The experience of Austria and Denmark 64
Box 3.1. Empirical evidence of the influence of housing policies on economic resilience 76
Box 4.1. Examples of successful housing policy reforms 87
Box 4.2. Cities have taken various measures to recover from the COVID-19 crisis 90
Box 5.1. Data sources to analyse housing and wealth distribution 99
Box 6.1. Household-level data and empirical approach to study residential mobility 111
Box 6.2. Recent reforms to reduce housing transaction costs 115
Box 6.3. The role of housing in inter-regional migration 116
Box 7.1. The link between environmentally related policies and housing markets: A case study of Auckland, New Zealand 130
Box 7.2. Environmental policies in response to the COVID-19 crisis and implications for housing 132
Box 8.1. Denmark's experience with social housing 150
Box 8.2. The Austrian Conference on Spatial Planning 151
Box 8.3. France's Territorial Coherence Plans 152
Box 8.4. National zoning system in Japan 156

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Executive Summary

1. Access to affordable housing – a basic human need and central dimension of well-being – has become increasingly challenging in many countries. House prices and rents have been rising; thus, housing costs have been absorbing an increasing share of household income relative to other spending items, such as health, education or transport. During 2005-15, this share rose by five percentage points on average, amounting to 31% of income for middle-income households across most OECD countries. Disadvantaged social groups are being particularly affected, many of whom find it difficult to afford quality housing, even more so in areas that are close to jobs. They also often live in overcrowded spaces, with poor living conditions, a situation that has been particularly evident during the COVID-19 crisis due to mandated stay-at-home orders. Moreover, before the pandemic, homelessness had been on the rise in around one-third of OECD countries.

2. To a large extent, the affordability challenge has its roots in the housing sector's failure to supply enough dwellings where demand is strong, such as in job-rich urban areas. In part, these supply-demand mismatches stem from geographical constraints and regulatory restrictions in many cities, including those related to land-use and zoning provisions. Other factors, such as rental market restrictions and landlord-tenant regulations, also have a bearing on the efficient functioning of real estate markets, as they can discourage investment in the construction and upkeep of dwellings.

3. A third key challenge alongside affordability and efficiency is related to environmental sustainability: The residential sector accounts for 17% of energy and process-related emissions of greenhouse gases and 37% of emissions of fine particulate matter globally. Therefore, efforts to meet agreed emission targets require ambitious initiatives to reduce the carbon footprint of construction and improve the energy efficiency of the existing building stock. Because dwellings have a long lifespan, efforts in this area have long-lasting consequences for the environment. Energy poverty also tends to be more prevalent among disadvantaged social groups, compounding the affordability challenge: across the OECD area, on average nearly 20% of low-income people (defined as living in households with income below 60% of the median) report having difficulty heating their homes.

4. Addressing these three, interconnected challenges requires policy action across a wide range of domains while recognising complementarities and trade-offs among different policy objectives. In particular, a few policy levers can deliver progress across multiple objectives, including social housing investment, land-use regulations and housing taxation. In particular:

- Public investment in housing development has shrunk from 0.17% of GDP in 2001 to 0.06% of GDP in 2018 on average across OECD countries. Greater investment in social and affordable housing would have the dual benefit of protecting low-income or vulnerable households, while directly expanding the housing supply and, as a result, alleviating upward pressure on house prices. To fully seize the benefits of social and affordable housing, new construction needs to meet high environmental standards and should contribute to the development of inclusive, socially mixed neighbourhoods, whilst avoiding social and economic segregation.

- Land-use policy reforms can remove obstacles to expand supply in response to demand pressures and consequently help mitigate house price increases in high-demand areas. This can be achieved by removing overly tight building height restrictions or minimum lot size requirements. Also, governance arrangements should avoid overlapping responsibilities across and within levels of government and ensure that decision-making is based on the needs of entire metropolitan areas, rather than those of individual jurisdictions.
- Relying less on housing transaction taxes and more on annual taxes on immovable property while shifting the base of these taxes from the value of structures to current land prices would bring multiple benefits. The move away from transaction levies towards recurring taxes would lower obstacles to mobility, facilitating labour market adjustment and boosting economic growth. Shifting the basis from the value of structures to current land prices would encourage construction in valuable developable areas, helping to address supply-demand mismatches. Many countries are underutilising recurrent property taxes and have substantial scope for increasing these levies, which provide local governments with a key and stable source of funds to finance local services, including in the area of social housing.

5. By contrast, some reform options involve trade-offs among policy objectives, calling for compensatory measures to ensure balanced progress. In particular:

- Reducing tax incentives for mortgage holders helps to curb house price pressures, fostering market efficiency and promoting long-term affordability. In particular, phasing out mortgage interest relief, which mostly benefits higher-income households, would deliver distributional benefits. However, before prices adjust, such a change makes it more difficult for new buyers, often young families, to become homeowners. Gradualism is therefore important in the implementation of reforms in this area. Reform packages would also benefit from complementary action to remove impediments to the expansion of supply in areas of high demand, as discussed above.
- Greater flexibility in regulating landlord-tenant relations, including rent control, can encourage housing investment, reduce supply-demand mismatches and lower barriers to residential mobility. However, reforms could penalise vulnerable incumbent tenants in the short term, calling for compensatory measures, including for example an increase in the provision of social housing. This is particularly important during the recovery from the COVID-19 crisis.
- More stringent environmental standards that are necessary to achieve agreed emissions goals can put upward pressure on the costs of construction and maintenance and in turn on house prices. Compensatory measures may therefore be needed to reconcile sustainability and affordability objectives. They can involve, for example, subsidies for energy-efficiency upgrading, which could be financed at least in part by raising recurring property taxes along with measures to ensure that the rental sector is properly covered. Financial regulation can also contribute to easing the funding of the energy transition by allowing mortgage issuers to take into account in their pricing and credit conditions that more energy-efficient homes will have better long-term value, including when they finance renovation.

6. These interlinkages, and the many more covered in the report, underline the importance of efficient governance across levels and spheres of governments, as well as the government agencies responsible for housing policies. Housing policy functions are highly decentralised, with municipal or sub-municipal authorities having a critical role in residential land-use decisions in two-thirds of OECD countries. Indeed, responsibility for land-use regulation is shared across levels of government in one in every three OECD countries. This organisational setup creates coordination challenges; for example, horizontal coordination among local governments in a metropolitan area can do much to ensure that land-use policies reflect citizens' needs in ways that are coherent with environmental, social and economic objectives. Nationally, a whole-of-government approach is necessary to ensure consistency and coherence between, for example, macro-prudential and housing finance regulations, on the one hand, and tax policy, on the other.

7. All these challenges and associated policy choices will need to be considered against a background of sizeable shifts in technology, tastes and preferences, as well as evolving demands that are shaped by secular trends, current policy settings and future reforms:

- Demographic change, underpinned by rapid population ageing in many parts of the world, will bear on the nature and location of the homes that will be demanded, as well as the ability to adapt the existing housing stock to the needs of an ageing population in a manner that is affordable and sustainable.
- The COVID-19 crisis could prompt long-lasting changes in work practices and habits, including more widespread teleworking, which could reshape real estate markets. For example, reduced demand for office space in central business districts would be consistent with greater demand for larger homes in peri-urban and rural areas, especially where mass transport infrastructure facilitates commuting. Simultaneously, the shift towards online shopping could gain further momentum, leading to lower demand for commercial real estate and reshaping the “high street” in most modern cities. These changes could create potential for converting urban office and commercial real estate into housing.
- The business model of online digital platforms for short-term rentals has also been significantly affected by the COVID-19 crisis. The lingering impact of the crisis may for some time prompt a reconversion of dwellings into long-term rentals with benefits for the functioning of the private rental market. However, further in the future, as the threat of COVID-19 recedes, a renewed rise of digitally enabled short-term rentals could again put pressure on demand for housing space.

8. This report summarises the empirical evidence and policy insights developed under the aegis of the OECD Horizontal Project on Housing. The Horizontal Project brought together the collective expertise and experience of a number of OECD committees during 2019-20, including the Economic Policy Committee; the Employment, Labour and Social Affairs Committee; the Environment Policy Committee; the Regional Development Policy Committee; the Committee on Statistics and Statistical Policy; and the Committee on Fiscal Affairs.

9. The report is an integral part of the OECD Housing Policy Toolkit that includes a Housing Dashboard and Country Snapshots that allow comparing indicators of outcomes and policy settings across countries. The Toolkit offers policymakers and analysts cross-country comparative analysis and indicators to inform policy choices, bearing in mind country-specific differences in context, preferences and policy settings.

1 Designing Policies for Efficient, Inclusive and Sustainable Housing

Housing has become an increasingly pressing economic, social and environmental challenge in OECD countries. Rising house prices and rents have undermined affordability and resulted in social exclusion. This chapter documents these trends and discusses their main drivers by pulling together key findings from the OECD Horizontal Project on Housing. It shows that inefficiencies in housing markets can have adverse consequences for the economy at large, including macroeconomic instability and impaired labour mobility. Cost pressures also exacerbate the challenge of upgrading the housing stock to comply with environmental objectives. The chapter concludes by reviewing the evidence on policy instruments that can improve housing outcomes and describing the policy indicators used to assess progress and gauge the scope for further policy action. An online dashboard and country snapshots provide easy ways to compare indicators of outcomes and policy settings across countries. The conclusion summarises synergies and trade-offs of different policy interventions with respect to the objectives of housing inclusiveness, efficiency and sustainability.

Households in many OECD countries have found it increasingly difficult to access quality, affordable housing. House prices have typically risen faster than average incomes, and households have borrowed more and more to buy their home, so that the burden of mortgage servicing has become heavier for many households despite lower interest rates. Rents have often gone up faster than inflation. Housing costs overall have been on a steep rising trend. Affordability has been particularly challenging for households on low incomes or those that have faced adverse income shocks or job losses, notably as a result of the COVID-19 pandemic. Increasing awareness of the negative externalities arising from commuting by private automobiles has further put a strain on the capacity of housing markets to deliver affordable housing while reducing environmental and health costs for current and future generations. Housing markets and policies also affect overall economic performance and living standards as they can influence if and when households move, how they use their savings and how they accumulate wealth.

The COVID-19 crisis is exacerbating many of these challenges (see Box 1.1). They will have to be addressed at the same time as an unprecedented effort is required to renew and upgrade the housing stock to improve energy efficiency and facilitate the transition to a low-carbon economy. Indeed, the reallocation of resources that will be needed to underpin the recovery post-COVID-19 provides an opportunity to accelerate this transition.

Box 1.1. Housing Trends and Challenges for the Future

Buildings, structures and dwellings have a long life span, lasting for about a whole generation. As a result, policies that shape housing demand and supply need to be forward-looking and anticipate changes in the population's needs, preferences and behaviours, as well as "megatrends" that affect economies and societies. To the extent possible, policies and regulations also need to foresee and respond to technological changes that affect the construction, use and maintenance of structures. The COVID-19 crisis, along with digitalisation, climate change and population ageing, will most likely have long-lasting, yet uncertain, effects on housing demand and supply, including both the residential and commercial market segments.

COVID-19

The COVID-19 crisis may trigger changes in preferences and behaviour that are likely to influence housing demand over the longer term. For example, if teleworking becomes more prevalent, housing demand may shift durably away from city centres towards rural and peri-urban areas, and away from apartments to single-family accommodation. Such a change would impinge on the need for some urban amenities, transport infrastructure and social services. An associated relief on property prices in urban centres would likely be accompanied by pressure elsewhere with an uncertain net effect on affordability, unless supply adjusts in tandem. Teleworking will also have a bearing on the demand for office space, putting downward pressure on commercial property prices in central business districts. If the fear of infectious diseases lingers, there could also be an increase in demand for larger offices to allow for effective physical distancing, which could somewhat offset the downward trend in demand due to teleworking.

Where these shifting demand patterns lead to a hollowing-out of city centres, there will be increased risk of urban decay and a loss of dynamism in areas where productivity tends to be highest. Alternatively, changing attitudes and work practices may create new opportunities for social and economic transformation in metropolitan areas that have become increasingly polycentric.[1] At the same time, as density gives way to sprawl, the environmental footprint of cities will need to be reassessed, with implications for policy aimed to improve the environmental sustainability of the world's metropolitan areas.

Digitalisation

Digitalisation, beyond its effect through teleworking, affects the housing outlook in several ways and has considerable further transformative potential. For example, the expansion of short-time accommodation digital platforms has put pressure on rental markets in many cities worldwide, a trend that may well continue when the tourism and hospitality industries recover from the COVID-19 crisis. On the other hand, the decline in short-term rentals (such as Airbnb) during the COVID-19 crisis could be long-lasting and free up rental housing for residents and hence support affordability.

Digitalisation is also re-shaping the "high street" with attendant changes in commercial property demand as in-person shopping is replaced by on-line retail trade. This phenomenon adds to the downward pressure on office space demand in central business districts associated with more widespread teleworking. Where regulations allow it, flexibility to convert commercial property for residential use will facilitate the reallocation of housing capital to evolving demand for different uses, potentially making housing more affordable. However, there could be a risk of disaffection for city centres giving rise to housing segregation as the better-off moves away with effects on the provisions of public services. These trends would pose challenges for urban planning and the design of land-use and zoning regulations.

Moreover, digitalisation offers several options for technological change and innovation in construction and "smart" management of buildings, not least through artificial intelligence and the internet of things. Innovations in urban planning and management are already taking place and can improve traffic management, urban amenities and infrastructure, and energy efficiency of buildings and cities at large. These developments can make cities more attractive and counter the centripetal forces associated with digitalisation and COVID-related behavioural changes.

Yet another aspect of digitalisation is the scope for expanding fintech to offer a broader range of finance for investment in real estate. To the extent that these activities are regulated appropriately and financial stability is safeguarded, the entry of new participants in real estate markets can enhance competition, reduce borrowing costs and facilitating access to finance for those that currently struggle to do so. Investment in the energy efficiency of buildings can lower housing costs further as it reduces household spending on energy and improves their creditworthiness. Ultimately, more flexible housing finance could facilitate the adjustment of supply to changes in the demand for both residential and commercial property after the crisis, facilitating housing capital reallocation.

Digitalisation could also improve the matching of supply and demand for dwellings. The rise of digital showings of properties during the COVID-19 crisis is likely to remain at least in part permanent, allowing for a better filtering of costly physical visits and ultimately more and better matches.

Population ageing and climate change

Housing will also be shaped by trends related to pre-crisis population ageing and climate change. Changes in demographics have highly asymmetric effects on housing markets, with falling demand in remote areas that puts downward pressure on prices, at the same time as changing needs and preferences elsewhere that require the retrofitting of buildings, a reconfiguration of living spaces and investment in adapted urban infrastructure. The implications of population ageing for policy go beyond housing and include urban planning and regional development considerations.

Climate change raises the risk of natural disasters and capital depletion in coastal areas exposed to rising sea levels, just to cite a few. It influences construction patterns and the use of materials in buildings, as well as calling for innovation to improve energy efficiency in response to changing weather conditions. It also has a bearing on the design, maintenance and upgrade of urban infrastructure. The

attendant economic (private and public) costs need to be taken into account and pose challenges for urban planning and regional development, as well as disaster risk management and insurance.

Flexible land-use policies as facilitators

Flexible land-use policies are key to accommodate the above described permanent changes in real estate demand that may stem from the COVID 19 crisis without entailing unnecessary costs. Flexible settings indeed reduce the risk that structural demand shifts, such as greater appetite for larger, more peripheral homes, trigger price spikes and speculative bubbles that could, in turn, entrench restrictive land-use regulations. Flexible settings can also provide the required fluidity in converting real estate between commercial, office and residential uses for areas to adapt to changes in preferences so that buildings that become vacant are quickly repurposed rather than risking to become abandoned with negative spillovers. In particular, flexible settings would facilitate the conversion of retail and office space into dwellings, contributing to ease the housing crisis.

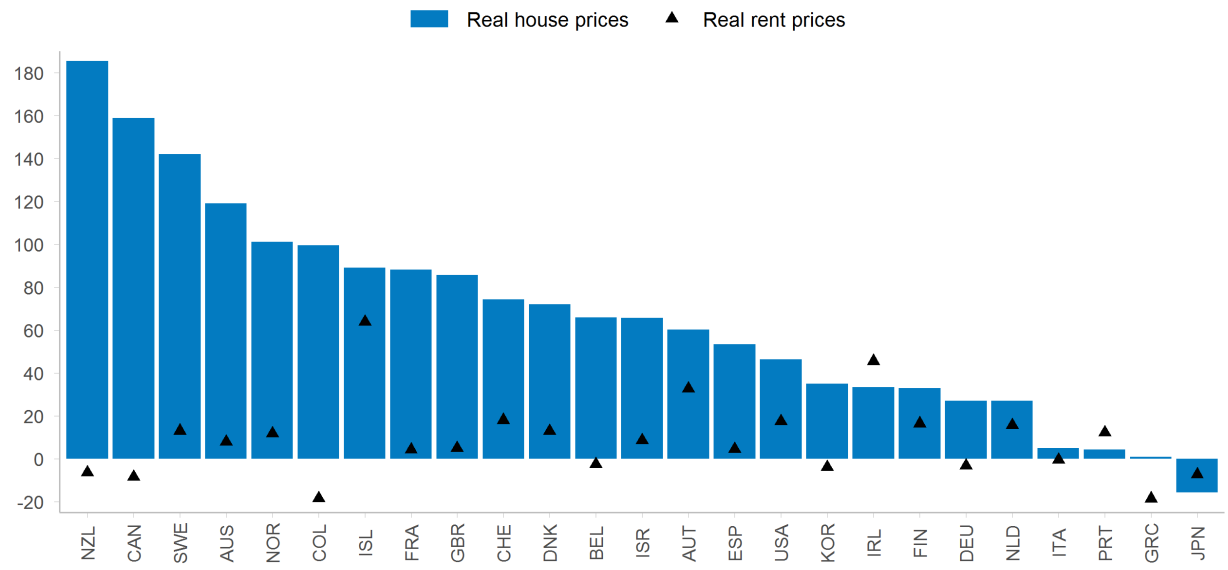
Housing has become less affordable

Housing costs have risen faster than other consumption expenditures

Access to high-quality housing has become increasingly difficult in many OECD countries over the past decades. House prices and rents have risen faster than general inflation across OECD countries undermining housing affordability (Figure 1.1). The reduction in real interest rates has only partly buffeted the impact of higher house prices. The increase in real housing costs has been particularly sharp in urban areas, where the housing stock and undeveloped land is in short supply. In fact, between 2005 and 2015 alone, the share of middle-income households' (i.e. households earning between 75% and 200% of median incomes) income spent on housing rose by as much as five percentage points on average in OECD countries (Figure 1.2).

Figure 1.1. House prices and rents have risen faster than inflation in most OECD countries

Percentage changes in real house prices and rents, 2000-20

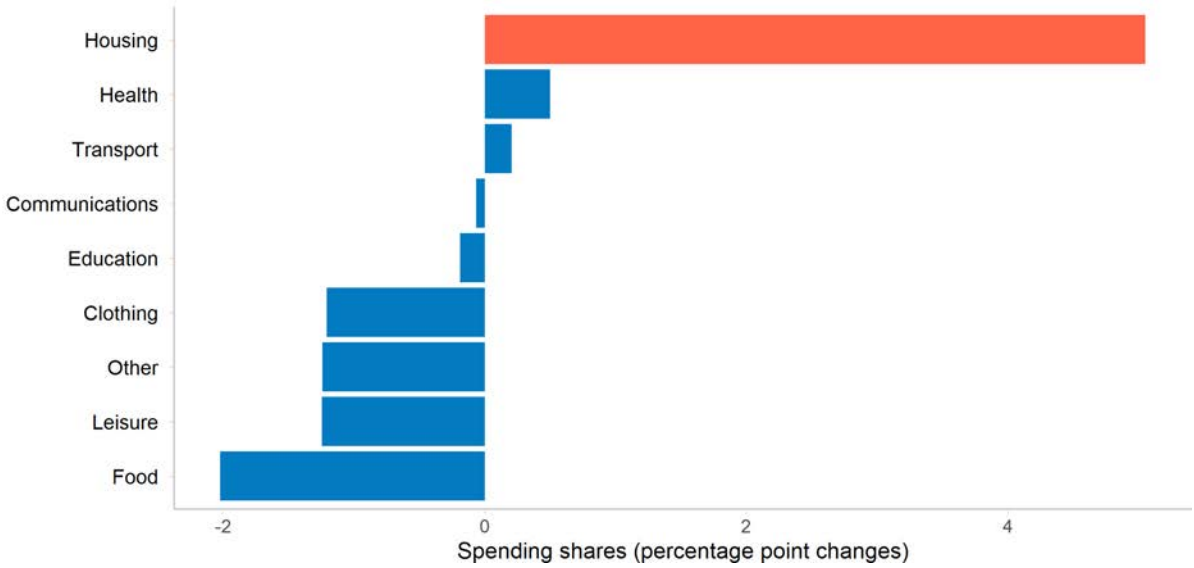


Source: OECD Analytical House Price Database.

Sta https://stat.link/sdlbkh

Figure 1.2. Housing increasingly weighs on household budgets

Changes in middle-income households' spending shares, 2005-15 average



Note: Unweighted average of 23 OECD countries (Austria, Belgium, Chile, Czech Republic, Germany, Finland, Greece, Hungary, Ireland, Lithuania, Luxembourg, Latvia, Mexico, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Turkey, United Kingdom and United States). Data refers to middle-income households (75% to 200% of median earnings).
Source: Under Pressure: The Squeezed Middle Class (OECD, 2019[1]).

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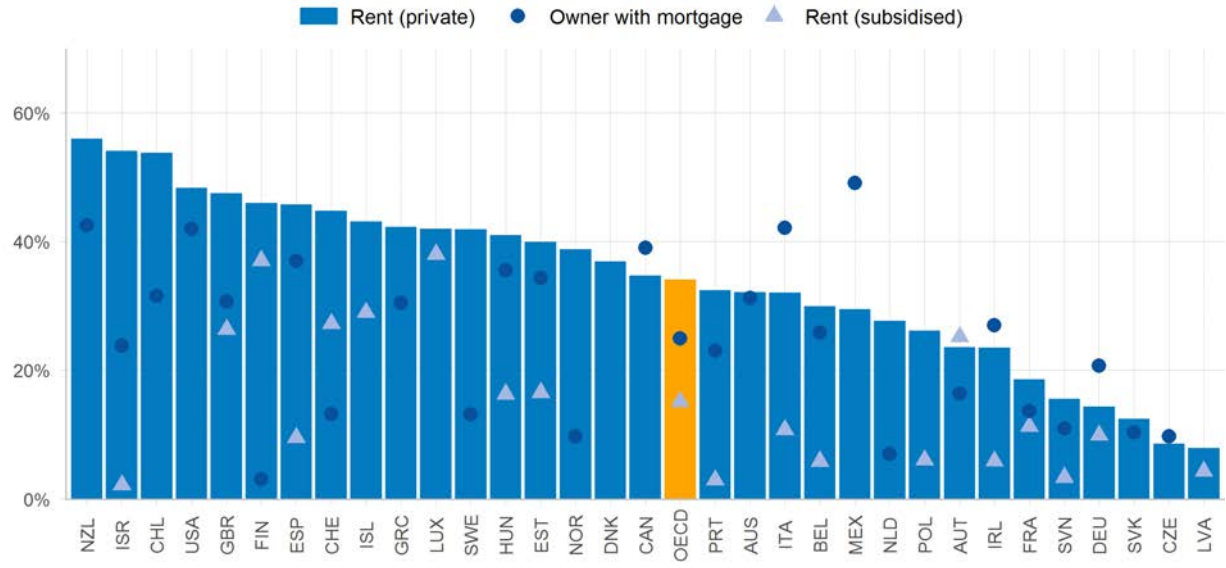
Rising housing costs put a disproportionate burden on low-income households

Whereas households throughout the income distribution face rising housing costs, the less affluent ones typically spend a higher share of their income on housing (Figure 1.3). The provision of social housing and housing-related benefits can help alleviate the pressure on the most affected social groups. Still, they need to be well designed to ensure that scarce resources reach those in need without hindering their mobility or resulting in residential segregation (OECD, 2020). The COVID-19 crisis, which has created large employment and income losses that are concentrated on the most vulnerable groups,[2] exacerbates the difficulties in ensuring access to quality, affordable housing.

Figure 1.3. Low-income households spend much of their earnings on housing

Share of population in the bottom quintile of the income distribution spending at least 40% of disposable income on mortgage and rent, by tenure, in per cent, 2019 or latest year



Note: In Chile, Mexico, Korea and the United States gross income instead of disposable income is used due to data limitations. No data on mortgage principal repayments are available for Denmark due to data limitations. Income quintiles for Canada are based on adjusted after-tax household income.

Source: OECD Affordable Housing Database (http://www.oecd.org/housing/data/affordable-housing-database/housing-conditions.htm), indicators HC1.2.

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Why have housing costs risen so much in so many countries?

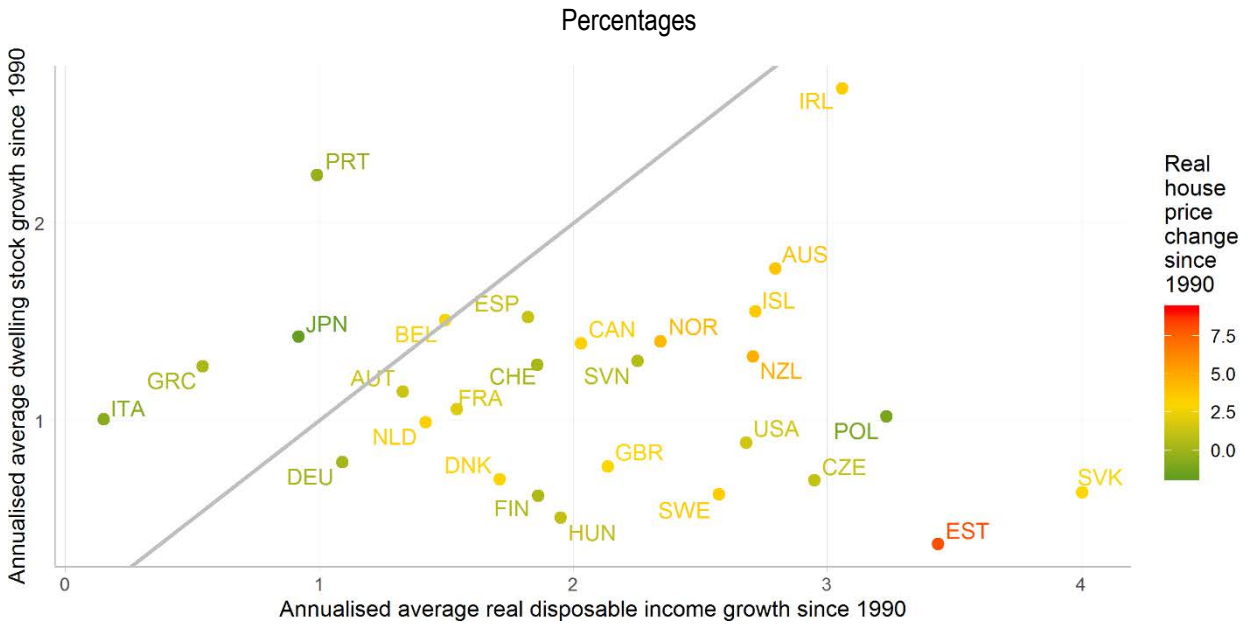
Supply has not kept up with demand

There are many reasons why housing costs have increased over the past two decades. Key housing market outcomes, such as house prices and construction, result from the interplay of demand and supply. On the demand side, economic expansion has contributed to household income growth. Demographic developments, such as population ageing and migration are key drivers of the level of demand as more people are looking for homes. At the same time, changes in household structure towards smaller households have not been accompanied by similar changes in the type of housing demanded, since people tend to live in bigger homes as documented by an increase in the average floor area per person in the past decade (IEA, 2020). Mortgage credit became more available and more affordable following financial deregulation during the period of relative macro-economic stability from the mid-1990s to the mid-2000s, a development further spurred by quantitative easing and ultra-lax monetary policy in the aftermath of the great financial crisis. Many countries also have favourable tax treatment of owner-occupied housing via mortgage interest deductibility, which further spurs house prices (Chapter 4).

On the supply side, low responsiveness of new housing has exacerbated the price effects of housing demand changes. Supply tends to be more “sticky” than demand, because it takes time to plan and build new structures so that weak supply adjustment allows price pressures to build up. Additionally, rising construction costs have contributed to declining housing affordability in many countries, in part due to increasingly stringent energy efficiency and environmental sustainability regulations (Chapters 4 and 7).

Housing supply responds to changes in demand, such as from income growth, quite differently across countries (Figure 1.4).

Figure 1.4. Housing supply has not kept pace with income growth in most countries



Note: This chart shows that housing supply, measured by the number of dwellings, has expanded much more slowly than aggregate household disposable income in many countries. It also illustrates that real house prices have broadly tended to increase more in countries where supply growth has not kept up with income growth (below the 45° line) by comparison with countries where supply has expanded faster than incomes (above the 45° line).

Source: OECD Economic Outlook database, Cavalleri, Cournède and Ziemann (2019[2]) and OECD calculations.

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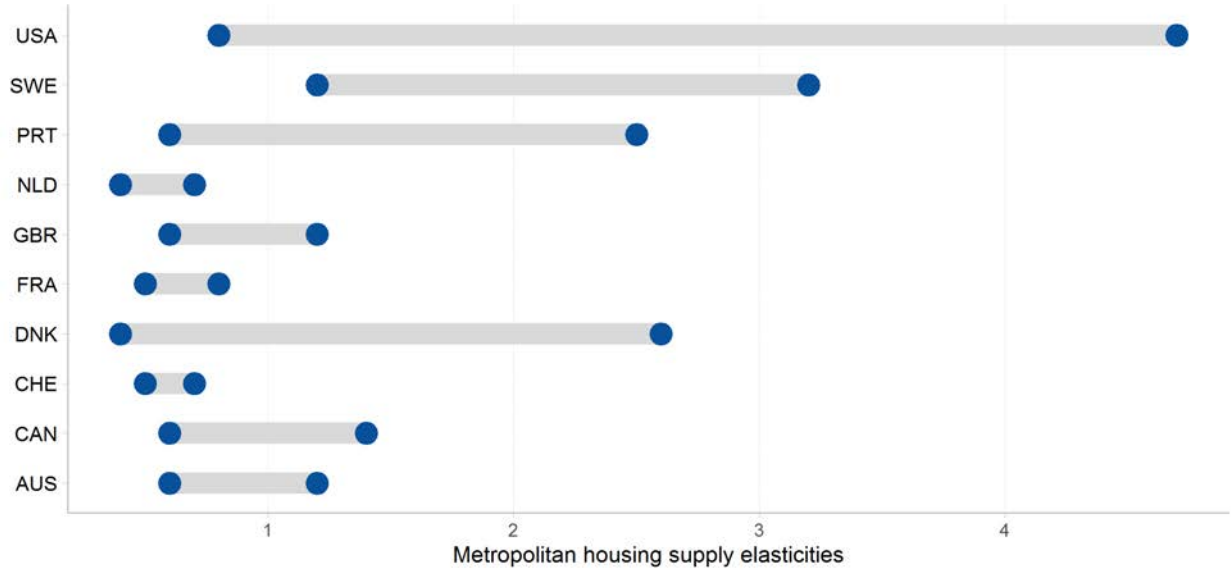
The responsiveness of supply to price changes triggered by stronger demand indeed has been found to vary a lot across and within countries (Figure 1.5, Figure 1.6). The differences have been empirically related to a range of geographical, historical and policy drivers.[3] These factors include: Is the area easily amenable to construction? What is the urban form inherited from the past? How conducive is the policy environment to homebuilding? These factors vary a lot across but also within countries: one manifestation of this variation, together with geographic differences in demand, has been strongly diverging house price changes within many OECD countries (Figure 1.6). Housing supply conditions can further affect the economic incentives to inter-regional migration and, consequently, the spatial allocation of workers within countries (Causa, Abendschein and Cavalleri (2021[3]); Causa, Cavalleri and Luu (2021[4]). A flexible housing supply enhances the responsiveness of internal migration to both local income and employment conditions, and this spatial reallocation can help to absorb adverse local shocks.

The heterogeneity of price developments underscores the importance of spatially aligning demand and supply, meaning construction should occur where it is most demanded. The need for flexible supply responses is even more critical as ongoing megatrends, such as population ageing and digitalisation, as well as the recent COVID-crisis, are weighing on demand patterns (cf. Box 1.1). But, new construction is not the only way to bring supply in line with demand. For instance, the renovation and upgrading of the dwelling stock can help match demand and reduce vacancy rates. Besides, taxing vacant homes encourages greater use of existing housing assets. Making sure that taxation and regulation of short-term rentals are neutral by comparison with hotels or touristic residences can also help to avoid an excessive conversion of dwellings away from long-term residential uses.

Figure 1.5. Supply elasticities differ across metropolitan areas



Note: A larger supply elasticity means that, for a given change in house prices, homebuilding expands by a greater amount.
Source: Bétin and Ziemann (2019[5]).

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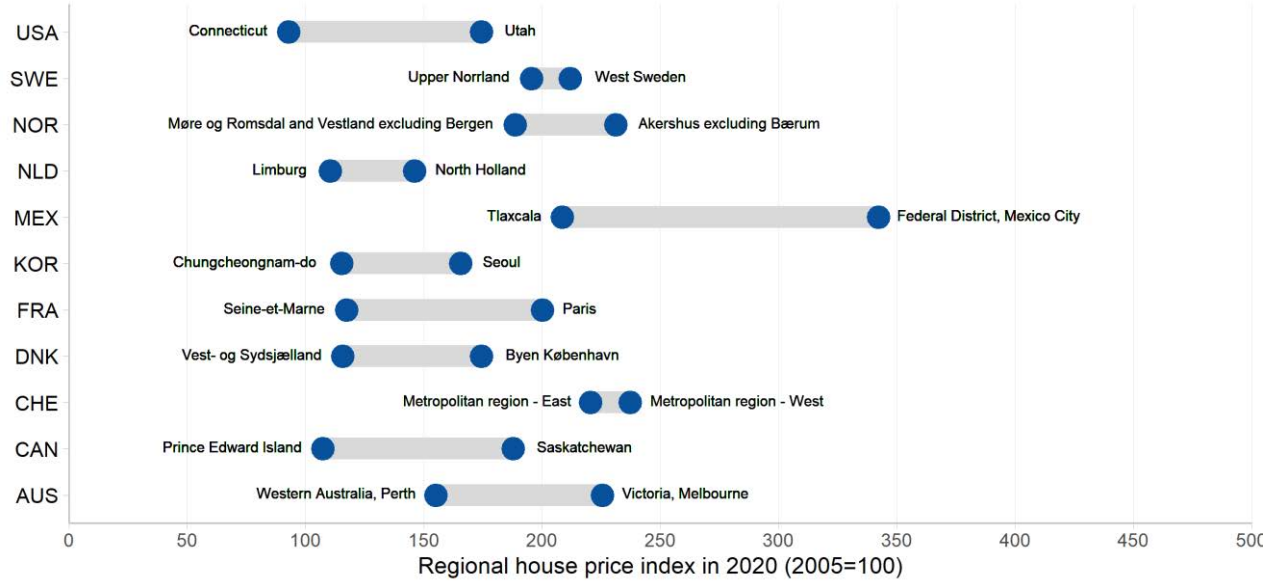
Figure 1.6. House prices can evolve very differently across regions



Note: The segments represent the range of regional house price indices between the lowest and the highest observation as of 2020.
Source: OECD Database on National and Regional House price indices (http://stats.oecd.org/Index.aspx?DataSetCode=RHPI).

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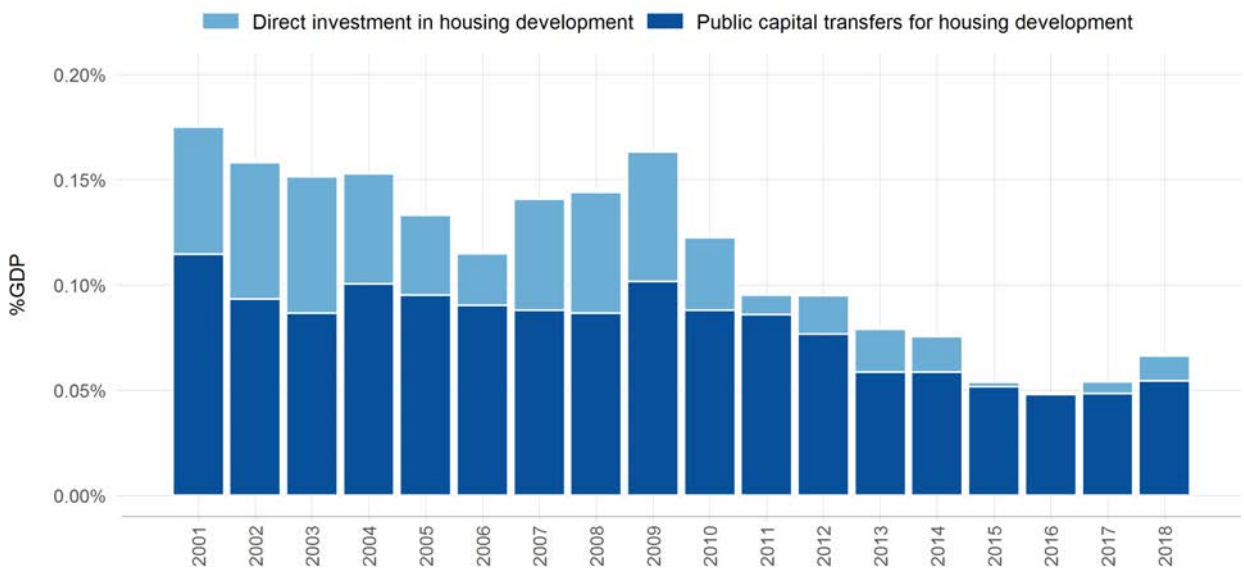
Governments are investing less in housing development

Another factor contributing to supply gaps is the decline in government investment in housing development, as well as a drop in the relative size of the social housing stock in most OECD countries. Over the past two decades, public investment in housing construction has dropped by more than one half on average across the OECD. In particular, direct public investment in dwellings has plummeted since the Global Financial Crisis, amounting to less than 0.01% of GDP in 2018 (Figure 1.7). In parallel, relative to the total dwelling stock, the share of social housing has declined in all but six OECD countries since 2010, further reducing the affordable housing supply for low-income households.[4]

Figure 1.7. Governments are investing less in housing

Public capital transfers and public direct investment in housing development, OECD average



Note: The OECD average is the unweighted average across the 25 OECD countries with capital transfer and gross capital formation data available from 2001. It excludes Australia, Canada, Chile, Iceland, Israel, Japan, Korea, Lithuania, New Zealand, Turkey and the United States. See the source for additional details.
Source: OECD Affordable Housing Database (http://oe.cd/ahd), indicator PH1.1.

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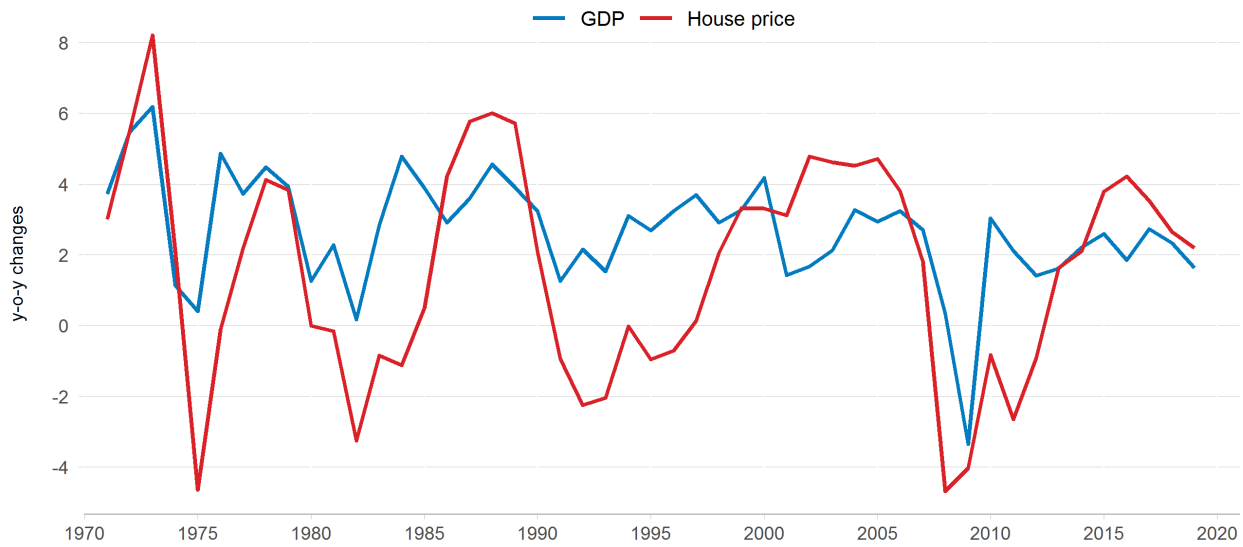
Housing affects economic performance in many ways

Housing markets play a paramount role in the economy

Housing accounts for a sizeable share of output. Construction makes up about 6% of GDP on average across OECD countries. Investment in dwellings alone accounts for about 20% of gross fixed capital accumulation. As a result, fluctuations in housing-related activities and house prices have strong effects on the business cycle (Figure 1.8). Understanding the drivers of these fluctuations is paramount to prevent the propagation and limit the amplification of housing shocks, thereby enhancing economic resilience. Housing and business cycles are indeed related: countries that observed larger corrections in real house prices during the Global Financial Crisis also suffered larger declines in economic activity. The unfolding COVID-19 crisis has had a major impact on construction and other housing-related activity (Box 1.2). Moreover, house price cycles tend to lead economic cycles. Peaks and trough in house prices occur before turning points in the business cycles, making them an important leading indicator of fluctuations in economic activity (Chapter 3).

Figure 1.8. House prices and business cycles are tightly linked

Annual real percentage change, OECD average



Source: OECD Economic Outlook database and OECD Analytical House Price database.

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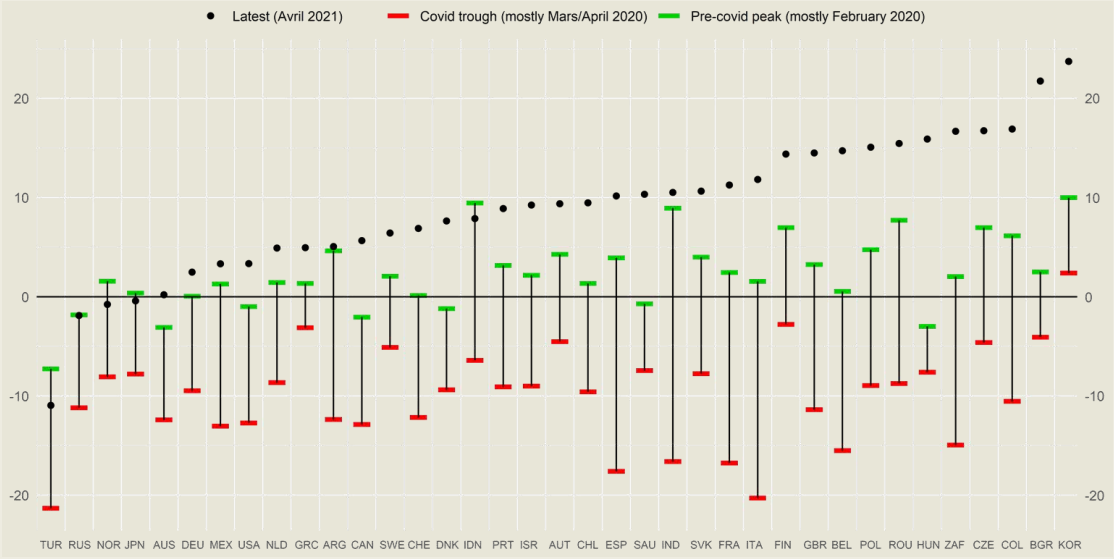
Box 1.2. The COVID-19 crisis severely hit the housing sector

The spread of the COVID-19 pandemic affected the housing sector throughout the world. Containment measures involved total or partial shutdowns of construction sites in many countries, as well as housing-related activities more generally. Indeed, internet searches related to real estate markets correlate strongly with the construction Purchasing Managers Indicators (PMIs) which allows the construction of construction confidence benchmarks for a wide range of countries (OECD, 2020[6]). Figure 1.9 illustrates the sharp declines in construction sectors' confidence as the first COVID wave hit in early 2020. While confidence had rebounded swiftly in most countries, the re-emergence of the virus in the second half of 2020 and first quarter of 2021 undermined the sector yet again in some countries.

Figure 1.9. A rebound followed the construction crash in many countries

Google-Trends based indicator of construction confidence (positive means expansion)



Note: The indicator ranges from -50 by 50. Positive numbers mean expansion and negative ones contraction. The chart shows countries where the Google Trends data are available and the 2018 population exceeded 10 million.
Source: Update of OECD (2020[6]).

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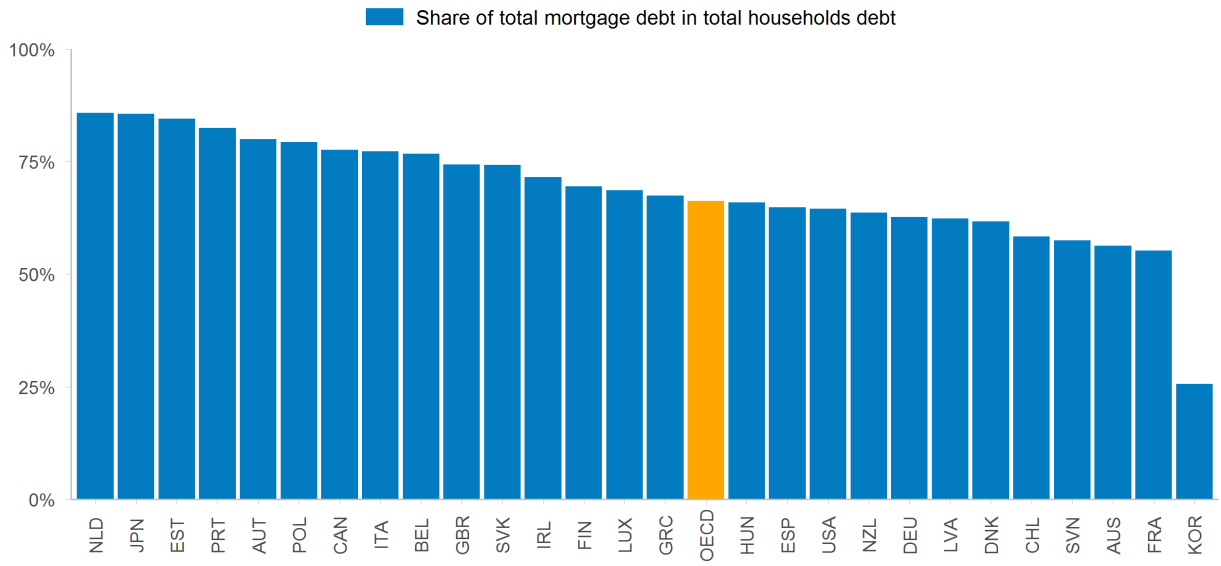
Greater access to housing finance creates opportunities and risks

Financial and mortgage markets play a key role in housing markets since most households finance their home with debt financing (Figure 1.10). Housing finance has changed significantly over the past decades, which has lowered the borrowing cost for housing, leading to an expansion in the supply of mortgage loans. Financial and mortgage market innovations have helped lower-income households to become homeowners, as these changes have made it easier for them to take housing loans. However, excess leverage can pose risks for macroeconomic stability and long-term economic performance if policy changes trigger a significant relaxation in lending standards, a subsequent increase in non-performing loans and credit misallocation.[5] Macro-prudential regulations but also housing policies can foster economic resilience by mitigating the build-up of vulnerabilities, reducing the transmission and hence the severity of crises and fostering an economy's capacity to recover from them.

Figure 1.10. Mortgages account for the bulk of household debt



Source: OECD Wealth Distribution Database (oe.cd/wealth), HFCS database.

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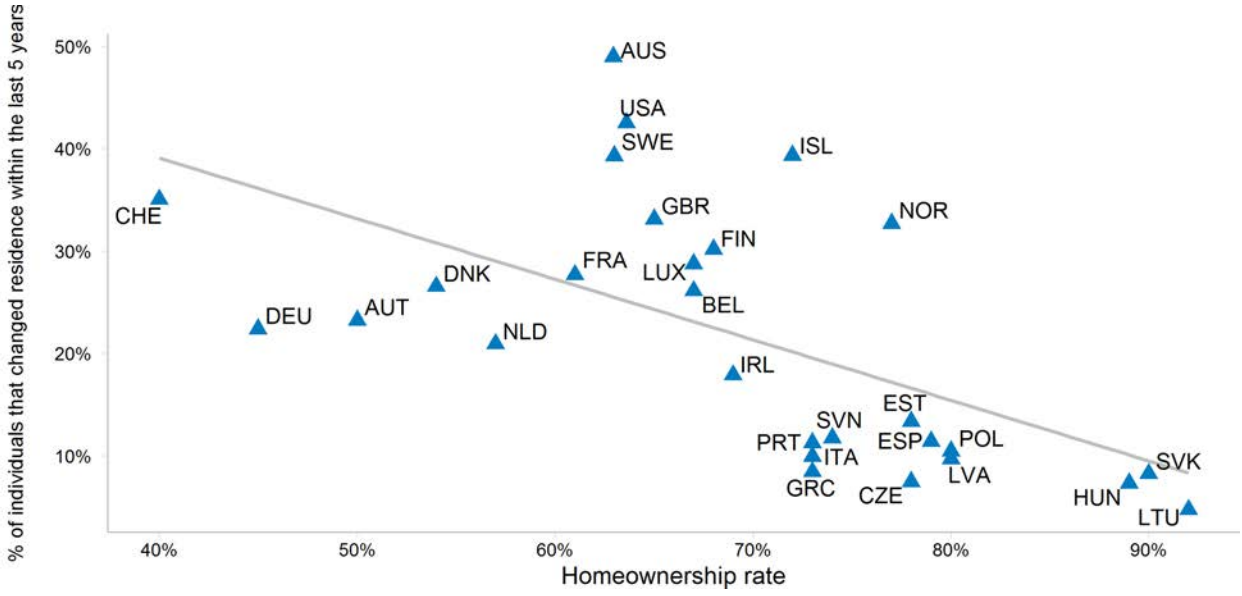
Residential mobility yields important benefits but may be hindered by poorly functioning housing markets

Several factors influence people's decision to move. Preferences and needs, including due to changing family circumstances, play an important part, but so do policy choices that may create obstacles to mobility and make it difficult for people to move in search of better jobs. Residential mobility can help overcome interregional inequalities, improve job matching and thereby lift aggregate productivity and social mobility.

Among the key determinants of residential mobility are homeownership and social-housing tenure, since homeowners and social-housing tenants usually are not as mobile as private-market renters (Figure 1.11 and (OECD, 2020[7])). Furthermore, rising housing costs and rising regional differences in housing costs constrain the ability of lower-income individuals to move to areas where there are jobs or better jobs available but where they cannot afford the housing cost, with adverse implications for labour mobility and reallocation.[6] Well-designed housing and labour market policies can facilitate residential mobility by improving the matching of workers with jobs across the territory. Removing policy-related obstacles to mobility and ensuring sufficient supply in high-demand areas can speed up the reallocation process in the wake of the COVID-19 crisis and help the labour market to recover.

Figure 1.11. High homeownership countries feature low residential mobility



Source: OECD Calculations based on 2012 EU SILC Data for EU countries; AHS 2013 for the United States; HILDA 2012 for Australia. Homeownership rates from the OECD Affordable Housing Database.

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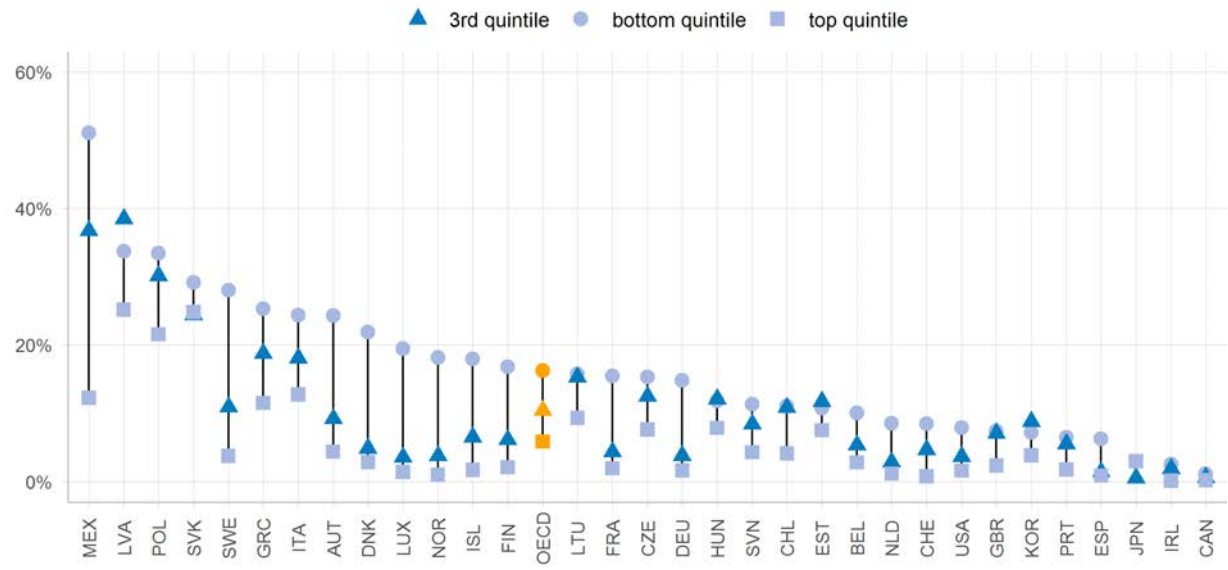
Housing affects inequalities

Lack of access to quality housing can have lasting distributional effects

As previously discussed, low-income households are spending a larger share of their income on housing: in addition to being more likely to be overburdened by housing costs, they are also more likely to live in poor-quality dwellings (Figure 1.12). They may not be able to afford regular maintenance or improvements to their dwellings, while at the same time finding it too expensive to move to better-quality housing. Lack of access to quality housing are often associated with poor access to health, education, broadband internet and good job opportunities (OECD, 2014[8]). This can have long lasting effects including on the lifelong income of young people who grow up in housing of poor quality or limited access to education or health services. The COVID-19 pandemic renewed concerns among policymakers about overcrowding, because overcrowded conditions make it more difficult for inhabitants to effectively self-isolate, putting people at greater risk of contracting and spreading infectious diseases (OECD, 2020[9]). The COVID-19 crisis has also exacerbated the impact of the digital divide in housing, as households without internet access have greater difficultly in working from home or participating in distance learning.

Figure 1.12. Low-income households face a housing quality challenge

Share of overcrowded households, by quintile of the income distribution, percentages, 2019 or latest year



Note: See section "Data and comparability issues" of Indicator HC2.1 on limits to comparability across countries due to the definition of rooms.
Source: OECD Affordable Housing Database (http://www.oecd.org/housing/data/affordable-housing-database/housing-conditions.htm), indicator HC2.1.

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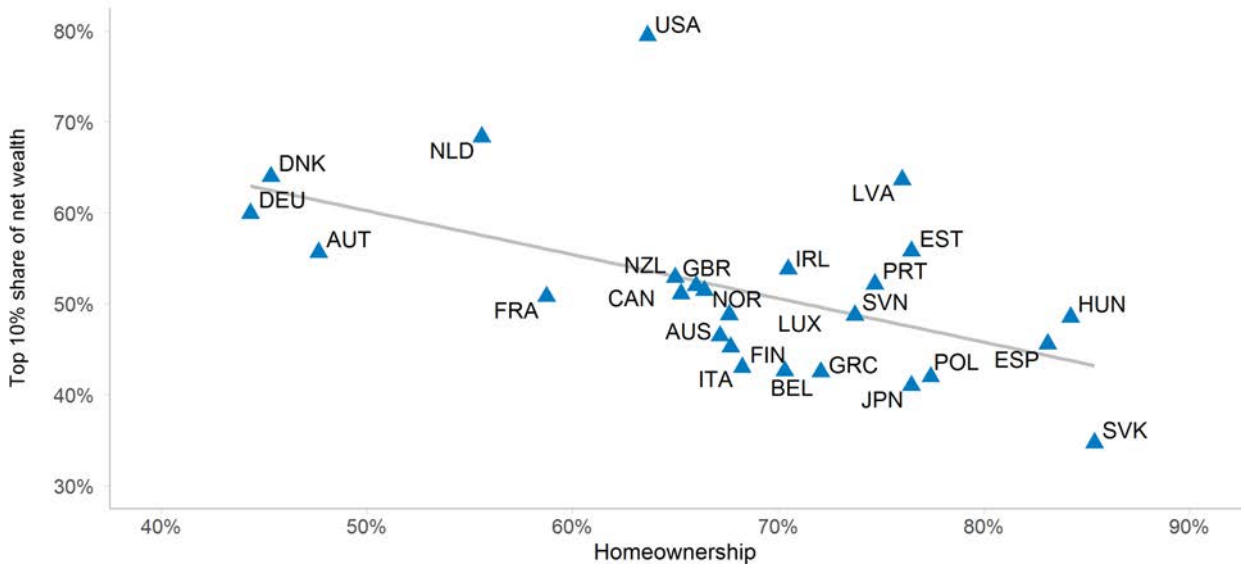
Housing is an integral part of household wealth

Rising house prices means that many households are missing out on the benefits of owning a home. Developments in housing markets have repercussions for household consumption and the macroeconomy via wealth effects. Rising house prices also have implications for wealth inequality (Chapter 5). Indeed, housing is an essential part of wealth as it is the single and biggest asset for a majority of households. Changes in house prices translate into changes in household wealth and this can in turn redistribute wealth between different types of households such as renters and homeowners. Given the importance of housing in household balance sheets, especially for the middle class, housing contributes to equalise the net wealth distribution (Figure 1.13). This is because housing seems to be more equally distributed than other assets, such as financial assets.

Figure 1.13. High-homeownership countries tend to exhibit low wealth inequality



Source: OECD Wealth Distribution Database (oe.cd/wealth).

StatLink https://stat.link/fyrvx3

Housing has sizeable environmental consequences

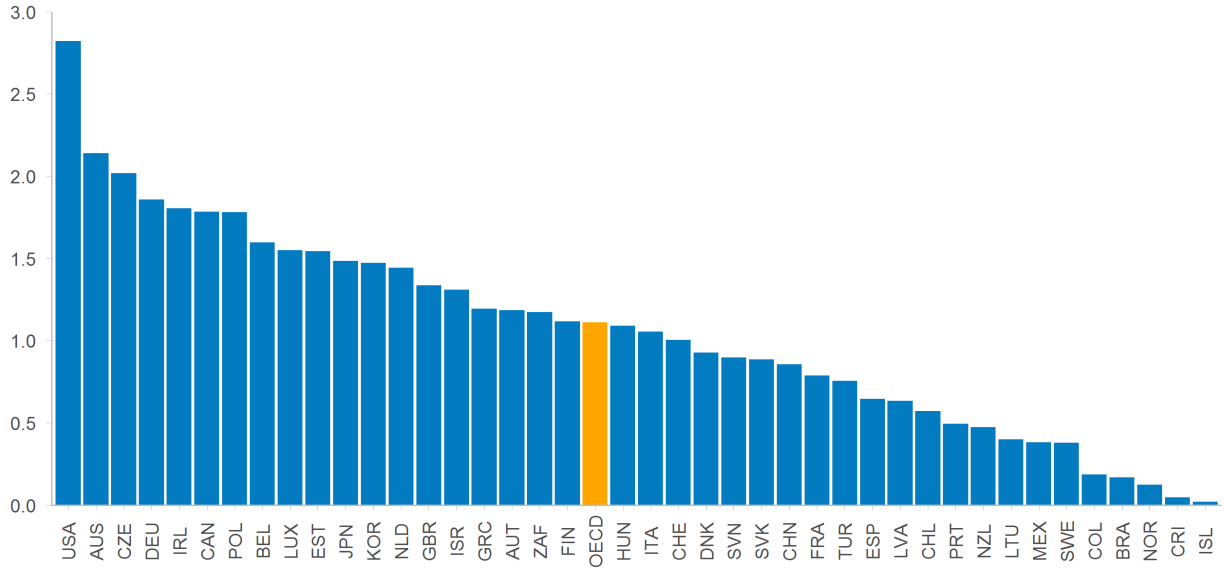
Housing accounts for a substantial share of global CO2 emissions

Housing is energy-intensive. The residential sector (buildings and construction) accounts for 28% of global final energy consumption and 17% of total CO2 emissions. Housing-related emissions are very different across countries (Figure 1.14). These large gaps reflect considerable cross-country differences in the degree to which public policies effectively price CO2 emissions from the residential sector, pointing to ample room for reducing emissions in many countries, although non-policy factors such as temperature patterns are also at play (Figure 1.15).

The use of environmental-friendly materials and improvements in isolation and heating systems have great potential to make housing more energy-efficient and help meeting agreed emission targets. Yet, in 2018, two-thirds of countries still lacked mandatory building energy codes.[7] High-performance buildings, such as near-zero energy buildings, still make up less than 5% of new construction. Implementing and enforcing regulation to meet building envelope objectives also means that existing buildings require renovation and maintenance. However, environmental regulation increases construction costs and administrative burdens on the supply of residential structures. Policy simulations show that the carbon transition could put sizeable additional pressure on house prices (Chapter 4). Ensuring both affordability and sustainability is, therefore, an important policy challenge.

Figure 1.14. CO2 emissions from housing vary considerably across countries

CO2 emissions from fuel combustion (including electricity and heat) in the residential sector, in tons per capita, 2019



Source: OECD Environment Database (2020).

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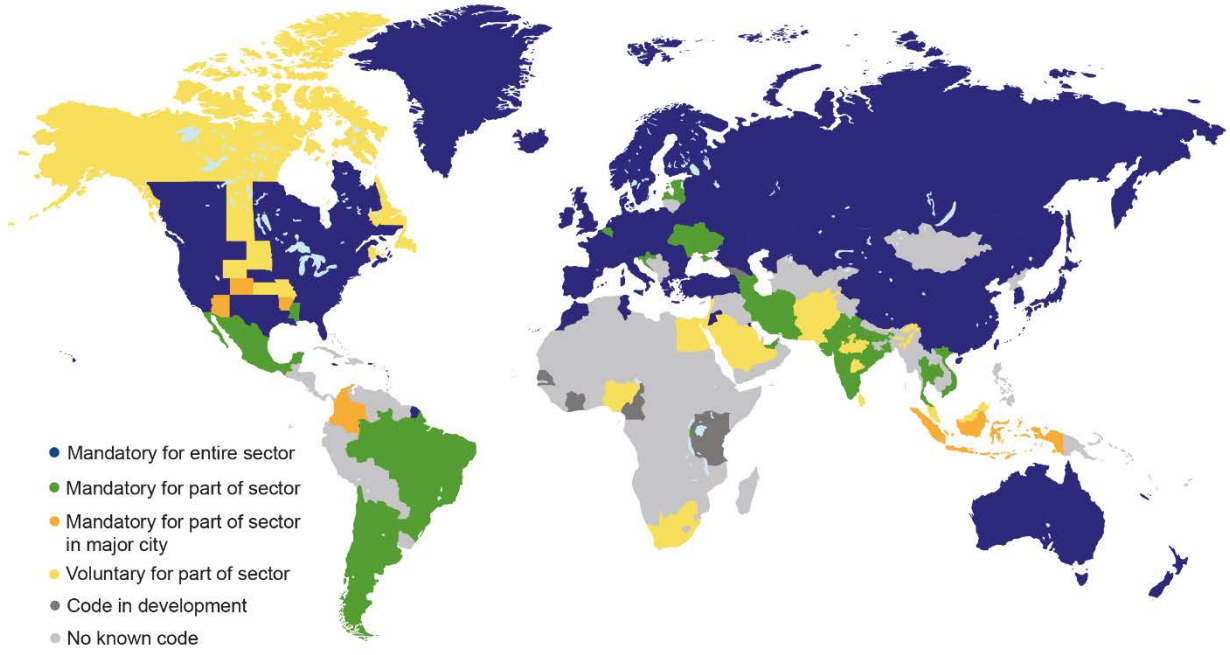
Figure 1.15. Building energy codes and standards vary in stringency across the world

In 2018



Source : https://www.iea.org/reports/building-envelopes.

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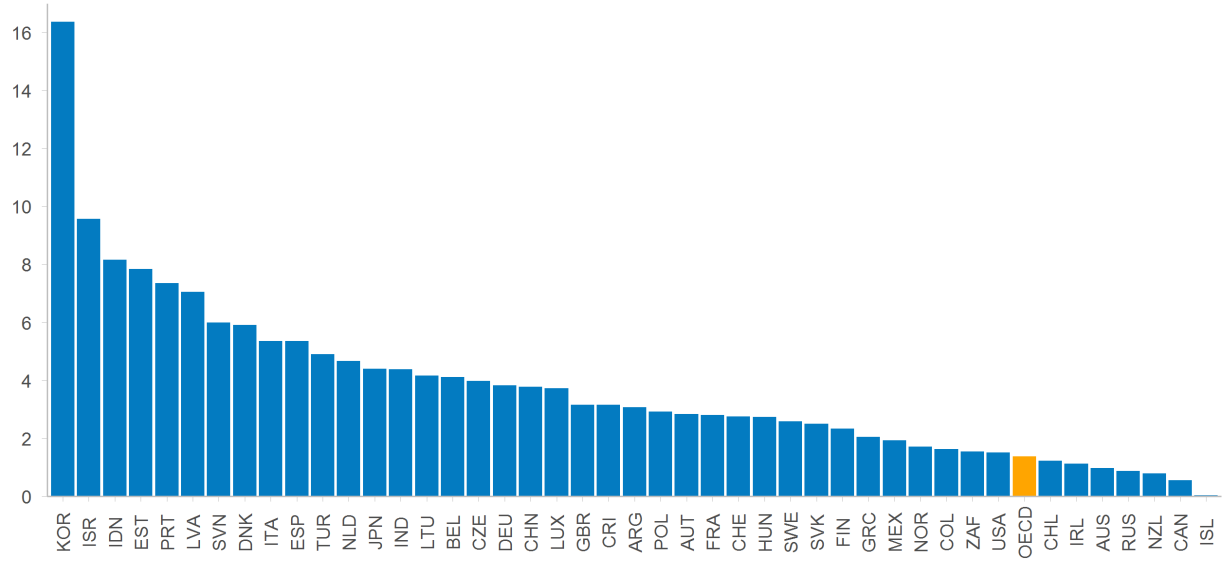
Complex links tie housing and environmental quality

In addition to emissions, housing has environmental impacts through land and material use as well as the transportation patterns that urban form generates. These impacts can differ across countries, as in the case of land-use (Figure 1.16). Furthermore, the effects of housing can sometimes be different across environmental objectives: for example, urban sprawl translates into higher transportation needs, greater difficulty in deploying public transport and higher greenhouse gas emissions as well as greater use of rural or natural land. On the other hand, lower density reduces exposure to local air pollutants that are more concentrated in higher density areas. Some environmentally-related policies can put a strain on the near-term affordability of housing. Nonetheless, frontloading the pricing of environmental externalities yields important benefits as it reduces the extent of such externalities, thereby contributing to environmental sustainability and intergenerational justice.

Figure 1.16. Urban areas have expanded differently across OECD countries

Percentage of tree cover, grassland, wetland, shrubland and sparse vegetation converted to any other land cover type between 1992 and 2015



Source: OECD, "Land cover change", https://dx.doi.org/10.1787/3dee7330-en.

StatLink https://stat.link/pvqugh

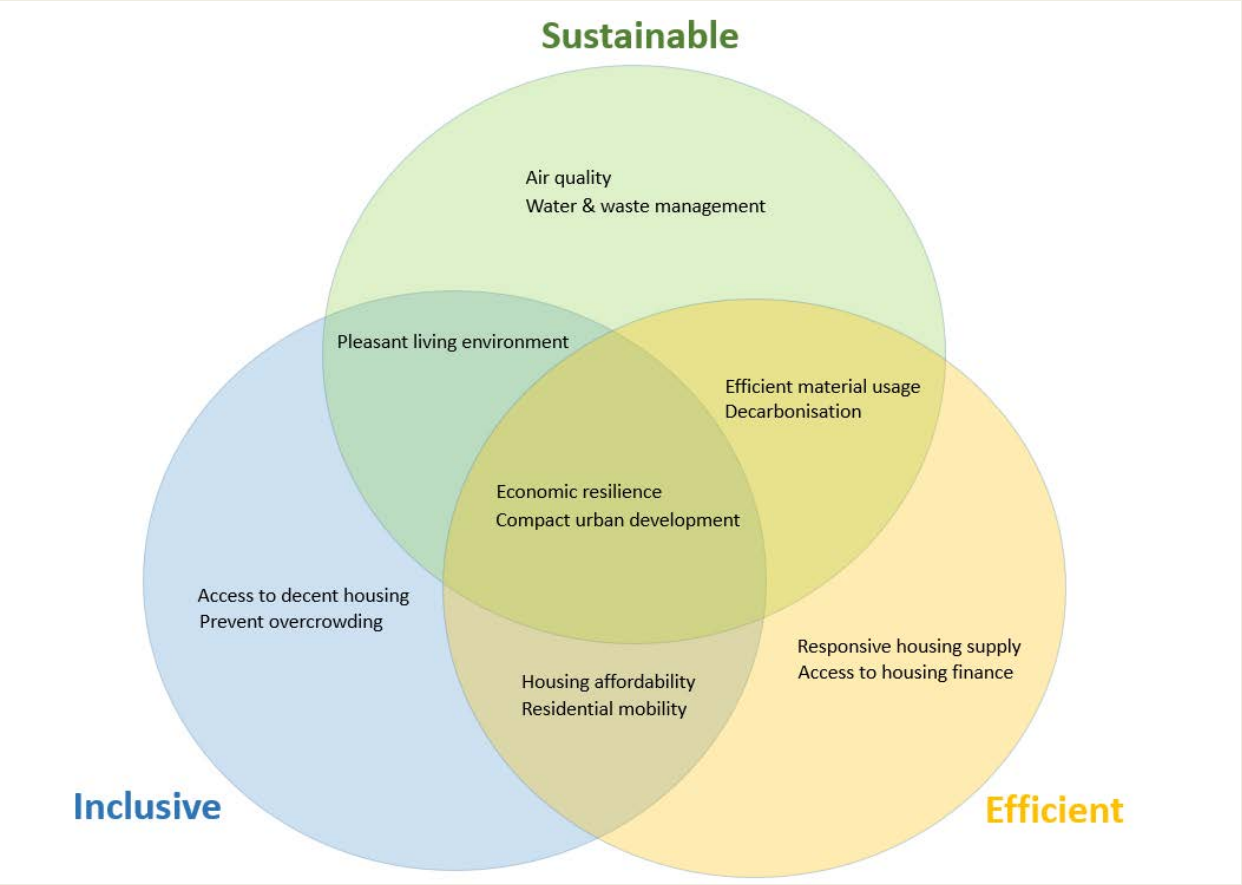
What can governments do?

Policy action in multiple areas, ranging from housing policies to government spending and taxation, influences housing outcomes. Reforms can aim at multiple objectives: making the housing market more efficient, more inclusive or more sustainable (Box 1.3). National preferences can considerably vary across these objectives, which can warrant contrasted policy choices across countries. Furthermore, the legacy of past choices strongly shapes today's needs and possibilities in a sector where path dependency is very strong due to the slow renewal of the housing stock.

Box 1.3. Housing reforms pursue multiple objectives: Inclusiveness, efficiency and sustainability

Three key dimensions underpin the OECD Horizontal Project on Housing: Inclusiveness, efficiency and sustainability (Figure 1.17). Inclusiveness relates to the possibility for low-income households and other vulnerable groups, such as people with unstable jobs, to live in good-quality dwellings that serve their needs, including access to labour markets, schools and amenities. Efficiency describes the capacity of the sector to supply housing that matches demand both quantitatively and qualitatively without unnecessary costs. Sustainability refers to the compatibility of residential construction and housing use with high local environmental quality and climate objectives.

Figure 1.17. Housing affects inclusiveness, efficiency and sustainability



As in other policy areas, where multiple objectives can be pursued, there is a need to assess possible synergies, trade-offs and unintended consequences that different policy tools may involve. When trade-offs arise, it is also essential to identify the extent to which compensatory measures can alleviate adverse effects induced by specific policy initiatives. Table 1.1 summarises the key policy synergies and trade-offs among housing objectives based on the empirical evidence reported in this Synthesis. Two caveats apply. First, it relates to typically expected effects; different consequences may arise in practice depending on the country-specific environment. Second the table summarises the available empirical evidence regarding impacts on housing objectives, but the policy interventions can also have effects in other areas such as government budgets. The OECD Housing Policy Dashboard (Box 1.4) gathers outcomes and policy indicators drawn from the report and aims to assist policymakers in making informed policy choices when designing national housing strategies.

Table 1.1. Most policy interventions have effects that cut across multiple dimensions

	Efficiency					
	Inclusiveness				Sustainability	
	Near-term affordability for the vulnerable	Long-term affordability	Mobility	Financial and economic resilience	Local environment	Greenhouse gas emissions
Taxation						
Phase out tax advantages for home ownership		↗		↗		
Shift housing taxes from transaction towards annual levies			↗			
Tax motor fuels	↘	↘			↗	↗
Tax property with split rates (higher rate on land than buildings)		↗			↗	↗
Spending						
Invest to build green social housing with portable eligibility	↗	↗	↗	↗	↗	↗
Subsidise the retrofitting of the existing housing stock	↗				↗	↗
More spending on housing allowances	↗	↘	↗			
Financial Policy						
Tighten loan-to-value caps	↘			↗		
Increase capital requirements for mortgages	↘			↗		
Rent regulation						
Relax rent control	↘	↗	↗	↗		
Relax landlord-tenant regulation	↘		↗	↗		
Building regulation						
Require certain energy performance through building codes		↘			↗	↗
Benchmark the energy performance of buildings					↗	↗
Land use						
Regularly re-evaluate geographic boundaries on urban development		↗				
Relax building height regulations		↗			↘	↗
Allow the owners of development rights in environmentally valuable areas to transfer them		↗			↗	
Acquire land to prevent its development		↘			↗	
Reform land-use governance to give more authority to the metropolitan rather than lower levels and avoid overlaps		↗				
Environmental urban policy						
Restrict vehicle access to city centres		↘			↗	↗
Price urban roads and/or car parks	↘	↘			↗	↗
Develop public transport					↗	↗
Develop alternative fuel infrastructure					↗	↗

Note: A green upwards-pointing arrow means that the policy reform in the row supports the objective in the column. A red downward-pointing arrow means that it detracts from it. Blanks indicate that there is no known systematic effect. Indicators to measure outcomes and policy stances are summarised in Box 1.4. The depicted impacts reflect the empirical evidence reported throughout the present report. Real consequences may depend on the country-specific context and can differ from the expected effects shown in the table. The columns cover housing-related objectives, but the policy interventions in the rows can have effects on other areas such as government expenditure or revenue.
Source: Chapters 2-9.

Box 1.4. The OECD Housing Indicator Dashboard

A set of indicators to inform policy choices

A better understanding of the linkages between policies and outcomes along the three dimensions of efficiency, inclusiveness and sustainability requires the use of indicators. A dedicated Housing Dashboard provides policymakers with a set of key indicators that should help to make informed policy choices (Figure 1.18). It is available at http://bit.ly/housingtoolkitpreview.[8]

Figure 1.18. Indicators gauging inclusiveness, efficiency and sustainability outcomes and policies

Note: Annex 1.A1 provides the definitions and sources of the variables.

Because housing is a complex policy area, many outcome indicators could point to weaknesses in policy settings associated with one or more policy objectives. For instance, sustained increases in house price-to-income ratios point to deteriorating housing affordability, which poses challenges for inclusiveness and could signal at the same time a lack of efficiency in the way housing markets operate. As a result, in many cases there is no one-to-one correspondence between outcomes and policy objectives, and some judgement is therefore needed to link outcome indicators to policy objectives.

Policy indicators to compare policy stances with other countries

Along with outcome indicators, policy choices can be informed by a comparison of the policy stance and key features of policy interventions pursed in different countries and over time. To make progress in this area, the OECD has been investing in the collection of data and construction of policy indicators spanning the range of areas that are relevant for housing (Figure 1.18). By allowing benchmarking with other countries, these policy indicators provide indications about the scope for action regarding the reform options listed in Table 1.2.

An important source of information about policy settings is the 2019 OECD Questionnaire on Social and Affordable Housing (QuASH). It includes information on social housing policy, rental market regulation, land-use governance and mortgage regulation. Information is also available from other OECD workstreams, such as the measurement of effective housing taxation and mortgage interest relief, which comes from the OECD work on the Taxation of Household Savings (Brys et al., 2021[10]). External sources have also been used (see Annex 1.A1)

Table 1.2. Policy indicators to gauge the scope for possible policy interventions

Policy option	Policy indicator
Phase out tax advantages for home ownership	Marginal effective tax rate on owner occupied housing / Mortgage interest relief
Shift housing taxes from transaction towards annual levies	Share of recurrent taxes on immovable property in overall property taxes
Tax motor fuels	Fuel excise tax
More spending on housing allowances	Total government spending on housing allowances as percentage of GDP / Social expenditure on housing
Tighten loan-to-value caps	Loan-to-value cap / Debt-service-to-income cap
Increase capital requirements for mortgages	Bank capital requirements for mortgage loans
Relax rent control	Rent control stringency
Relax landlord-tenant regulation	Landlord-tenant regulation stringency
Reform land-use governance to give more authority to the metropolitan rather than lower levels and avoid overlaps	Land-use governance indicator

Source: See Annex 1.A1.

Given the interlinkages between outcomes and policy objectives, a policy dashboard (available online) allows policymakers to access information on the relevant outcome and policy indicators for a given country but also to compare settings across countries and over time. The dashboard can also be used to present snapshots of the situation in each country ("country fiches") by highlighting selected key indicators in each dimension in comparison with peer countries.

Building on complementarities among policy objectives

Several policy initiatives can bring simultaneous progress in inclusiveness, efficiency and sustainability (Table 1.1). They include more provision of social housing, greater reliance on recurring taxes on immovable property and land, and various regulatory changes in land-use (Table 1.1).

Well-designed social housing can improve affordability along with other policy objectives.

Investment in social housing – directly or indirectly through non-profit or reduced-profit associations (Box 1.5) – contributes to increasing housing supply. As such, it not only results in greater affordability for eligible low-income tenants but also for the rest of the housing market. Importantly, eligibility for social housing should be portable across cities and regions to ensure low-income workers' mobility. Removing obstacles for people to follow jobs is an essential aspect of resource reallocation and particularly vital in the post-COVID-19 era (Box 1.2).

Moreover, providing social housing that is developed or refurbished in line with high energy efficiency standards contributes to reducing the housing sector's carbon footprint. It can also contribute to reducing energy poverty among social housing tenants. Doing so can have a demonstration effect, easing the broader deployment of environmentally ambitious building standards and facilitating the transition of the entire economy towards the attainment of agreed emissions objectives. Finally, if social housing investment is well integrated into environmentally and socially ambitious urban strategies, it also contributes to improving the quality of the local environment and to the development of inclusive, socially mixed neighbourhoods.

Box 1.5. Austria supplies much social housing through limited-profit housing associations

Austria has the third-highest share of social housing in its total dwelling stock among OECD countries at 24% in 2019 (OECD, 2020[11]). This high average ratio across the country masks the even greater importance of social housing in the capital city, Vienna, where the share is 43%. This performance results from a specific way of supplying and managing social housing, which involves municipalities and limited-profit housing associations. Both pillars of the system matter: for instance, in Vienna, 22% of households live in social housing provided by the municipal government and 21% in social housing provided by the limited-profit housing associations.

Across Austria, limited-profit associations manage more than two-thirds of the social housing stock. They generally provide high-quality housing at a below-market rate to low and medium-income households. They operate over 900 000 social housing units (two-thirds of which are designated for tenants) and build between 12 000 to 15 000 new homes every year, equivalent to 25-30% of total residential construction. Rents, which are cost-based, are on average 23% lower than for-profit sector rents. Abstracting from the opportunity cost of not renting at the market rate, budgetary costs for taxpayers and municipalities are limited: the funding of projects relies on private and public loans and equity of the housing association, which collects tenant contributions. The unique business model of housing associations mainly relies on funding loans, cost-based rents and the direct reinvestment of the surplus in construction and renovation of dwellings once loans are paid back. Furthermore, part of the rent goes into a rehabilitation fund dedicated to the renovation of buildings (more details on the social housing funding model in Austria can be found in Box 2.4). Thus, the quality of housing is maintained over time. Strict regulations on the quality of the building, both social and environmental, also ensure the high quality of affordable housing.

Source: OECD (2019[12]; OECD, 2020[11]).

Unlike the provision of social housing with limited benefit portability, housing allowances do not in principle restrict residential and job mobility (Chapter 6). However, a critical difference between the provision of social housing and housing allowances is that the latter supports demand while the former contributes to expanding supply. Where supply is rigid, an increase in housing allowances may have the unintended consequence of putting upward pressure on house prices and rents.[9] This pressure can offset the intended effect of allowances on affordability for beneficiaries while making housing more expensive for households who are not receiving them. Dealing with this trade-off calls for complementary measures (discussed below) to enhance housing supply responsiveness to changes in demand associated with an increase in housing allowances.

Tax reforms can bring economic, social and environmental benefits

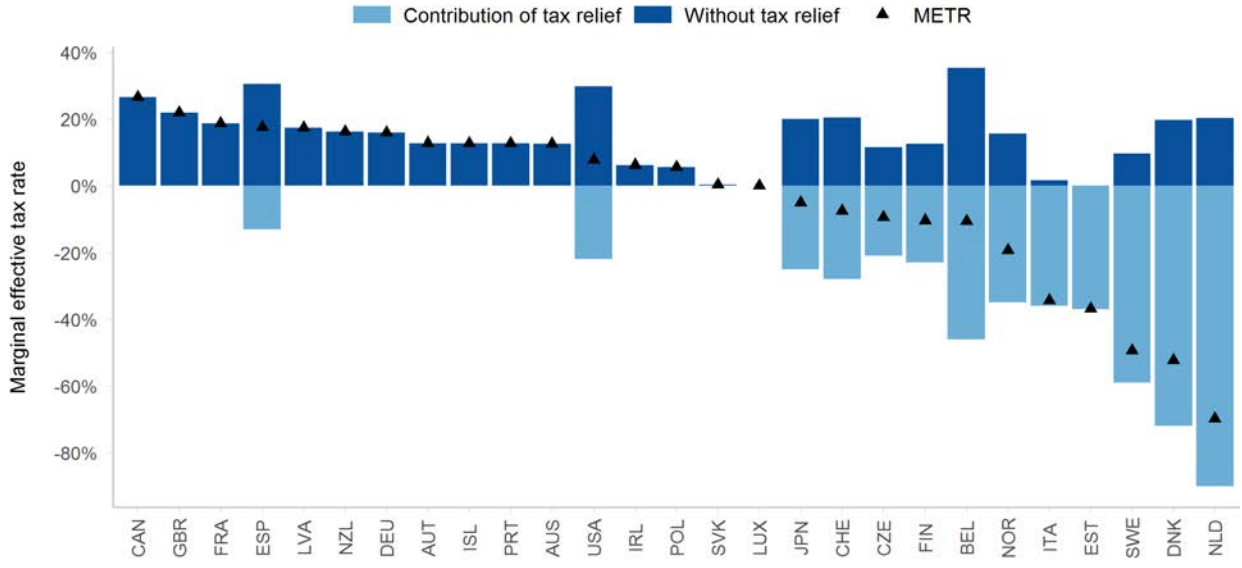
Shifting housing taxation away from transaction-based levies towards annual taxes would enhance housing market efficiency. Recurrent taxes on immovable property, as opposed to levies on housing transactions, have the added advantage of not discouraging residential mobility, which is closely linked to job mobility. Recurrent property taxes have also empirically been found to be comparatively supportive of economic growth, by comparison with other taxes, especially transaction-based levies; many countries are raising very litlle revenue from recurring property taxes, a situation that offers scope to make greater use of them.[10] In countries where the valuation of the property, for tax purposes, lags well behind the market value, there is also scope to align the valuation for tax purposes with the market value (Chapter 8).

In addition, a rebalancing of the recurring property tax basis towards land, rather than structures, would have the benefit of encouraging more efficient uses of land and therefore greater environmental quality (Chapter 7). By reducing the extent to which recurring housing taxes discourage investment in dwellings, such a shift should also make the supply of housing more responsive to changes in demand. Nevertheless,

some caution is warranted, since land-use regulation can limit the benefits that can be reaped through more efficient property taxes (Chapter 8).

Phasing out mortgage interest relief can reduce house prices by substantial amounts in countries where supply lacks flexibility (see Chapter 4). The reason is that much of the value of mortgage interest relief gets capitalised into land prices in areas where supply is rigid. Gruber, Jensen and Kleven (2021[13]) find that scaling back mortgage interest rate deduction in Denmark has reduced equilibrium house prices and household indebtedness. [11] In the long term, lower house prices make housing markets more inclusive by facilitating homeownership to a more significant share of the population and by driving down rents. In the medium term, before prices adjust, phasing out mortgage interest relief comes at a loss to the households who would otherwise have benefited from the tax advantage. The resulting political economy challenge means that countries that have eliminated or reduced mortgage interest relief have typically done so gradually (France, Netherlands, United Kingdom). This does not raise a pressing distributional issue, however, since mortgage interest relief primarily benefits higher-income groups.[12] Furthermore, because mortgage interest relief does not remove primary barriers to first buyers such as downpayments and credit scores, its reform is also likely to have limited effects on homeownership even over the medium term.[13] Increasing the effective taxation of residential property through the removal of mortgage interest relief or other advantages offers the additional benefit of contributing to smooth housing cycles (Figure 1.19; Chapter 3). The tax reforms that the Netherlands implemented in the 2010s are an example of a strategy that combined a shift in the burden of property taxation from a transaction-based to recurrent taxes with a reduction in the mortgage relief rate (Box 1.6).

Figure 1.19. Marginal effective taxation of residential property



Note: METR stands for "marginal effective tax rate" for owner-occupied, debt-financed housing investments.
Source: "Effective Taxation of Residential Property", (Brys et al., 2021[10]).

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Another avenue for tax reform that can improve both affordability and efficiency is to shift the burden of property taxation from transaction-based to recurrent taxes. Doing so removes an important obstacle to mobility (Chapter 6) and better aligns the tax with the services received (Chapter 8).

Box 1.6. Tax reforms for better housing performance: the case of the Netherlands

The Dutch tax system was long offering exceptionally favourable conditions to homeowners with large mortgages while applying substantial levies on housing transactions. This combination was identified as offering considerable scope for reform packages with multiple benefits (OECD, 2010[14]). First, reducing the highly favourable tax treatment of mortgage-funded homeownership can be expected to reduce levels of household indebtedness, contributing to greater economic stability and resilience (see Chapter 3), while also curbing house price increases (see Chapter 4). Second, lowering transaction taxes makes the housing market more fluid, facilitating residential mobility (see Chapter 6) and labour reallocation. These two reforms go well together in a tax package, as they have opposite effects on overall tax revenues.

This diagnosis, well recognised and accepted in the aftermath of the Global Financial Crisis, has been followed by a series of reforms. The transaction tax was reduced from 6% to 2% in 2011, first temporarily as a way of stimulating the market, but then from 2012 permanently as a way of facilitating residential mobility (OECD, 2012[15]). Besides, a series of measures have gradually narrowed the favourable treatment of mortgage borrowing under personal income tax. A significant first step taken in 2013 was to restrict interest relief to mortgages that are fully amortisable: this change excluded "balloon mortgages", i.e. mortgages for which much or all of the principal is repaid at the term in a lump sum. Such balloon mortgages were previously widespread in the Netherlands, contributing to very high household indebtedness. An important further reform in 2014 launched a gradual reduction in the maximum mortgage relief rate by 0.5 percentage point a year until 2040 (from a starting point of 52% in 2014). In 2017, the government decided to accelerate this phase-out, taking it to 3 percentage points a year from 49% in 2020 to 37% in 2023 (OECD, 2018[16]).

Source: (OECD, 2010[14]; OECD, 2012[15]; OECD, 2018[16]).

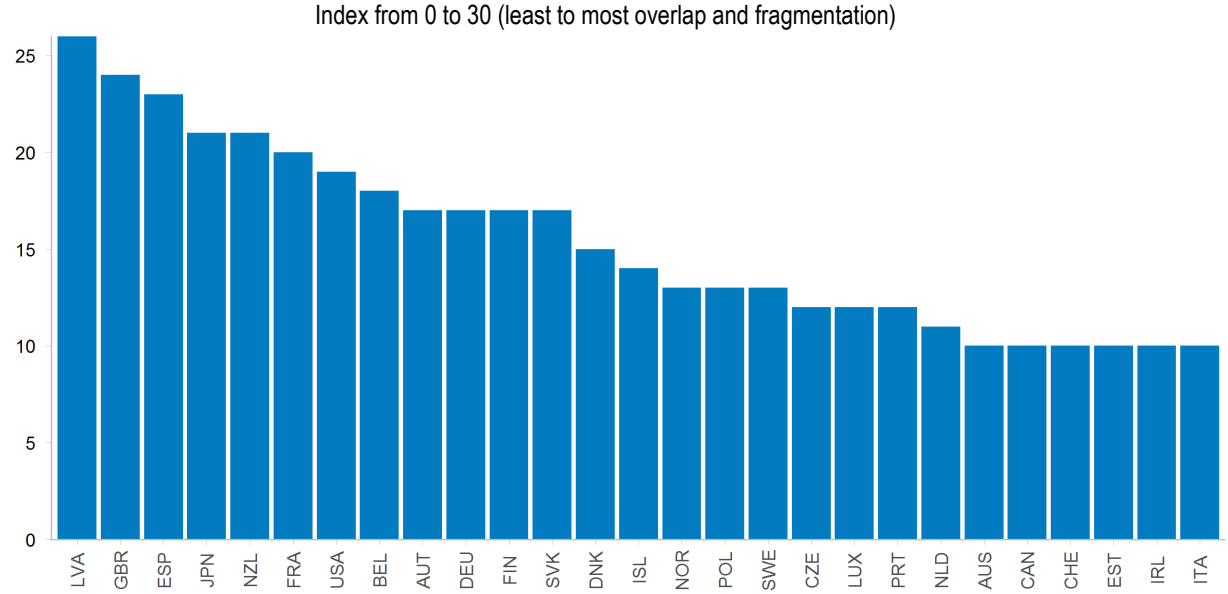
Reforming land-use regulations can yield multiple benefits

Permitting the transfer of vested development rights from environmentally highly valuable areas to other places improves environmental quality while easing supply constraints where housing is in high demand. To the extent that greater supply responsiveness reduces upward pressure on prices, these reforms also have the potential of improving affordability along with improving efficiency in housing markets and contributing to environmental sustainability. Combining these regulatory reforms with stricter energy efficiency standards could improve the environmental impact of housing policies by paving the way for faster progress in the energy transition of the housing stock.

Furthermore, reforming land-use regulations can have broader positive consequences for the economy. Flexible land-use regulation within integrated planning frameworks that incorporate environmental objectives can facilitate the efficient reallocation of labour and capital by allowing housing supply to adjust to the demand for relocation to high-productivity areas: such flexibility boosts investment and aggregate productivity and economic growth.[14]

One way of doing so is to regularly revisit the geographic boundaries for urban development to accommodate city growth while ensuring forms of expansion compatible with environmental objectives (Chapter 7). Moreover, land-use governance arrangements that avoid overlap in the allocation of housing policy functions across the different levels of administration and favour planning at the metropolitan level rather than lower levels of government (Figure 1.20) can facilitate the matching of supply and demand within broader catchment areas. This can potentially increase the responsiveness of supply to evolving demand, mitigating upward pressure on prices and making housing more affordable (Chapter 4).[15]

Figure 1.20. The governance of land-use lacks efficiency in many countries



Note: The governance of land-use regulations indicator ranges from 0 (least efficient, meaning most fragmented and overlapped) to 30 (most efficient meaning least fragmented with little overlapping responsibilities across levels of government) according to answers to the 2019 OECD Questionnaire on Affordable and Social Housing.
Source: OECD calculations.

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Urban renovation policies are important for environmental and social objectives

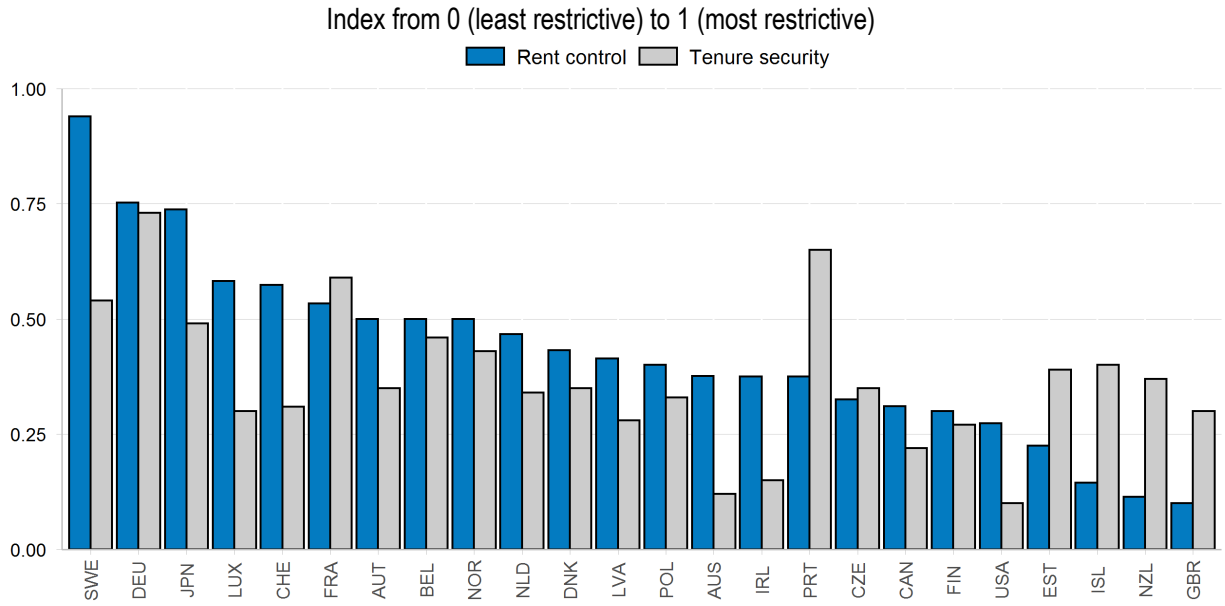
The subsidisation of energy-efficient renovation of old buildings, which may be underutilised as a result of poor building standards, can expand the use of housing stock and its energy performance while easing the near-term pressure on affordability from the cost of energy-efficiency upgrading. Over time, the affordability benefits of such subsidies are likely to diminish, however, as the value of the upgrading gets capitalised into house prices.[16]

Managing trade-offs and unintended policy effects

Some trade-offs involve balancing short- against long-term affordability

Making rental market regulations such as rent control and tenure security (Figure 1.21) more flexible, in combination with reforms to allow more responsive supply, have the potential to make housing markets more efficient and affordable in the long term. Still, they could undermine affordability for some households in the short term, especially for incumbents, as stringent rent controls reduce the rates of return on real estate investment. The related uncertainty discourages developers and lenders from investing in real estate, making the supply of housing considerably less responsive to changes in demand (Chapter 4). At the same time, tight rental contract restrictions could also affect vulnerable renters adversely, which poses obstacles for residential and labour mobility (Chapter 6). Indeed, excessive protection of tenants often implies that renters with uncertain labour market prospects, such as low-wage or non-standard workers, find it difficult to sign a lease, because landlords, who anticipate a difficult eviction in case of non-payment, require evidence about the stability of tenants' income. There nonetheless remains a case for providing tenants with reasonable security over tenure and rent levels: a compromise can be a system of rent stabilisation, whereby rents can be varied for new contracts and renewals but regulated in line with market developments during the duration of the contract.

Figure 1.21. Rental market regulations are often restrictive



Note: The rent control and tenure security indices range from 0 (no restrictions) to 1 (all types of restrictions) according to answers to the 2019 OECD Questionnaire on Affordable and Social Housing.
Source: OECD calculations.

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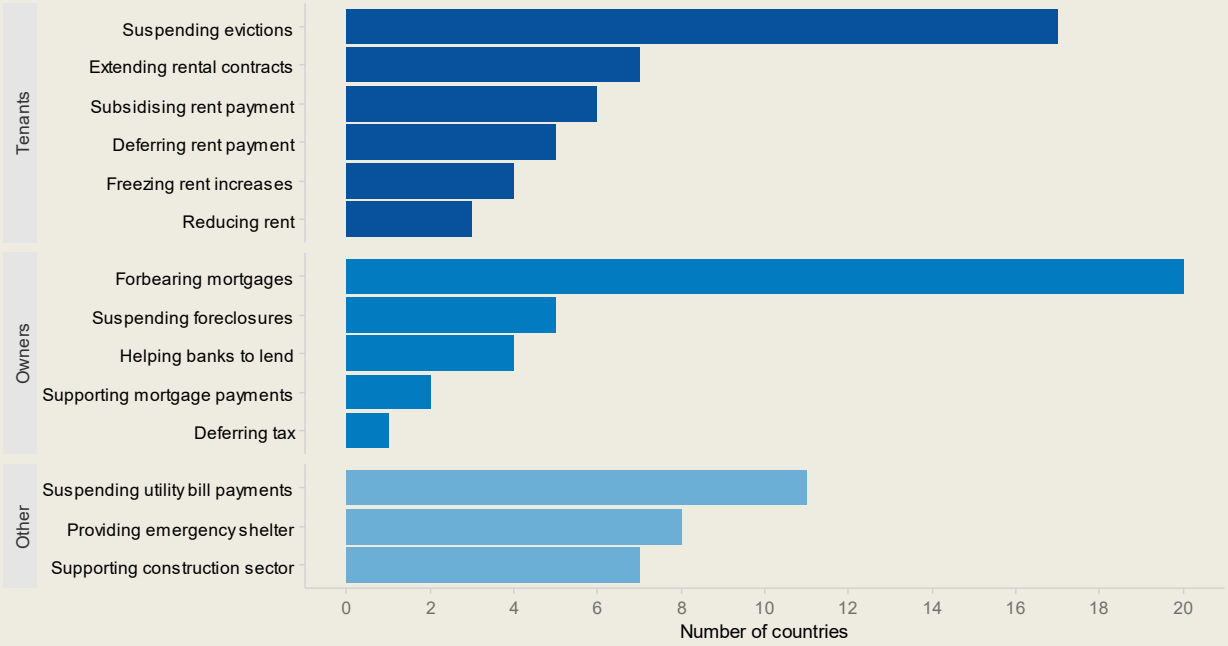
By potentially resulting in supply-demand mismatches, overly tight rental market regulations may also exacerbate speculative housing bubbles and excess accumulation of household debt, undermining economic resilience. Indeed, tight rental market regulations are associated with a higher probability of incidence of financial crises and more severe cyclical downturns in economic activity (Chapter 3). The unintended consequences associated with a tightening of rental market regulations can be mitigated at least in part through greater reliance on social housing and household allowances, which can be targeted to vulnerable renters, as well as by relaxing overly restrictive land-use regulations that inhibit supply responses where housing is in high demand.

The measures taken by several countries to shield renters from the hardships associated with the COVID-19 crisis are a case in point (Box 1.7). For example, rental market restrictions were introduced in many countries at the onset of confinement to help vulnerable households in the short term and provide a degree of income protection for existing renters. However, the obstacles imposed by tight landlord-tenant obligations to residential and consequently labour mobility can over time become particularly unwelcome in post-COVID-19 economies, given the need to adjust and facilitate the reallocation of labour and capital towards sectors and activities with promising economic prospects.

Box 1.7. Some of the COVID-19 responses involve long versus short-term trade-offs

With the onset of the COVID-19 crisis, governments responded with a host of specific measures to protect mortgage-holders and tenants in addition to the support from social safety nets. A number of countries also intervened to help the post-crisis recovery of the construction sector (Figure 1.22). In most countries, emergency support involved a suspension of eviction procedures, temporary forbearance of rent and mortgage payments, and in some cases moratoria on utility payments. Most governments, at both national and local levels, also took specific steps to shelter the homeless during the lockdown.

Figure 1.22. Most measures to alleviate the housing impact of COVID-19 targeted tenants and homeowners



Note: The sample includes all 37 OECD and 9 non-OECD countries. See detailed country coverage in the source.
Source: OECD (2020[6]).

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Countries implemented several specific policies to support tenants in addition to letting social safety nets play their role. Many countries introduced moratoria on rent payments for economically distressed tenants. Some governments also provided specific financial support to tenants unable to honour rent payments as a result of the crisis. Rental market regulations were also adjusted, at least temporarily in some countries: rent freezes have been common for contracts coming up for renewal; rental contracts were made more flexible, by allowing tenants to terminate their contracts prematurely or to extend them so that they could more easily adjust to the needs prompted by the pandemic. Steps have also been taken to protect mortgage-holders and homeowners more generally. Several countries suspended foreclosure procedures during the period of confinement. Others authorised owners to defer the payment of their real estate taxes. Other measures aimed at supporting housing finance directly. In some countries, liquidity was provided directly to banks and mortgage lenders and, in some cases, by temporarily relaxing macro-prudential regulations imposed on banks.

Some of the response measures involve trade-offs between short and long-term objectives. Stronger tenant protection, regulatory forbearance and financial support for mortgage borrowers and lenders all reduce the short to medium-term adverse impact of the crisis on households and lenders, including an increase in evictions, foreclosures and homelessness. Moreover, such protections also helped to ensure

that households could safely shelter in place and, when necessary, quarantine during the pandemic. However, as discussed in the main text, these measures can in the medium-term bear on supply, hinder mobility and diminish resilience to future crises (Table 1.1). As the recovery unfolds it will become increasingly important to balance short-term concerns against the longer-term needs of a well functioning housing sector.

Other crisis-response measures however do not involve such trade-offs. Expanding the supply of social housing contributes to the recovery in activity while, over the medium to long term, expanding supply and facilitating access to housing by low-income households. It is important to ensure portability of social housing rights to avoid creating obstacles to mobility. Easing land-use rules to facilitate construction, within the framework of urban planning strategies and building codes that are compatible with environmental objectives, would boost the recovery of the construction sector over the medium term. Such initiatives would also make the housing market more efficient over the long term.

Some macro-prudential measures raise challenges for particular groups

Macro-prudential measures to limit borrowers' exposure to housing indebtedness also involve trade-offs, especially as regards access to housing finance by specific social groups. Tightening macro-prudential policy settings helps to curb housing market excesses (Box 1.8) and protect macroeconomic stability (Chapter 3). However, interventions such as limits on mortgage amounts relative to the value of the property (loan-to-value LTV caps) make dwelling purchases more difficult for young households with limited savings. Where appropriate, this trade-off can be mitigated at least in part by targeting support to first-time home-buyers through tax-favoured savings plans that help them accumulate their upfront payment. Another option is for macro-prudential policy to rely more on debt-service-to-income caps, which also mitigate risk without requiring the accumulation of a downpayment in the same way as LTV caps do.

Box 1.8. Macroprudential interventions to cool housing markets: The cases of Sweden and Canada

Facing fast increases in house prices, Sweden tightened LTV-based measures in 2016 using amortisation as a tool. It required minimum amortisation of 1% per year for mortgages with LTVs between 50 and 70% and 2% per year if the LTV is above 70%. Since 2018, this LTV-based set of measures was supplemented by a policy relying on the debt-to-income (DTI) ratio: loans with a DTI above 4.5 must have an amortisation of at least 1% per year. These requirements, which have the effect of discouraging high borrowing relative to the value of the house and the level of income, have been successful at curbing house price increases.

Also in response to rapidly rising house prices, especially in Vancouver and Toronto, Canada tightened its LTV cap from 95% to 90% for homes above CAD 0.5 million. This move was complemented by tightening compliance with the cap on the debt-service-ratio: while the ratio was previously computed with the effective interest rate at which the mortgage is issued, after the move it had to use a conventional interest rate defined by the Bank of Canada. Access to government insurance was also tightened for high-LTV mortgages in 2016 and again in 2018. The tightening in macroprudential policy was followed by more muted house price developments, including a decline in Vancouver and stabilisation in Toronto.

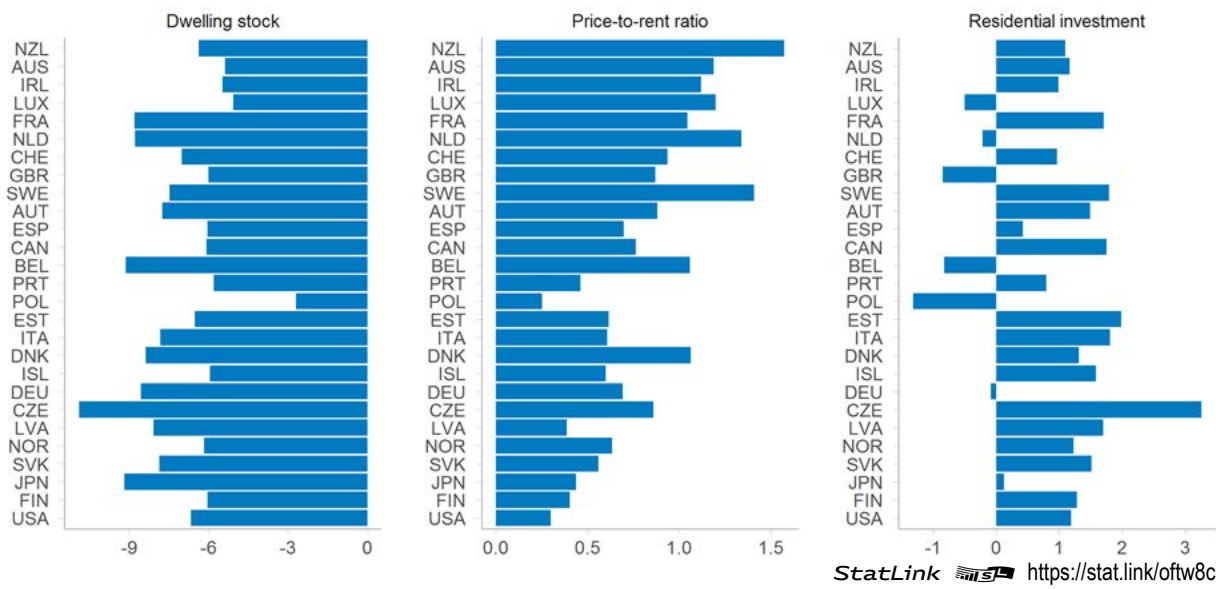
Sources: (OECD, 2019[17]; Duprey and Ueberfeldt, 2020[18]; OECD, 2018[19]).

Efforts to improve the environmental sustainability of housing can entail costs

The costs arising from compliance with stricter energy efficiency and other regulations that can improve the environmental sustainability of buildings and structures can undermine affordability. Of course, these costs may not be passed on in full to house prices, especially where construction and home improvements may be subsidised, at least in part. Also, efforts to increase the energy efficiency of dwellings may result in lower energy costs to be borne by homeowners or renters. These improvements can also lower borrowing costs or improve credit terms for mortgage-holders to the extent that lower utility bills and better long-term valuation prospects for high-efficiency homes reduce credit risk (Box 1.9). However, upward pressure on house prices may be substantial where sizeable investments are needed to replace or upgrade the housing stock: illustrative simulations with stylised assumptions suggest that the attendant house price increase could be equivalent to more than half a year of disposable income in many OECD countries (Figure 1.23).

Several policies to improve the environmental performance of cities can have adverse implications for housing supply and affordability. Government acquisition of land to prevent development, as in the case of green belts around urban areas, directly limits supply. More indirectly, policies to restrict car access to city centres, price urban roads or increase car park fares have also been empirically found to raise house prices in cities by reshaping housing demand towards city centres, where house prices are typically higher (Chapter 7). There is also evidence that expanding public transport networks typically results in higher house prices, although doing so enhances labour-market and broader social inclusion by facilitating commuting and exchanges within urban areas. The potential negative effects of higher house prices on affordability and inclusiveness can be countered by policies to provide social housing and make land available for construction in the areas for which these policies are boosting housing demand.

Figure 1.23. Necessary energy-efficiency upgrading of buildings will weigh on affordability



Note: Changes to baseline are shown (percentage points for dwelling stocks and residential investment; the number of years of disposable income to purchase the average 100m^2 dwelling for the price-to-rent ratio). Environmental regulation to move towards carbon neutrality assumes an immediate increase of 10% in construction costs as well as a gradual increase in the heavy renovation rate of one percentage point from baseline heavy renovation rate (varies by country) until 2035. After 2035, the heavy renovation rate declines uniformly towards 1% per year by 2050.
Source: Cournède, De Pace and Ziemann (2020[20]).

Box 1.9. Using green mortgages to support the energy upgrading of dwellings

Energy efficient, or "green", mortgages can be an important funding source for the considerable investment required to bring the energy efficiency of dwellings in line with climate targets. An energy efficient mortgage is a housing loan that incorporates incentives for existing homeowners to improve the energy efficiency of their dwelling or for buyers to acquire energy efficient properties. The incentives can be favourable financing conditions or an increased loan amount. The assessment of energy efficiency relies on an energy performance certificate (EPC).

The rationale behind energy efficient mortgages comes from their advantages for lending institutions, borrowers and policymakers; namely, they are expected to reduce the owners' payment disruption risk and improve their disposable income, increase property value, and, as a result, reduce credit risk for banks and financial institutions. Recent empirical analysis identified a negative correlation between building energy performance and credit risk (Billio et al., 2020[21]). The associated portfolio analysis shows a concentration of default in less efficient properties. The degree of energy efficiency also matters: more energy efficient buildings are associated with relatively lower risk of default, suggesting that energy efficient investments tend to improve borrowers' solvency.

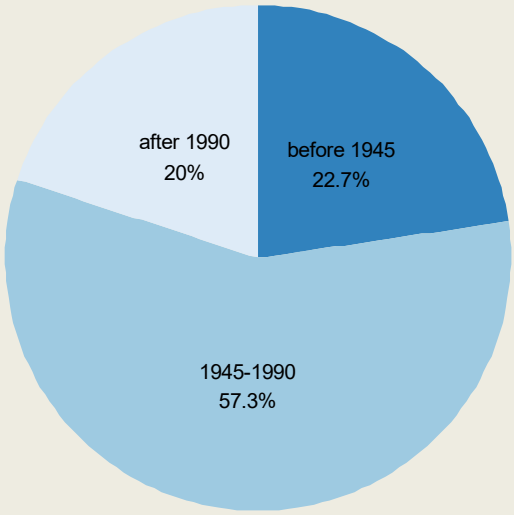
In addition, investor preferences and prudential perspectives could play a significant role in encouraging banks to support the transition to a low-carbon economy. Indeed, the origination of green mortgages allows banks to issue green bonds. The constitution of "green" portfolios based on a green retail strategy is an essential precondition for banks to develop green and Environmental, Social and Governance (ESG) funding instruments, which could support reductions in financing costs and diversification of funding bases by attracting ESG investors. At the same time, regulatory and supervisory requirements are changing rapidly, making ESG compliance a new priority for banks.

In Europe, the European Mortgage Federation-European Covered Bond Council (EMF-ECBC) launched an Energy Efficient Mortgages Initiative (EEMI) in 2015 with the aim of: (1) promoting energy efficiency investment in buildings, (2) creating a standardised green mortgage to facilitate the acquisition of energy efficient properties and the renovation of those not aligned with energy efficiency norms, and (3) evaluating the availability of energy efficient mortgage data across EU Member States, as well as gathering large-scale datasets to investigate the links between buildings' energy efficiency features, their market value and loans' probability of default and loss-given-default.

Since the introduction of Energy Performance Certificates (EPC) in 2010, mortgage markets appear to be increasingly sensitive to the energy performance of buildings and mortgage parameters are aligning to EPC classes. The challenge remains to support and scale up the renovation of the existing buildings that have poor energy efficiency performance. In Europe, about 80% of the building stock was built before 1990 (Figure 1.24), making it important to incorporate the renovation of existing building in energy efficient mortgage strategies. Poorly insulated dwellings can have dire consequences for households: 7% of Europeans and nearly 20% of the less affluent ones (defined as those living in households earning below 60% of median national income) reported that they are unable to keep their homes adequately warm in 2018. The potential for mobilising the mortgage market is considerable, because the outstanding stock of mortgages accounts for 44% of GDP in the European Union.

Efforts to improve the energy efficiency of buildings also need to reflect local conditions, given the diversity of climate across regions. For example, in Europe nearly 65% of the energy consumption of an average household is related to heating and cooling. Assessing the actual needs of households according to their place of residence therefore also gives an important indication of realistic goals in reaching energy efficiency, while at the same time providing a common set of framework conditions to identify the features a dwelling needs to possess in order to be energy efficient in a certain climate zone.

Figure 1.24. Much of the EU housing stock was built many decades ago



Source: European Mortgage Federation.

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Against this background, business-led initiatives are under way to establish a European standard for green mortgages. The EMF-ECBC in February 2021 launched the "Energy Efficient Mortgage" (EEM) label to facilitate further data collection to inform analysis of the performance of green mortgages on an ongoing basis and secure quality and transparency for market stakeholders in the gathering, processing and disclosure of EEM data. The label is expected to underpin the business case and stimulate EEM market development. In this perspective, the collection of mortgage-specific data, including on the energy efficiency parameters of the underlying dwelling, is essential to assess the "greenness" of the labelled product.

Initiatives to develop energy efficient mortgages are not limited to Europe. Efforts are under way to coordinate standards globally through an advisory council attached to the European Efficient Mortgage Initiative. In Japan, the government-owned Japan Housing Finance Agency (JHF) has been promoting energy efficiency through its mortgage programme "Flat35S", which was launched in 2005. As Japan is geographically distributed from subarctic to subtropical, the energy efficient labelling standard varies between 8 regions due to different climate conditions. The share of Flat35S financing energy efficient dwellings was about 47% of JHF's securitisation support business in 2019 or around 10% of Japan's total gross mortgage lending.

In Mexico, the Institute of the National Housing Fund for Workers (Infonavit) started issuing green mortgages in 2007. These mortgages include a top-up to the loan to allow the borrower to invest in energy-efficiency improvements. In 2014, Infonavit decided to originate only green mortgages. The impact on the market is substantial, because the number of mortgages issued by Infonavit each year (311 000 in 2019) is roughly equivalent to one-half of the net increase in the number of dwellings.

Source: European Mortgage Federation-European Covered Bond Council (EMF-ECBC); Japan Housing Finance Agency (JHF); Mexican Institute of the National Housing Fund for Workers (Infonavit).

Increases in motor fuel taxes, which reduce pollution in cities and beyond, potentially have the same upward effect on house prices over the medium term. However, this adverse impact subsides over time as the car fleet gradually becomes more fuel-efficient in response to higher fuel taxes (Chapter 7).

Improve housing policy governance to facilitate integrated responses to trade-offs

The governance of housing-related policies, from social housing to land-use to taxation, tends to be fragmented across government levels and sometimes across ministries or government agencies. This situation can complicate reforms, if public bodies with responsibility over one area, for instance land-use regulation, do not have authority in other areas, such as taxation or social housing that would allow them to design integrated reform packages. Difficulties of this nature can be tackled by reviewing the assignment of responsibilities and ensuring proper coordination across government layers and functions (Chapter 8). Integrated governance is important to provide urban policy making that is nimble and aware of linkages so that it can respond well to the lasting changes that are likely to arise in the future (see Box 1.1).

Annex 1.A1. Definitions and sources of indicators

Efficiency	
Housing loans as a share of total bank loans	Housing loans as share of total bank loans (in %). 2019 or latest year available. *Source*: OECD Resilience database.
Share of housing-related expenditures in total household spending	Housing consumption as a share of total household expenditure (in %). The indicator includes expenditure for actual and imputed rents, maintenance and repair of the dwelling. 2019 or latest year available. Source: OECD National accounts data
Residential mobility	Share of individuals that changed residence within the last 5 years (in %), 2012. *Source*: OECD Calculations based on 2012 EU SILC Data for EU countries, AHS 2013 for the United States, HILDA 2012 for Australia.
House price volatility	Standard deviation of (de-trended) real house prices (1990-2019). *Source*: OECD calculations based on OECD Analytical House Price Database.
Inclusiveness	
Housing cost overburden	Share of tenants in the bottom quintile of the income distribution spending more than 40% of disposable income on private rent. 2018 or latest year available. *Source*: OECD Affordable Housing Database.
Overcrowding rate	Share of household that does not have at its disposal a minimum number of rooms relative to their household size and composition (in %). 2018 or latest year available. The minimum number of rooms is equal to: one room for the household; one room per adult couple in the household; one room for each single person aged 18 and over; one room per pair of single persons of the same sex between 12 and 17 years of age; one room for each single person between 12 and 17 years of age and not included in the previous category; one room per pair of children under 12 years of age. *Source*: OECD Affordable Housing Database.
House price to income ratio	Average price a 100m2 dwelling divided by average household disposable income, 2017 or latest year available. *Source*: HouseLev Dataset of Price Level Estimates, 2019.
Average commuting time for work or study	Average time spent travelling to and from work or study for all 15-to-64-year-olds (in minutes per day). Latest available year, ranging from 1999 (Portugal) to 2019 (USA). *Source*: OECD Family Database and Casen 2017 for Chile.
Sustainability	
Population exposure to PM2.5 (mcg per m3)	Mean annual outdoor PM2.5 concentration weighted by population living in the relevant area, that is, the concentration level, expressed in mg/m3, to which a typical resident is exposed throughout a year. 2019. *Source*: OECD Environment database.
Housing-related emissions of PM2.5 (tons per capita)	Estimates of the annual volume of emissions of PM2.5 with respect to man-made emissions from non-industrial combustion sources, in tons per capita. 2019 or latest available year. Source: OECD Environment database.
CO2 emissions from fuel combustion in households with electricity and heat	CO2 emissions from fuel combustion (including electricity and heat) in the residential sector (in tons per capita). 2019. *Source*: CO2 emissions from fuel combustion database, IEA 2020 edition.
Residential sector energy intensity	Residential energy consumption (in tonnes of oil equivalent per capita). 2019. *Source*: CO2 emissions from fuel combustion database, IEA 2020 edition.
Urban footprint	Share of tree cover, grassland, wetland, shrubland and sparse vegetation converted into any other land cover type (in %). The loss refers to the change in land cover between 1992-2015. *Source*: OECD Environment database.
Share of green space in urban areas (in %)	Share of green space area in core functional urban areas (in %). (The indicator is computed at FUA level and aggregated using the weighted average by FUA population in 2015). *Source*: OECD calculations on OpenStreetMap data.

Policies	
Mortgage interest relief	Foregone tax revenue due to tax relief for access to homeownership (in %). 2016. *Source*: Preliminary illustrative estimates pending the publication of the final estimates of the forthcoming OECD Tax Policy Studies
Bank capital requirements for mortgage loans	Minimum regulatory Tier 1 ratio multiplied by unweighted average of risk weights for mortgage loans with an LTV ranging from 50 to 130. 2018 or latest year available. *Source*: ECB's Macroprudential Policies Evaluation Database (MaPPED) complemented by OECD own research.
Debt-service-to-income cap	Maximum debt service to income (in %). 2019. *Source*: OECD Questionnaire on Affordable and Social Housing (QuASH).
Landlord-tenant regulation stringency	Indicator capturing the intensity of regulation protecting tenants from eviction, tenure security and deposit requirement. The indicator ranges between 0 and 1 with a higher number indicating greater stringency. 2019. *Source*: OECD Questionnaire on Affordable and Social Housing (QuASH).
Loan-to-value cap	Maximum loan-to-value ratios applied to mortgage loans (in %). 2019. *Source*: OECD Questionnaire on Affordable and Social Housing (QuASH).
Marginal effective tax rate on owner occupied housing	The indicator combines information on property taxes and housing-related provisions of income taxes. It is computed as the difference between the pre and post-tax rates of return of a marginal investment divided by the pre-tax rate of return of that investment where post-tax real rate is the minimum rate of return necessary to make the investment worthwhile (in %). 2018. *Source*: Preliminary illustrative estimates pending the publication of the final estimates of the forthcoming OECD Tax Policy Studies.
Rent control stringency	Indicator reflecting on the number of regulations that restrict rent levels and rent increases, including rent freezes, rent level control, limits of decontrolling (e.g. change of tenant, new or vacant dwelling). The indicator ranges between 0 and 1, with a higher number indicating greater stringency. 2019. *Source*: OECD calculations based on OECD Questionnaire on Affordable and Social Housing (QuASH).
Social expenditure on housing	Government social expenditure on housing as a share of GDP, including housing allowances and rent subsidies (in %). 2015. *Source*: OECD Social Expenditure database.
Total government spending on housing allowances as percentage of GDP	Public spending on means- and/or income-tested housing allowances and transfers to households (in % of GDP). 2018 or latest year available. *Source*: OECD Affordable Housing dDatabase.

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Notes

[1] See for instance OECD (2018[93]).

[2] (OECD, 2020[9]).

[3] (Bétin and Ziemann, 2019[5]; Cavalleri, Cournède and Özsöğüt, 2019[29]).

[4] (OECD, 2020[28]).

[5] See Chapter 3 for impacts on resilience and Cournède, Denk and Hoeller (2015[210]) for effects on long-term economic performance.

[6] (Bayoumi and Barkema, 2019[211]; Causa et al., 2021[222]).

[7] Source : https://www.iea.org/reports/building-envelopes.

[8] User name : delegate. Password : OECDHorizontalProject.

[9] (Fack, 2006[214]; Grislain-Letrémy and Trevien, 2014[215]; Susin, 2002[216]).

[10] See Akgun, Cournède and Fournier (2017[206]) and Arnold et al. (2011[220]).

[11] Similarly, a recent study by Sommer and Sullivan (2018[51]) shows that eliminating mortgage interest relief reduces house prices and increases homeownership in the Unites States.

[12] (Matsaganis and Flevotomou, 2007[207]; Jahoda and Godarovo, 2014[208]; Figari et al., 2017[209]; Justo et al., 2019[213]).

[13] (Matsaganis and Flevotomou, 2007[207]; Jahoda and Godarovo, 2014[208]; Figari et al., 2017[209]; Justo et al., 2019[213]).

[14] (Herkenhoff, Ohanian and Prescott, 2018[192]; Hsieh and Moretti, 2019[217]).

[15] (Bétin and Ziemann, 2019[5]; Cavalleri, Cournède and Özsöğüt, 2019[29]).

[16] (Taruttis and Weber, 2020[130]).

2 Promoting Housing Affordability

House prices have risen faster than incomes in most OECD countries in recent decades, and housing costs are both the largest and fastest-growing household expense on average. The supply of affordable housing falls well short of demand: government investment in housing development has dropped by more than half since 2001, building new housing is costly, and demand for affordable housing is both growing and changing. Policy options are available to make housing more affordable.

Main policy lessons

Less than half of the OECD population, on average, reports that they are satisfied with the availability of good, affordable housing in their city or the area where they live. Affordability is a pressing challenge and central objective of housing policy in many OECD countries.

- As house prices have increased in most countries since 2005, housing is, on average, the largest spending item in household budgets and its share has grown over time.
- Many low-income households spend over 40% of their income on housing and are more likely to live in lower-quality dwellings.
- Affordable housing shortages can contribute to homelessness, which, prior to the COVID-19 pandemic, had increased in a third of OECD countries in recent years.
- Affordability gaps are more pronounced in job-rich urban areas, and many young people struggle to become homeowners.

The COVID-19 pandemic has brought renewed urgency to address persistent housing affordability and quality gaps. Many households face sudden economic losses. A number of OECD governments introduced shelter-in-place orders in the spring of 2020 to manage the immediate crisis, which were then extended – and/or further targeted as the pandemic continued.

Several directions to make housing more affordable could be considered, including:

- Invest in affordable and social housing to support an inclusive economic recovery; this would reverse a sustained decline in public investment in housing development, on average across the OECD since 2001.
- Improve the targeting of public support for housing, whilst carefully managing the expected gains with the potential trade-offs of increased targeting. This could include, for instance, phasing out tax advantages that favour homeownership and which tend to benefit higher-income households.
- Make the private rental market more affordable by removing supply bottlenecks, promoting tax neutrality between renting and owning, ensuring a better balance between landlord and tenant relations and using appropriately flexible rent stabilisation measures where relevant.

Housing affordability: Trends, drivers and policies

Assess housing affordability across different tenure and household types

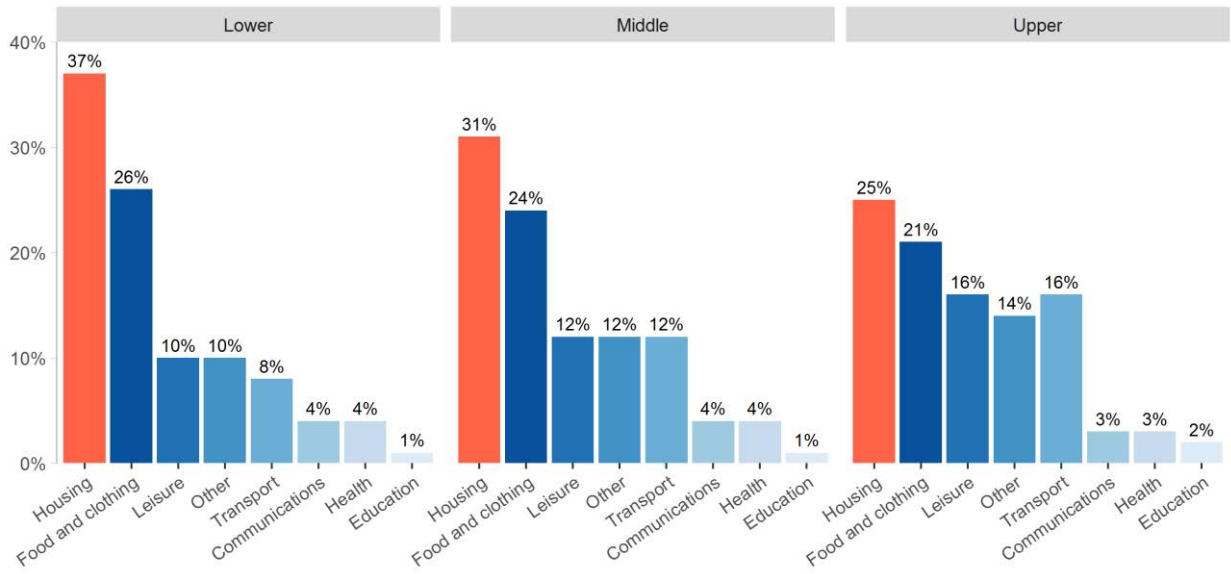
1. Housing has become less affordable for many households in the OECD area, pushing the issue to the forefront of the policy debate. Less than half of the OECD population, on average, reports that they are satisfied with the availability of good, affordable housing in their city or the area where they live (OECD AHD indicator HC1.4). Over the past two decades, as housing prices have risen in most OECD countries, households are, on average, spending a large and increasing share of their budget on housing. Challenges differ across and within countries: affordability gaps are particularly pronounced in job-rich urban areas and among low-income households, renters in the private market, and youth. While low-income and other vulnerable households have long faced this challenge, an increasing share of the middle class also face affordability issues.

Housing is the biggest spending item in household budgets

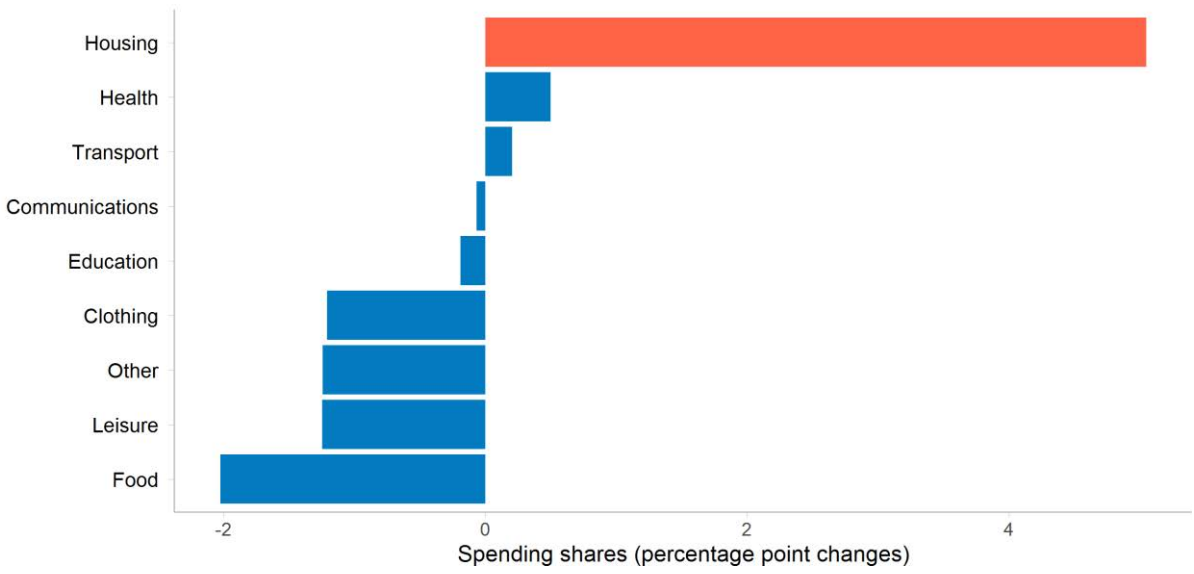
Housing is, on average, the biggest expenditure of households in the OECD, and its share in household spending has risen over time. Housing represents the single-largest budget item in household spending across all income groups, ahead of food and clothing, transport, leisure, health and education (Figure 2.1, Panel A). Moreover, households are spending more on housing than they used to: on average across 20 OECD countries the share of housing spending in household budgets rose by nearly 5 percentage points between 2005 and 2015 (Figure 2.1, Panel B). The share of household spending also increased for other key consumption items, such as transport, health care and education, over this period but to a much lesser extent. Going back even further in time (1995-2015), albeit for a smaller subset of countries, consumption estimates suggest that the share of household spending on housing has increased even further (OECD, 2020[1]).

Figure 2.1. Housing crowds out other consumption expenditures

Panel A. Household budget share by consumption item, by income class, OECD average, 2016 or latest year available



Panel B. Changes in middle-income households' spending shares averaged across 23 OECD countries between 2005 and 2015



Note: Panel A: "Lower" refers to the bottom income quintile; "upper" refers to the top quintile. Panel B: OECD-20 unweighted average refers to Austria, Belgium, Czech Republic, Finland, Germany, Greece, Hungary, Ireland, Lithuania, Luxembourg, Latvia, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden and Turkey. OECD-10 unweighted average refers to Austria, Belgium, Finland, Germany, Greece, Ireland, Luxembourg, Netherlands, Portugal and Sweden. See (OECD, 2019[2]) for household consumption data details.
Source: OECD (2019[2]).

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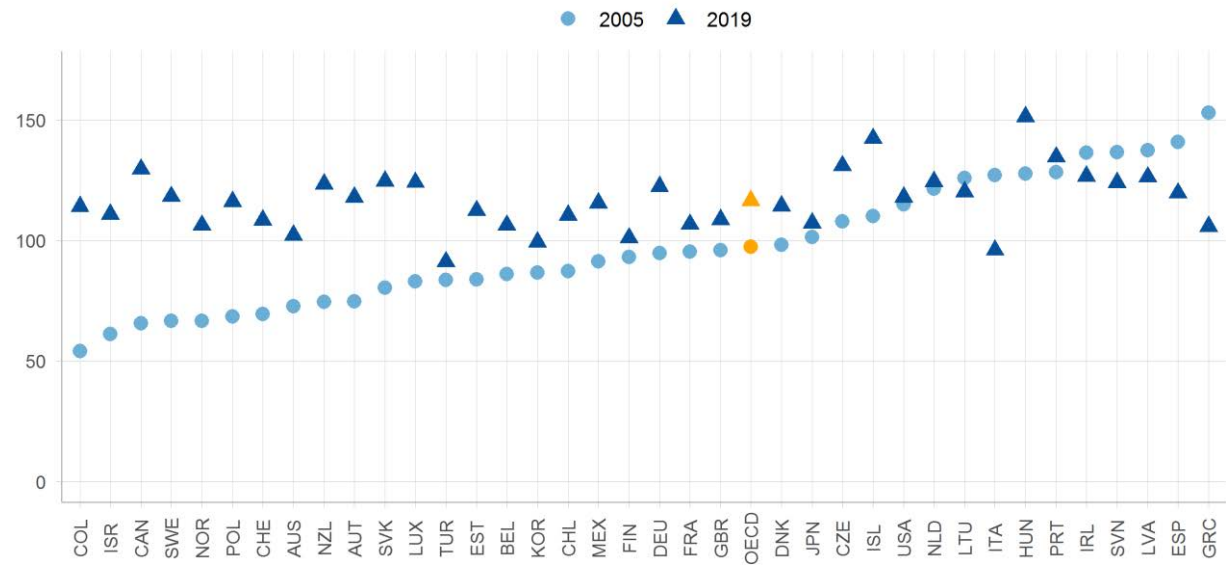
Housing costs have steadily increased, especially for renters

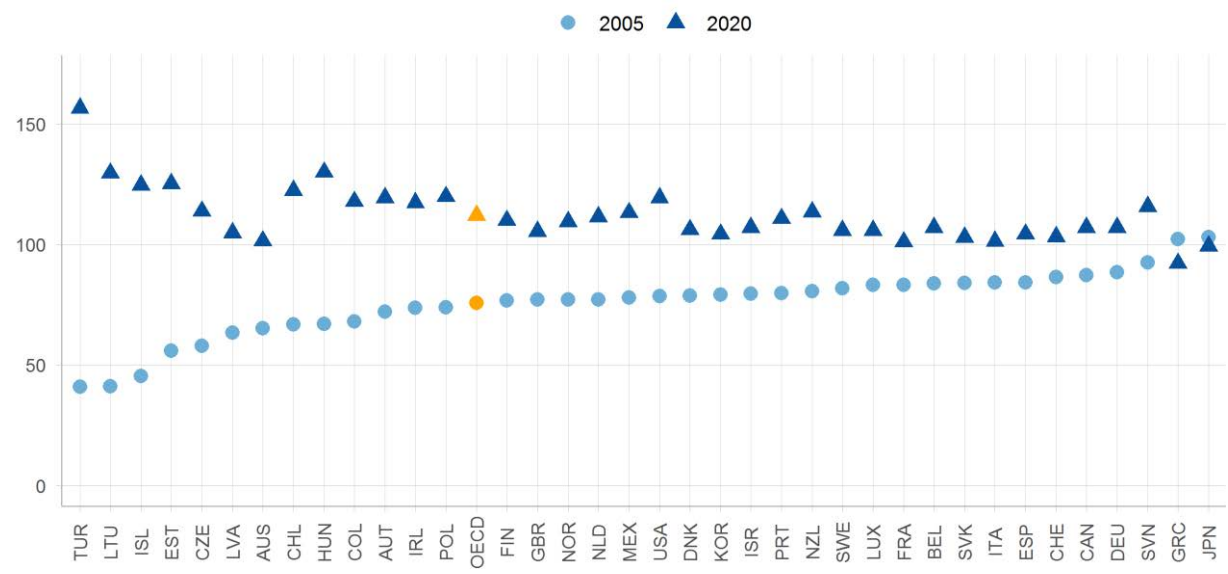
One driver of increased household spending on housing is a rise in housing costs over the past two decades, especially for renters. On average, real house prices increased in 31 OECD countries between 2005 and 2019, with Colombia, Canada and Israel recording the largest increases (over 80%) (Figure 2.2, Panel A). Just seven OECD countries recorded a drop in real house prices over this period, most significantly in Greece, Italy and Spain. Meanwhile, rents increased in all but two OECD countries between 2005 and 2020, more than doubling in Turkey, Lithuania, Iceland Estonia and South Africa (Figure 2.2, Panel B). High and rising rents make it harder for tenants to save up for a down payment to purchase a home and make them more vulnerable in the event of economic shocks, such as that caused by the COVID-19 pandemic.

Figure 2.2. House prices have increased over time in most OECD countries

Panel A. Real house price index, 2005 and 2019, 2015=100



Panel B. Rent index, 2005 and 2020, 2015=100.



Note: House price indices, also called Residential Property Prices Indices (RPPIs), are index numbers measuring the rate at which the prices of all residential properties (flats, detached houses, terraced houses, etc.) purchased by households are changing over time. Both new and existing dwellings are covered if available, independently of their final use and their previous owners. Only market prices are considered. They include the price of the land on which residential buildings are located (see (OECD et al., 2013[3])). For Panel A, 2005 data were not available in several countries; as such, data for the nearest available year were used: Latvia and Lithuania (2006), Hungary and Luxembourg (2007), the Czech Republic (2008) and Poland (2010). 2020 data were available in Canada, Iceland and Sweden; in all other countries, 2019 data were used. Real house price data for Costa Rica were not available.

Source: OECD Affordable Housing Database (http://oe.cd/ahd), indicator HM1.2. Calculations based on OECD Housing prices (indicator), https://dx.doi.org/10.1787/63008438-en.

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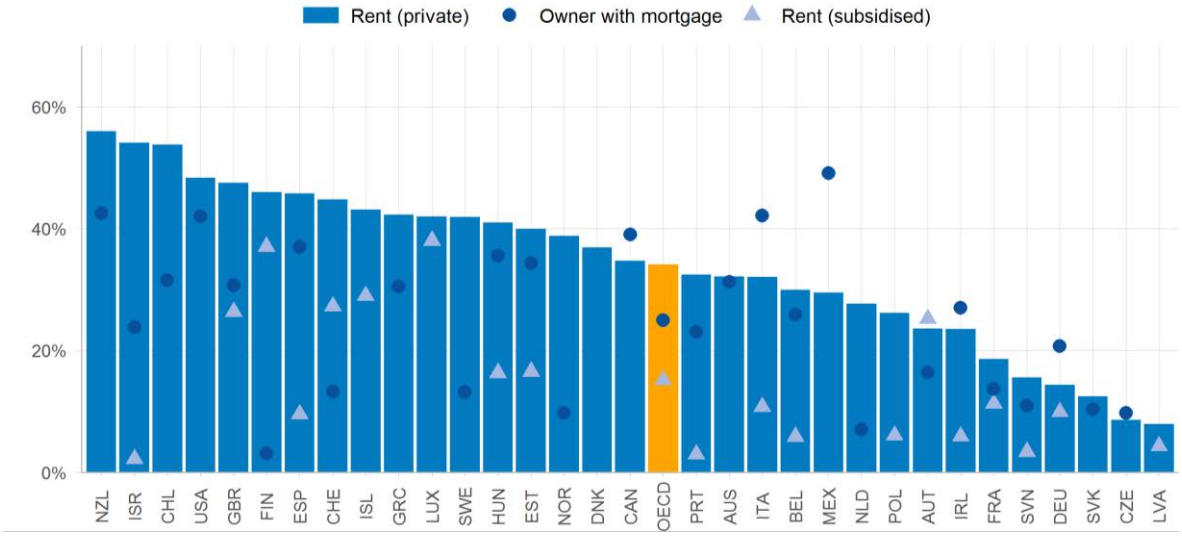
Quality gaps exacerbate the housing affordability challenge, especially among low-income households

Across the OECD, many low-income households face both housing affordability and quality gaps. A large share of households in the bottom quintile of the income distribution are "overburdened" by housing costs, in that they spend more than 40% of their disposable income on rent or mortgage payments, maintenance and utilities (Figure 2.3, Panel A). The challenge is greater for renters: on average, around a third of low-income tenants in the private rental market are overburdened by housing costs, compared to around one-quarter of low-income homeowners with a mortgage (OECD, 2020[4]). Further, since 1995, households in the bottom of the income distribution have experienced the most significant rise in spending on housing on average across countries, relative to middle- and high-income households (OECD, 2020[1]). Rising rents and a high housing cost overburden can cause households to fall behind on their monthly rental payment and face eviction: while cross-country data are scarce (Chapter 9), at least 3 million formal eviction procedures were initiated in the rental market across 17 OECD countries for which data are available (OECD (2020[4]), indicator H3.3).

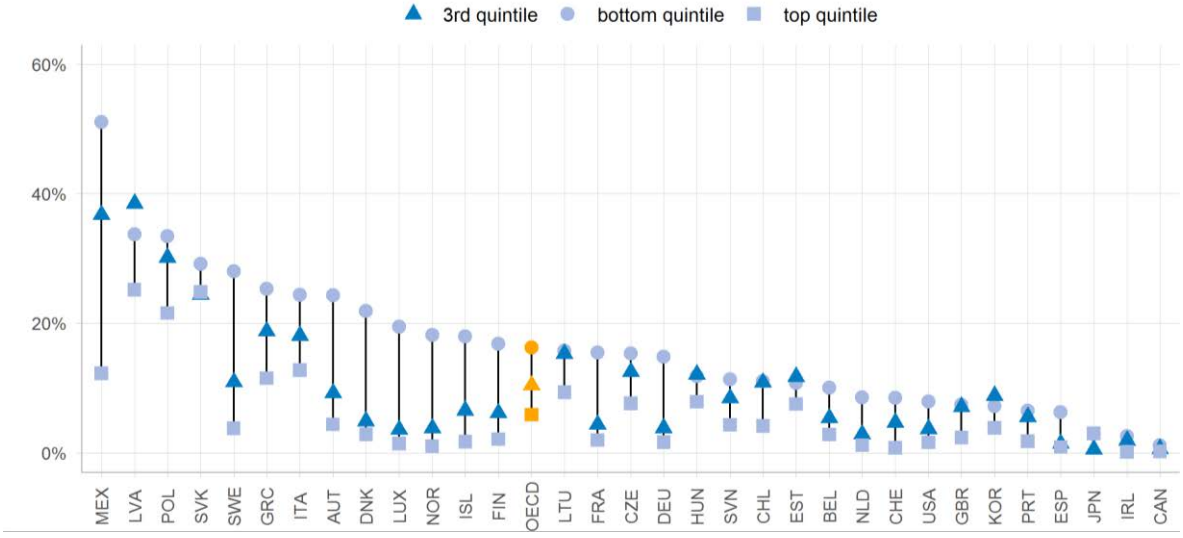
At the same time, low-income households are also more likely to live in poor quality dwellings. They may not be able to afford regular maintenance or improvements to their dwellings, while at the same time facing barriers to move to better-quality housing. In nearly all countries, households in the bottom quintile have a higher rate of overcrowding than those in the middle- or top-income quintile (Figure 2.3, Panel B). The COVID-19 pandemic renewed concerns around overcrowding among policymakers, because overcrowded conditions make it more difficult for people to effectively self-isolate, putting people at greater risk of contracting and spreading infectious diseases (OECD, 2020[5]).

Figure 2.3. Low-income households face a dual housing affordability and quality challenge

Panel A. Share of population in the bottom quintile of the income distribution spending more than 40% of disposable income on mortgage and rent, by tenure, in percent, 2019 or latest year



Panel B. Share of overcrowded households, by quintiles of the income distribution, in percent, 2019 or latest year



Note: See section "Data and comparability issues" of Indicator HC2.1 on limits to comparability across countries due to the definition of rooms.
Source: OECD Affordable Housing Database (http://www.oecd.org/housing/data/affordable-housing-database/housing-conditions.htm), indicators HC1.2 and HC2.1.

StatLink https://stat.link/1tosqm

Prior to the COVID-19 pandemic, homelessness was on the rise in a third of OECD countries

Rising housing costs is one of many factors that can lead to homelessness, which prior to the COVID-19 crisis affected at least 1.9 million people in the OECD. Pre-COVID data suggest that homelessness increased in a third of OECD countries over the past decade (Box 2.1). Homelessness estimates for 2020 are available for a few countries, but it is difficult to compare these data with previous years and across countries (see indicator HC3.1 in the OECD Affordable Housing Database). Nevertheless, official statistics likely underestimate the extent of homelessness. This is because people experience homelessness in different ways – from "sleeping rough," staying in emergency shelters or doubling up with friends and family

members – circumstances that may be more or less visible to public authorities and thus accounted for in official statistics. Moreover, some countries report an increasingly heterogeneous homeless population: while single men continue to be overrepresented among the homeless, the share of homeless youth, families with children, and seniors is growing in some countries for which data are available (OECD, 2020[6]). The COVID-19 pandemic prompted many governments to introduce emergency support measures to provide shelter and other services to homeless populations (OECD, 2020[5]; OECD, 2020[7]). At the same time, there are concerns about a potential increase in homelessness among households who continue to face economic difficulties once temporary eviction and foreclosure bans are lifted.

Box 2.1. Homelessness in the OECD

Homelessness, the most extreme form of housing and social exclusion, has emerged as a pressing challenge across the OECD.

- **The drivers of homelessness are multiple and their interaction is complex,** resulting from *structural factors*, *institutional and systemic failures* (e.g. housing instability among people transitioning out of institutional settings, such as foster care, the criminal justice system, the military or hospitals and mental health facilities), *individual circumstances* – or a combination of these. Among the different structural factors, research has identified a correlation between homelessness and rising housing costs; other studies have pointed to a link between homelessness levels and increasing rates of poverty and evictions.
- **People experience homelessness in different ways, reflecting the need for different types of support**. A small but visible share of the homeless population experiences prolonged periods of homelessness, or may transition in and out of homelessness for several weeks, months or years (typically known as the "chronically homeless"). The largest share of the homeless population in most countries is "transitionally" or "temporarily" homeless, in that they are homeless for a short period before finding a more stable housing solution.
- **The composition of the homeless population has become increasingly heterogeneous in some countries**. Traditionally, middle-aged single men have been more likely to be homeless. However, homelessness among youth, families with children, and seniors has increased in some countries for which data are available. Migrants also appear to make up a significant share of the homeless in some countries. Further, in Australia, Canada, New Zealand and the United States, Indigenous populations are overrepresented among the homeless.
- **Homelessness is, by its very nature, a difficult circumstance to assess**, as homeless individuals may be more or less "invisible" to public authorities (they are not officially registered) and support institutions. As a result, there is scope to improve information flows and expand the policy toolbox to better understand the challenges and needs of different homeless populations.
- **To effectively tackle homelessness, governments should invest in homeless prevention and provide targeted support to meet the diverse needs of people who have become homeless**. Evidence suggests that "Housing First" approaches, which provide immediate, permanent housing to the homeless, along with integrated service delivery, can be highly effective solutions for the chronically homeless. At the same time, emergency support, including rapid rehousing, can help the transitionally homeless.

1.The OECD Affordable Housing Database (indicators HC3.1 and HC3.2) and the OECD Policy Brief, "Better data and policies to fight homelessness in the OECD" document cross-national trends in homelessness and discuss the data and definitional constraints in measuring homelessness across countries.
2. There is no internationally agreed upon definition of homelessness, and countries do not define or count the homeless in the same way. There are also a number of challenges in the scope, frequency, consistency and methods of data collection that might affect measuring the full extent of homelessness.
Source: (OECD, 2020[6]).

National averages mask differences in affordability gaps across people and regions

Along with differences in affordability across countries, there are also considerable differences across population groups and regions *within* countries. For instance, on average, most young people aged 20-29, in the face of reduced opportunities in the housing market still live with their parents – with the share reaching over 70% of youth in Italy, the Slovak Republic, Greece, Slovenia, Spain and Portugal (OECD, 2020[1]). Indeed, it takes more than ten years of annual income to buy a house today, compared with less than 7 years a generation ago (OECD, 2019[2]). It is thus no surprise that young people are the most likely age group to report affordable housing as among their top three short-term concerns (OECD, 2019[8]). Empirical evidence further suggests that women are disproportionally more affected than men by high housing costs. In the US, for instance, a vast majority of the households benefitting from rental assistance or housing voucher programmes are headed by women (Quets, Duggan and Cooper, 2016[9]).

Meanwhile, housing affordability tends to be more challenging in job-rich urban areas relative to rural areas, with some countries recording large differences in house prices across cities and regions. For example, house prices have risen twice as much in inner London compared to the rest of the United Kingdom since 1995; similarly, over the same period, house prices in the Los Angeles metropolitan area increased twice as fast as those in the Chicago metropolitan area (OECD, 2020[10]). Moreover, across OECD countries, urban residents are, on average, about 10 percentage points less satisfied with the availability of quality affordable housing relative to rural residents (OECD AHD, Indicator HC1.4). National policies to make housing more affordable should thus take such demographic and regional differences into account.

Address the barriers to affordable housing

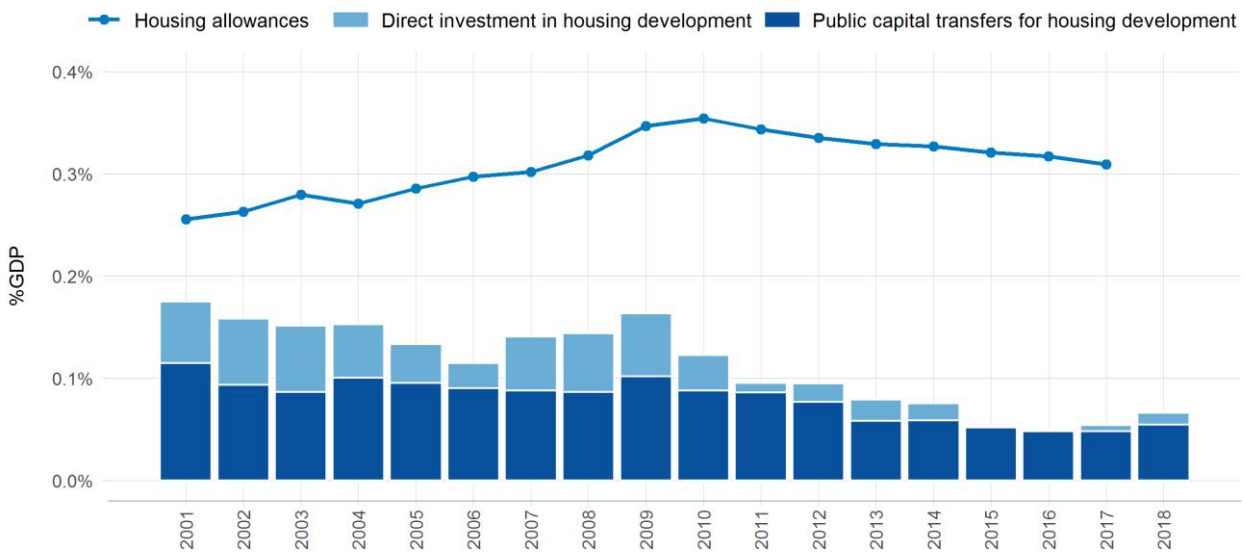
Demand for affordable housing fails to meet supply in many cases, which results from a range of factors that can vary across countries. First, on average across the OECD public investment in housing has been declining over the past two decades, while overall (public and private) investment has been uneven. Second, building housing is increasingly expensive; while there are differences across countries, some factors include land scarcity (especially in dynamic urban areas), overly restrictive land regulations and planning processes that make housing development more costly, as well as increasing construction costs, not least those related to energy efficiency and other environmental sustainability regulations. Third, demographic changes imply both growing and evolving demand for housing.

Governments are investing less in housing development

Over the past two decades, while combined public and private housing investment has been uneven across the OECD, public investment (public capital expenditure) in housing construction has dropped by more than one-half on average. Government spending on capital transfers and gross capital formation for housing development declined from around 0.17% of GDP in 2001 on average across the OECD to about 0.07% of GDP in 2018. In particular, direct public investment in dwellings has plummeted since the Global Financial Crisis, amounting to less than 0.01% of GDP in 2018. The volume of capital transfers (i.e. public transfers to organisations outside government), which makes up the bulk of public investment on housing, has fallen to a lesser extent. Nevertheless, at less than 0.1% of GDP on average since the Global Financial Crisis, overall public investment in dwellings is not high. By comparison, demand-side housing assistance, measured in terms of public expenditure on housing allowances, has risen slightly over the same period, from 0.26% of GDP in 2001 to 0.31% GDP in 2017 (Figure 2.4). Meanwhile, the share of social housing has declined in most OECD countries since 2010, further reducing the affordable housing supply for low-income households (OECD, 2020[11]).

Figure 2.4. Public investment in housing development has halved since 2001, while spending on housing allowances has risen slightly

Public capital transfers and public direct investment in housing development, and public spending on housing allowances and rent subsidies, OECD-25 average, as % GDP, 2001 to 2018



Note: The OECD-25 average is the unweighted average across the 25 OECD countries with capital transfer and gross capital formation data available from 2001. It excludes Australia, Canada, Chile, Iceland, Israel, Japan, Korea, Lithuania, New Zealand, Turkey and the United States. Direct investment in housing development (COFOG series P5_K2CG) refers to government gross capital formation in housing development. Public capital transfers for housing development (COFOG series D9CG) refers to indirect capital expenditure made through transfers to organisations outside of government. Housing development includes, among other things, the acquisition of land needed for the construction of dwellings, the construction or purchase and remodelling of dwelling units for the general public or for people with special needs, and grants or loans to support the expansion, improvement or maintenance of the housing stock. See the Eurostat Manual on sources and methods for the compilation of COFOG Statistics (https://ec.europa.eu/eurostat/documents/3859598/5917333/KS-RA-11-013-EN.PDF) for more detail. Spending on housing allowances does not include spending on mortgage relief, capital subsidies towards construction and implicit subsidies towards accommodation costs.

Source: OECD (2020[4])– indicator PH1.1, drawing on data from the OECD National Accounts Database, www.oecd.org/sdd/na/, and provisional data from OECD Social Expenditure Database, www.oecd.org/social/expenditure.htm.

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Building homes is increasingly expensive

Building new housing is a lengthy and costly process. An inelastic housing supply, resulting from a scarcity of developable land in urban areas or regulatory policies that make it harder and more costly to build, can make housing less affordable (Bétin and Ziemann, 2019[12]; Cavalleri, Cournède and Özsöğüt, 2019[13]). In particular, more stringent and decentralised land-use regulations can significantly reduce housing supply and drive up housing prices when demand increases (Bétin and Ziemann, 2019[12]; Cavalleri, Cournède and Özsöğüt, 2019[13]). Also, rising construction costs have also contributed to declining housing affordability in many countries, in part due to increasingly stringent energy efficiency and environmental sustainability regulations. In the OECD-EU area, construction costs for new residential buildings increased by over 70% between 2000 and 2019, of which labour costs alone increased by more than 110% (Eurostat, 2020[14]). Since the late 2000s, construction costs have continued to increase, but at a slower rate. In a country-wide effort to drive down construction costs, Germany, for instance, introduced a Construction Cost Reduction Commission, which resulted in over 70 recommendations for all levels of governments and the construction industry (OECD, 2020[15]).

Demand for affordable housing is growing and changing

Households are changing, which in turn affects the demand for housing. People across the OECD are living longer, and as a result, the share of single elderly households is rising. Also, marriage rates have been falling, whilst divorce rates have increased. These trends have many implications for housing demand. An ageing population and the trend towards smaller and more numerous households put further strain on housing markets where supply does not respond flexibly to evolving demand patterns. Single-person or single-parent households may find it increasingly difficult to find affordable homes in this context. An ageing population also calls for housing that is more accessible and in proximity to a range of essential services.

Urbanisation, which is projected to continue in the coming decades, changes the intensity and geography of housing demand, putting additional pressures on urban housing markets, where land and housing are already in scarce supply. As discussed in Chapter 1, housing markets respond differently to changing demand, depending to a large extent on the elasticity of housing supply. A more elastic housing supply enables a faster supply response to changes in demand; a higher supply elasticity is thus an indicator of greater economic efficiency and prevents undue increases in housing prices.

At the same time, even before the COVID-19 crisis, many households were facing housing insecurity. This has particularly been the case for households at the lower end of the income distribution. Since 1985, income has grown faster for high-income households than other social groups (OECD, 2019[16]). As a result, as house prices increase, lower-income families spend an increasing share of their budget on housing and struggle to save to buy a home or to cushion against an economic shock. Such households thus tend to be more vulnerable in a crisis. For example, in England (the United Kingdom), before the COVID-19 pandemic, a third of low-income tenants living in social housing were overburdened by housing costs, leading to 64 664 rent arrear claims taken to court by social landlords in 2019 alone, coupled with 50 845 eviction orders (OECD, 2020[11]). The pandemic has already shown signs in some countries of deepening housing instability among vulnerable households, particularly low-income renters (Box 2.2).

Box 2.2. What does the COVID-19 pandemic mean for housing affordability?

The COVID-19 pandemic renewed concerns over persistent housing affordability and quality gaps among households and will likely continue to affect housing affordability and vulnerability over the medium to long term.

Several dimensions of housing vulnerability were evident at the outset of the crisis. The pandemic, along with the shelter-in-place orders implemented to manage the crisis, elevated health and safety risks among people living in poor quality, overcrowded housing or unsafe living conditions. In addition, some households that experienced sudden income losses faced heightened housing instability, struggling to pay monthly housing expenses without assistance. In response, many OECD countries introduced emergency housing support measures, of which temporary eviction bans and mortgage holidays were most common |see, for instance, OECD (2020[5]) and (OECD, 2021[17])].

While considerable uncertainty remains, the impacts of the COVID-19 pandemic on housing outcomes will continue to be felt over the longer term. There are significant concerns over a potential surge in evictions and foreclosures once the temporary moratoria are lifted, and especially in countries where economic activity has not yet fully resumed. Preliminary evidence from the United Kingdom and the United States suggests that renters face heightened housing instability, as they are more likely than homeowners to work in the industries most affected by the pandemic (OECD, 2020[5]). For example, in February 2021, nearly one in five renters in the United States repoted having fallen behind on their rent payments – representing over 9 million people. Over 40% of these tenants in rent arrears reported that they were “very likely” or “somewhat likely” to have to leave their apartment in the next two months due to eviction; in comparison, around 17% of homeowners who were behind on their mortgage payments reported that they were likely to have to leave their home due to foreclosure in the next two months

(United States Census Bureau, 2021[18]).

Extending temporary relief may be needed in some cases to support households that continue to struggle, and to avoid a sudden increase in evictions and homelessness. Research from the United States found that moratoria on evictions and utility disconnections, where introduced, have helped to reduce COVID-19 infections and deaths (Jowers et al., 2021[19]). Such measures should nonetheless be phased out once conditions improve. There may also be an increased demand for social and affordable housing. While the pandemic demonstrated the ability of many governments to rapidly secure shelter for the homeless, including in hotel rooms that had been closed to the public, there is a pressing need to develop long-term solutions to house the homeless.

Coming out of the crisis, countries may also look towards more innovative solutions. Portugal, for example, aims to incentivise short-term holiday rental owners, which were hard-hit by the crisis, to contribute available dwellings to the country's longer-term affordable rental housing supply. Depending on whether broader shifts towards more regular teleworking materialise, demand may rise for public policies to facilitate the conversion of unused office and commercial spaces to residential uses.

Make housing more affordable

Governments could pursue several policy strategies to increase the affordable housing supply, though approaches will need to be tailored to the different challenges and policy settings across and within countries. First, governments could invest more in affordable and social housing. Second, more could be done to improve the targeting of public support for housing. Third, in many countries, there is scope to take measures that make private rentals more affordable.

Reinvigorate investment in affordable and social housing

In the wake of the COVID-19 crisis, investment in affordable and social housing can be a key part of the solution as countries chart a path towards economic recovery (Box 2.3). Australia, Canada and France, among others, have announced major investments in affordable housing since the onset of the pandemic, including AUS 6 billion (about USD 4.6 billion) for the Australian state of Victoria's "Big Housing Build"; CAD 1 billion (about USD 0.8 billion) for Canada's "Rapid Housing Initiative"; and just under EUR 3 billion (about USD 3.4 billion) towards housing investments in France's *France Relance* economic recovery plan (OECD, 2021). Meanwhile, the Dutch building sector – comprisng the 25 largest trade associations in the housing sector – signed an agreement in February 2021 to build 1 million homes by 2030. Such investments in social and affordable housing can also generate other benefits: helping to support jobs and SMEs in the building sector; underpinning residential mobility (Causa and Pichelmann, 2020[20]); and supporting efforts to prevent and reduce homelessness, particularly through 'Housing First' and integrated service delivery approaches (OECD, 2020[6]). At the same time, large-scale investment in renovations to social housing, which is a central element of the European Green Deal, can stimulate economic recovery, support environmental sustainability objectives and boost well-being among residents across the OECD and EU (OECD, 2020[11]). To deliver such investments, countries could consider developing revolving funds as part of a long-term funding strategy for housing, following the examples of Austria and Denmark, which operate through a mix of state-guaranteed and market loans (Box 2.4).

2. Investments in social and affordable housing should be part of broader efforts to build inclusive, socially mixed neighbourhoods, avoiding social and economic segregation. This means, on the one hand, bringing social and affordable housing into neighbourhoods that traditionally have not included such developments. It also means coordinated investments in existing neighbourhoods to improve infrastructure and opportunities related to edcuation, public transport, parks, culture and leisure (OECD, 2020[21]). Chile, France, Mexico and the United States have initiated largescale urban regeneration programmes, such as Chile's Neighbourhood Improvement initiative (*Recuperación de Barrios*) and France's New National Urban Renewal Programme (*Nouveau Programme National de Renouvellement Urbain*). Lessons from

OECD countries suggest that resident consultation should be an integral feature of the regeneration process to ensure that resident views and needs are better taken into account.

Reducing administrative barriers to affordable housing construction can also help to expand supply. OECD estimates that land-use reforms could facilitate the post-COVID recovery of homebuilding, better align housing supply with changing demand, and make housing markets more affordable and efficient (Cournède, De Pace and Ziemann, 2020[22]). Strategies would vary across countries, depending on specific needs and institutional settings, as would the intensity of the effects of different reform scenarios depending on planning regimes in place, but could include facilitating metropolitan or regional land-use planning, streamlining the development permitting process, making it easier to redevelop brownfields, and reforming zoning regulations. In the United States, for instance, the city of Minneapolis (Minnesota) reformed local zoning regulations in 2019, essentially abolishing single-family zoning to allow for higher-density residential development to increase housing affordability.

Box 2.3. Social housing in the OECD

Representing close to 30 million dwellings and about 6% of the total housing stock in the OECD, social rental housing is an important dimension of social welfare policy and affordable housing provision. Social housing is defined as residential rental accommodation provided at sub-market prices and allocated according to specific rules (such as identified need or waiting lists), though definitions vary across countries.[1]

There are significant cross-national differences in the size, scope, type of provider and target population of social housing:

- ***Size and evolution of the social housing stock***: In most OECD countries, social housing typically makes up less than 10% of the total dwelling stock. However, in Austria, Denmark and the Netherlands, it represents a key "third sector" in the housing market, with over 20% of all housing (Figure 2.5). In all but six countries for which data are available, the relative size of the social housing stock has declined since 2010, partly due to a decline in public investment in housing as well as the sale of social dwellings to their tenants in some countries.
- ***Types of providers***: On average, regional and municipal authorities account for around half of social housing provision in the OECD; the remainder is divided among non-profit, limited-profit or co-operative housing associations (15%), national governments (14%), for-profit providers (11%) and others.

Eligibility criteria and targeting: The eligibility criteria to access social housing is another key difference among social housing systems, which can be broadly classified as *universalist* or *targeted*. Universalist systems, in which social housing is typically open to a broad cross-section of the population, are more common in countries with a larger social housing sector. However, social housing in most OECD countries has become more targeted over time. While increased targeting can help to allocate social housing to households in need, it can pose challenges to the economic sustainability of the sector and social mixing objectives, and may exacerbate the spatial concentration of poverty and disadvantage. In any case, explicit measures to promote social mixing in the sector have had mixed results. (For a discussion of lock-in effects that may have a bearing on labour mobility, see Chapter 6.)

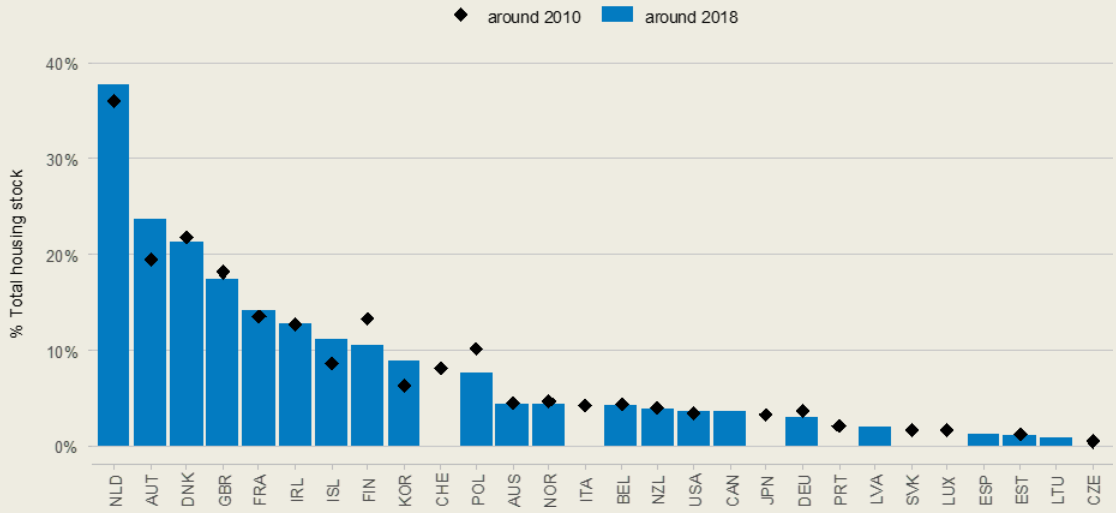
Policy makers and social housing providers face a number of challenges and trade-offs to develop an environmentally and fiscally sustainable sector that provides quality, affordable housing to those who struggle to afford housing on the private market. The investment needs to upgrade a deteriorating

social housing stock are steep in many countries, as are the costs of addressing segregation and "ghettoisation" of neighbourhoods with a high concentration of social housing. Nevertheless, these challenges have spurred major building revitalisation projects to improve the quality of dwellings and the surrounding neighbourhoods.

Investment in social housing – both to improve the quality and environmental sustainability of the existing stock, and to develop new, "green" social housing – is an essential part of an inclusive, green economic recovery.

Figure 2.5. The size of the social housing stock varies considerably across countries

Social rental dwellings, in % of the total housing stock



Note: For New Zealand, data refer to the number of social housing places (public housing) that are funded through central government, and do not include social housing provided by local authorities. For the United States, the social housing stock includes public housing, subsidised units developed through specific programmes targeting the elderly (section 202) and disabled people (section 811), as well as income-restricted units created through the Low-Income Housing Tax Credit (LIHTC) programme; the number of public housing units as well as section 202 and 811 dwellings financed through the LIHTC programme have been adjusted to avoid double-counting, following OECD correspondence with the U.S. Department of Housing and Urban Development. For Canada, data exclude units managed by the Société d'habitation du Québec (SHQ) for the Province of Quebec. Turkish data only includes social housing produced between 2002-2020 by the Housing Development Administration (TOKİ) and not those provided by local governments. For Spain, the figures may also contain other types of reduced rent housing, e.g. employer-provided dwellings. For Colombia, data only refers to social rental housing produced since 2019 in the semillero de propietarios programme.
Data refer to responses as in the 2019 QuASH except for "Around 2010" data for the Netherlands and Korea, where they refer to 2016 QuASH. "Around 2018" refers to social housing stock in 2018, except for AUT, CAN, COL, DEN and ESP (2019), NLD, FIN, AUS, NOR, USA, DEU and EST (2017), IRL, ISL, POL and ZAF (2016). "Around 2010" refers to social housing stock in 2010, except for POL (2009), CAN, NOR, ESP, NZL, USA, BEL, DEU, SVK, LUX and CZR (2011), NLD and FRA (2012) as well as CHE, JAP and EST (2013).
Source: (OECD, 2020[11]) OECD QuASH 2016, 2019; Statistik Austria (Mikrozensus 2019), Center d'Etudes en Habitat Durable de Wallonie (2016); Institut Bruxellois de Statistique et d'Analyse (2019); Korean Statistical Information Service (2020); Scottish Government (2019); Northern Ireland Housing Executive (2018); Statistics for Wales (2019); Canada Mortgage and Housing Corporation (2019); OECD exchanges with the Turkish Ministry of Environment And Urbanization and the U.S. Department of Housing and Urban Development in August 2020; Poggio and Boreiko (2017).

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1. The sector may be referred to, *inter alia*, as social or subsidised housing (Australia, Canada, Germany and the United Kingdom), public housing (Australia, United States), council housing (United Kingdom) or general housing (Denmark).
Source: (OECD, 2020[11]).

Box 2.4. Supporting long-term investments in affordable and social housing through revolving funds: The experience of Austria and Denmark

In Austria, revolving funds support the development and maintenance of the social housing stock. Approximately 40% of a typical social housing project is financed through bank mortgage loans with a maturity of 25 years (1.5% interest rate), with the remainder financed with public loans (35-year maturity and 0.5-1.5% interest rate) and equity contributions from housing associations. Also, the social housing sector received generous public financial support in the beginning, and – like much of the housing sector – continues to benefit to some extent from public transfers, in addition to other financing sources. The Limited-Profit Housing Act sets out the governance principles for housing associations, including a limitation of nominal capital paid out to shareholders of 3.5%, a calculation of prices based on actual costs, a continuous reinvestment of capital and a regular audit of the efficient use of resources and compliance with the Act. Housing associations are exempt from corporation tax for their core activities. The business model of housing associations is based on cost-recovery and a continuous re-investment of any surpluses into new construction or renovation. This means that a housing association is legally required to charge the cost it takes to build and maintain a house. All calculations are performed at the building block level, which means that each building block has to be financially viable.

Denmark's National Building Fund, created in 1967, is a key pillar of the national model to provide social and affordable housing and is largely implemented by housing associations. The National Building Fund is an independent institution outside the state budget. Funding is based on a share of tenants' rents (amounting to 2.8% annually of the total acquisition cost of the property), in addition to housing associations' contributions to mortgage loans (approximately 2% of the property acquisition cost). Payments are adjusted annually for the first 20 years after loan take-up, and then by a slightly lower rate until the 45th year, at which point rents are maintained at the reached nominal level. A share of tenants' rent is used to pay off the housing agency's mortgage loan for the first approximately 30 years, at which point the share is allocated to the state for another ten years. Once this period is over, the share is allocated to the National Building Fund.

Approximately one-third of the National Building Fund's resources are used to support the construction of new social housing. In this way, each housing organisation contributes to and can borrow from the Fund, which supports a wide range of activities, including renovations of the existing housing stock as well as social and preventive measures in vulnerable areas, the development of social master plans that are co-financed with municipalities to support interventions related to security and well-being, crime prevention, education and employment, and parental support. The development of a fiscal master plan agreed with municipalities is the precondition to access support from the Fund. The number of housing developments that have paid back their mortgages is increasing, meaning that in the coming years the resources generated by the rents can be used to pay a larger part of physical and social modernisation programmes decided upon in the sector.

Source: Adapted from OECD (2020[15]).

Improve targeting of public support towards low-income households, with attention to potential trade-offs

Governments have at their disposal a mix of demand-side supports (e.g. housing allowances, subsidies for potential homebuyers) to decrease households' housing costs, as well as supply-side interventions (e.g. subsidies and incentives to housing developers) to stimulate affordable housing construction. The majority of housing policies in OECD countries – and particularly housing taxation (OECD, 2021[23]) – tend to favour home ownership (Andrews and Caldera Sánchez, 2011[24]; Salvi del Pero et al., 2016[25]). Meanwhile, support for tenants in the private rental market is on average more piecemeal. There are many arguments in favour of public incentives to facilitate home ownership (e.g. in terms of wealth accumulation, child outcomes, social capital and social mobility (see (Andrews and Caldera Sánchez, 2011[24]). However, such support can also fail to reach households who most need support, such as low income and young households, impede mobility and crowd out other types of housing support (OECD, 2020[1]).

In a context of scarce public resources, policymakers could consider ways to improve the targeting of housing support to households in greatest need. In some countries, this could include potentially phasing out tax advantages that favour homeownership at higher income levels. Eliminating (or capping) mortgage interest rate deductibility or curtailing capital gains relief on owner-occupied housing can help make housing taxation more progressive (Causa, Woloszko and Leite, 2019[26]).Where the social housing stock is limited, it may be relevant to encourage tenants whose circumstances have improved to move to other forms of tenure, thereby making room for more economically vulnerable households. Different strategies exist, including the introduction of more regular means-testing throughout the duration of social housing tenancy, and not just at the time of entry. In addition to the practical and political challenges associated with the implementation of such measures, the negative consequences of reducing social mixing in social housing (including the potential to exacerbate the spatial concentration of vulnerable groups) should be carefully weighed against the expected gains (OECD, 2020[11]).

Make the private rental market more affordable

In many countries, governments could do more to make the private rental market more affordable to alleviate the difficulties of many low-income and vulnerable households to afford high and increasing rents. One strategy is to strike a better balance between landlords and tenants. This means, on the one hand, ensuring a secure investment for landlords and investors and, on the other, good-quality secure housing for tenants. In the case of tight rental markets, rent stabilisation measures could be one way to provide greater security to both landlords and tenants (OECD, 2020[1]). Unlike strict rent freezes, which impose a below-market rate maximum (or ceiling) on the rent, rent stabilisation measures limit the level of rent increases within (and sometimes between) tenancies. It would be important to weigh the expected benefits of such measures – which may be particularly felt by existing tenants in the short- to medium-term – against possible longer-term drawbacks, including a potential decline in the rental supply and difficulties for some future would-be tenants to rent dwellings. Nevertheless, preliminary evidence suggests that temporary protection for tenants introduced during the COVID-19 crisis, such as eviction moratoria, has been effective in reducing the spread of the disease and in keeping vulnerable households in their home (see, for example, (Jowers et al., 2021[19]) in the U.S. context). As conditions allow, such measures should be phased out gradually to limit adverse long-term effects (OECD, 2020[27]). Meanwhile, it will be important to anticipate strategies to accompany households that have accrued large housing arrears during the extended crisis period once temporary support is lifted, in order to avoid a wave of evictions and foreclosures.

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3 Enhancing Resilience

Housing markets are large, and both house price and construction cycles are subject to sharp swings. The functioning of housing markets strongly influences countries' exposure to economic crises and their capacity to recover from shocks. This chapter analyses the role that housing-related policies play in (i) mitigating or amplifying shocks and (ii) facilitating or hampering a recovery. It discusses how macro-prudential measures, rental regulation and taxation can contribute to greater economic resilience

Main policy lessons

There is a strong link between house price and construction cycles, and macroeconomic volatility. Macro-prudential, housing and tax policies provide complementary tools, which taken together can reduce the build-up of housing-related macroeconomic risks:

- Loan-to-value ratios can be effective at containing the build-up of credit risk, and tighter loan-to-value ratios are linked with a lower risk of severe downturns. However, they are also associated with slower recoveries as they constrain borrowing.
- Caps on debt-to-income ratios hold promising potential but have been used seldom, which limits possibilities to assess their effectiveness on an empirical basis.
- More demanding capital requirements for mortgage-lending institutions are associated with more moderate output fluctuations and stronger recoveries after downturns.
- Structural settings in the housing market also influence economic resilience:
  - Because it creates distortions in the housing market, tight rental market regulation is linked with higher crisis risk and more severe downturns. However, tight rental market regulation is also associated with less negative values of GDP at risk, suggesting consumption smoothing effects.
  - Higher taxation of housing (through property taxes or the treatment of housing under income tax) is linked with smoother housing cycles.

Main effects of tightening housing-related policies on resilience

	GDP at risk	Crisis risk	Severity of downturn	Strength of recovery
LTV caps		↘		↘
Capital requirements for mortgage loans		↘		↗
Rental regulation	↗	↗	↗	
Property taxation			↘	

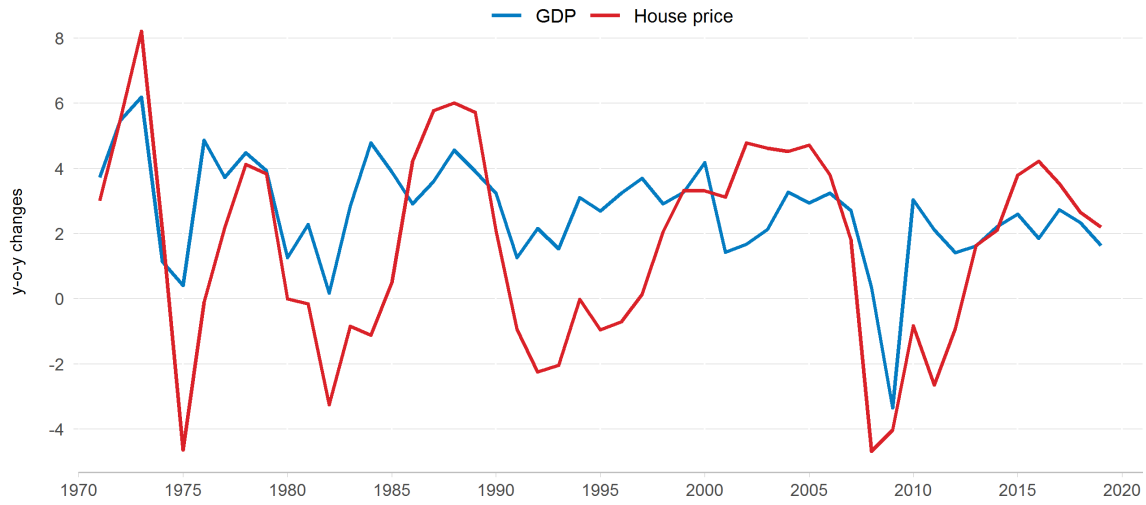
Note: The table summarises the results of OECD empirical investigations in Cournède, Sakha and Ziemann, (2019[1]). Only significant results are displayed. Tightening means increases in policy indicators, except for LTV caps where a decrease of the policy value signifies a tightening. Green arrows show favourable outcomes, red ones unfavourable outcomes.

Recognise the role of housing for economic stability

Housing markets provide a sizeable contribution to economic activity. Fluctuations in house prices and residential investment can also be large, affecting the business cycle and amplifying shocks through balance sheet effects on households and lenders (Figure 3.1).[1] In the boom phase, strong labour markets, economic growth and abundant credit supply feed strong demand, which pushes up real house prices. House price increases raise households' collateral values and their net worth, which can, in turn, boost their consumption. Higher real house prices may lead to second-round effects as they may also create expectations of further price increases, feeding back into higher demand. Relaxation of lending standards and innovations in mortgage markets may further fuel house prices, a feedback loop that was at the centre of the global financial crisis.

Figure 3.1. House prices and business cycles are tightly linked

Annual real percentage change, OECD average



Source: OECD Economic Outlook database and OECD Analytical House Price database.

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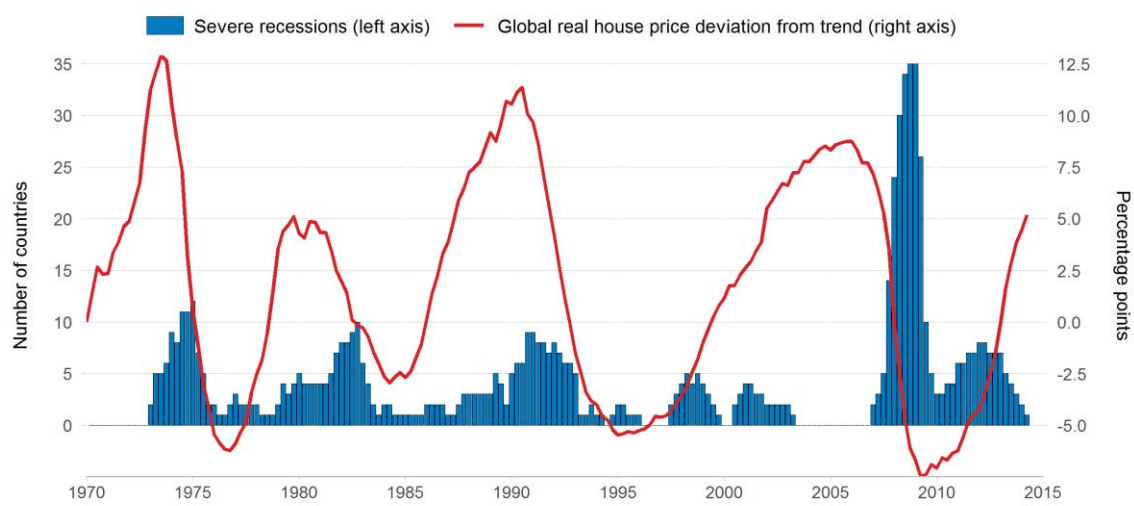
Housing market busts are characterised by the opposite developments. First, house price drops lower collateral values, which in turn increase the losses that lenders face in the event of a default with implications for financial stability. Second, household wealth and the prospects of the construction sector are negatively affected, which tends to decrease spending. This reduces overall economic activity, leading to deteriorating macroeconomic conditions and a weakening of the economic outlook and fiscal balances. Housing downturns seem to have particularly damaging effects for inclusion and productivity because of the role of homes as collateral in loans to small and new firms. Housing downturns are, therefore, often associated with severe recessions (Figure 3.2).

Figure 3.2. House price cycles have often been associated with severe recessions



Note: The light-blue areas represent the number of countries identified as being in a severe recession (from peak to trough). The global real house price index is measured in deviation from a moving average. The global real house price index is a weighted average across OECD countries.

Source: Hermansen and Röhn (2017[2]).

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Address housing threats to macroeconomic resilience

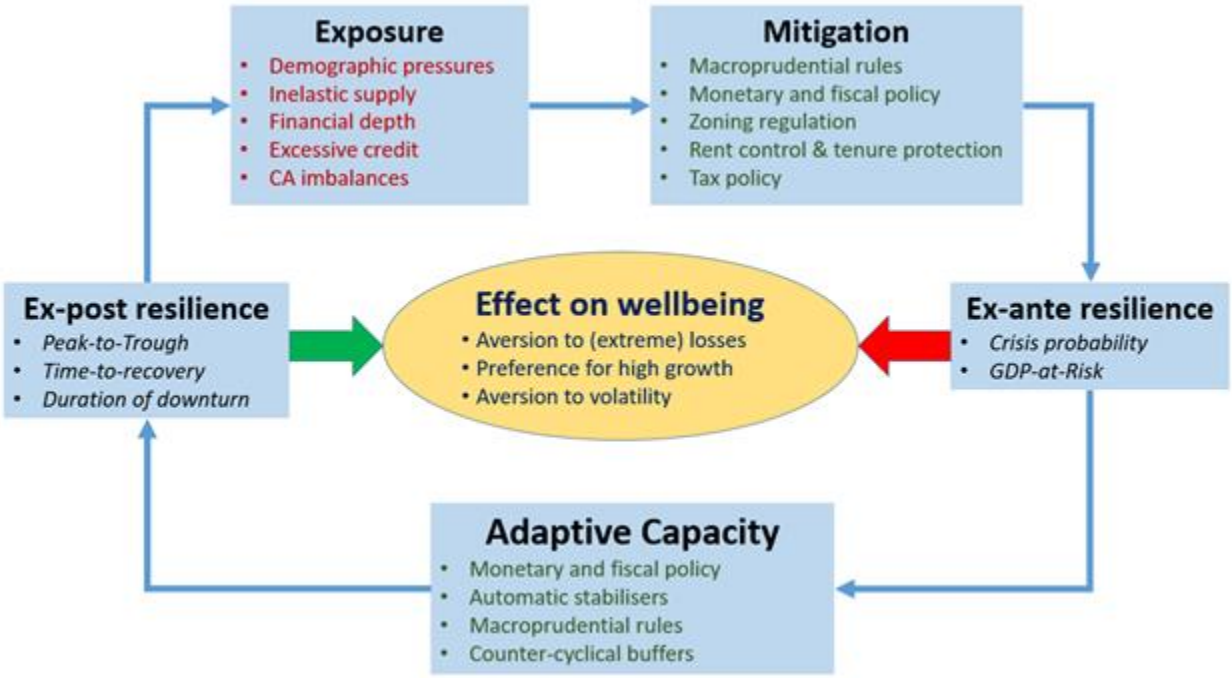
Many factors affect housing demand. These include demography, including migration, changes in disposable income, house prices, interest rates or credit conditions. Demand shocks can stem from domestic factors but also international ones such as shifts in global capital flows, which can have large effects on some housing markets (Barcelona, Converse and Wong, 2020[3]). When housing demand changes, housing supply rigidities lead to either an increase in vacant homes (negative demand shock) or scarcity (positive demand shock), which result in housing investment and house price adjustments to clear housing markets. The extent to which the housing demand shock affects prices depends on the financial cycle (e.g. initial over or under-valuation of house prices, credit conditions), policies (inelastic supply due to zoning regulations, rent control, etc.) and cyclical or structural variables (e.g. construction costs, infrastructure).

Changes in house prices influence housing demand directly, but they also have indirect effects through the financial system. Movements in house prices have a strong impact on household balance sheets. Changes in household balance sheets affect, for instance, the number of non-performing loans and loan-to-value ratios. Changes in house prices also affect consumption depending on the size and institutional set-up of mortgage markets, such as the ease with which households can borrow against the value of their home.

Housing and the broader economy interact through various channels and policy interactions that affect the build-up of vulnerabilities, the severity of crises and the economy's capacity to recover from them (Figure 3.3). An important distinction is between ex-ante (vulnerability to shocks) and ex-post (recovery from shocks) resilience.

Figure 3.3. Housing markets influence resilience through many channels

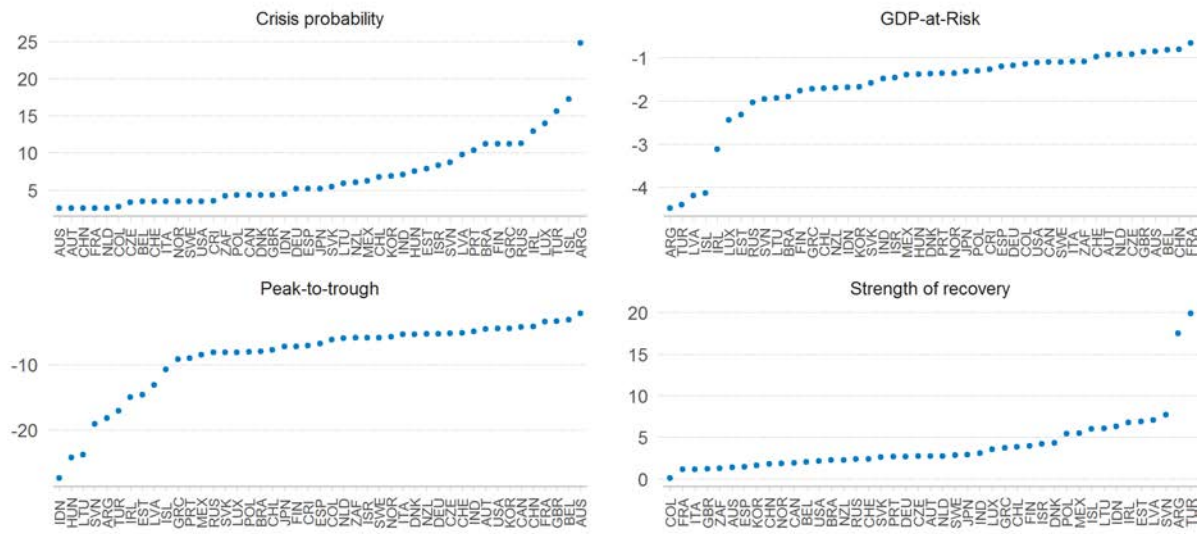
A conceptual framework



Source: Cournède, Sakha and Ziemann (2019[1]).

Both types of resilience can be gauged using a variety of indicators. For example, ex-ante resilience can be assessed by crisis probability, defined as the frequency of large downward deviations from trend, and GDP-at-risk, which measures the performance of the economy in bad times (i.e. GDP changes in the worst 5% periods). Ex-post resilience, on the other hand, can be gauged through measures of the severity of downturns (peak-to-trough changes in activity), the duration of business cycle downturns and the time needed to recover, that is, regain the pre-crisis level of output. On the basis of these indicators, cross-country evidence indeed suggests that where crisis probabilities are high, business cycle fluctuations are also high, and so is the strength of post-crisis recoveries (Figure 3.4).

Figure 3.4. Resilience differs across countries



Note: Crisis probability denotes the probability of experiencing a cumulative two percentage point decline in real GDP below its 1990-2017 trend over two consecutive quarters. GDP-at-Risk denotes the 5th percentile of the distribution of de-trended growth rate of real GDP over 1990-2017. Peaks and troughs of the deviation of GDP from its 1990-2017 trend are obtained using the Harding-Pagan (quarterly Bry-Boschan) business cycle dating procedure (Harding and Pagan, 2002[4]). Strength of recovery denotes growth over *n* quarters, *n* being the duration of the preceding downturn (period from peak to trough). Additional resilience indicators, covering business cycles (real GDP), real house price and housing investment cycles, can be found in Cournède, Sakha and Ziemann (2019[1]).
Source: Cournède, Sakha and Zieman (2019[1]).

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Deploy macroprudential tools

The main objective of macro-prudential policy is to prevent financial threats to economic stability, by restraining the build-up of systemic risks by moderating credit and asset price cycles, while ensuring the presence of sufficient buffers in the financial system. A key advantage of macro-prudential regulation is that it can be tailored to risks of specific sectors, such as housing, or loan portfolios, such as mortgages. In contrast to interest rate hikes, macro-prudential tightening need not entail a generalised reduction of economic activity, limiting the potential costs of policy intervention.

The most common macro-prudential tools include:

- Loan-to-value (LTV) caps, which limit the amount of loans below a share of the dwelling price (Figure 3.5). The experience of OECD countries shows that countries that apply tighter LTV caps face lower crisis risks (Box 1.8). However, more restrictive LTVs imply less vigorous recoveries. Besides, tightening LTV caps could in the short term involve a trade-off between financial stability and social-inclusion objectives, by making it more difficult for young households with low savings

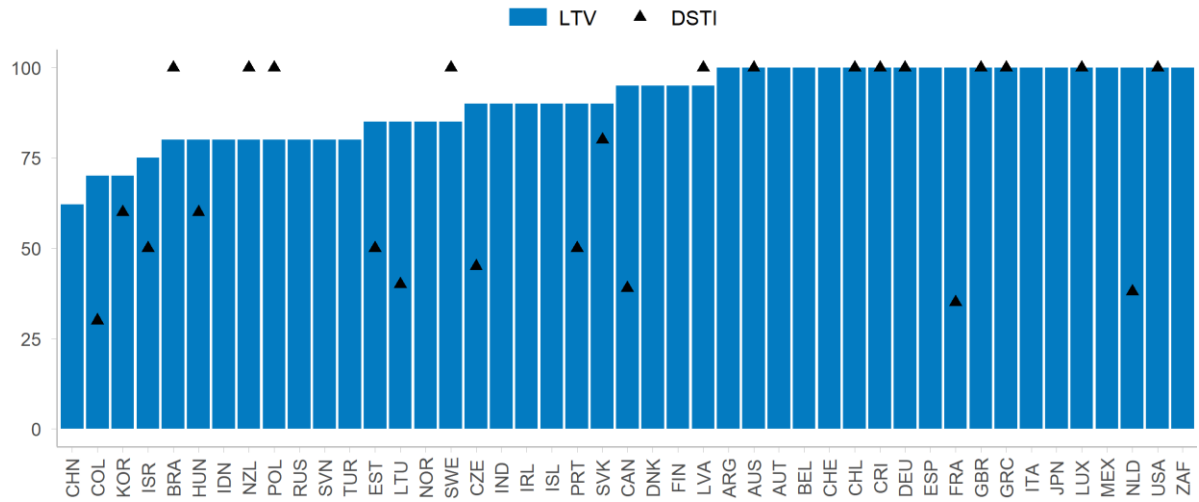
to purchase a home. In the medium-to-long term, however, lower house prices preserve the housing purchasing power of all households, including the young ones.

- Debt-service-to-income ratios (DSTIs), which require households to pay no more than a certain proportion of their income to service their housing loans. In some countries, DSTIs are based on total rather than only housing debt servicing costs.
- Loan-to-income ratios (LTIs), which limit the amount of debt to a certain fixed multiple of income, are less commonly used. They are equivalent to DSTIs for a given interest rate and repayment period but have the advantage of not becoming looser in times of booms when interest rates are low and banks offer more accommodative credit conditions.
- Risk-weighted capital requirements, which set the minimum ratio of capital that banks must hold for housing loans depending on their riskiness. The strength of this requirement is determined by the combination of minimum capital ratios and risk weights. Regulatory frameworks that require banks to hold more capital against mortgage loans are linked with a reduced crisis probability and stronger recoveries from crises.

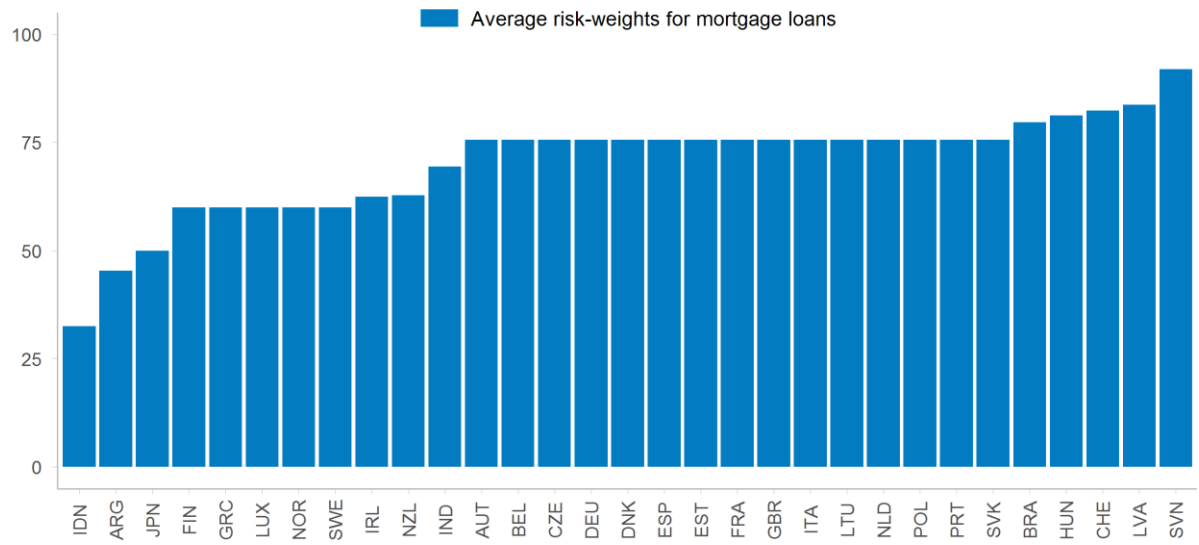
Macro-prudential policies have been used more intensively since the global financial crisis. In the aftermath of the crisis, both capital requirements and LTV caps have been mostly tightened. Since 2012, the balance is more uneven for LTV caps, as many countries loosened regulation following the euro area sovereign debt crisis. In the face of the COVID-19 crisis, countries took measures to support mortgage borrowers and lenders (Box 1.7 and OECD (2020[5])). Furthermore, policies that keep mortgage borrowing in check are unlikely to entail costs in terms of foregone housing supply: from the high levels observed in OECD countries, further housing loan expansion seems to boost prices rather than construction (Kohl, 2020[6]).

Figure 3.5. Macroprudential measures often target mortgage loans

Panel A: Borrower-targeted measures 2019



Panel B: Lender-targeted measures 2019



Note: LTV denotes maximum loan-to-value ratios. DSTI stands for maximum debt-service-to-income ratios. If no cap exists, the respective value is set to 100. Blank points or no bars signal that no information is available for the respective country. Average risk-weights are obtained as the unweighted average of risk weights for mortgage loans with LTVs ranging from 50 to 130 (since Basel II, risk weights can differ by LTV).
Source: IMF Integrated Macroprudential Policy (iMapp) Database; ESRB Macroprudential Database; OECD 2019 Questionnaire of Affordable and Social Housing; Cournède, Sakha and Ziemann (2019), "Empirical links between housing markets and economic resilience".

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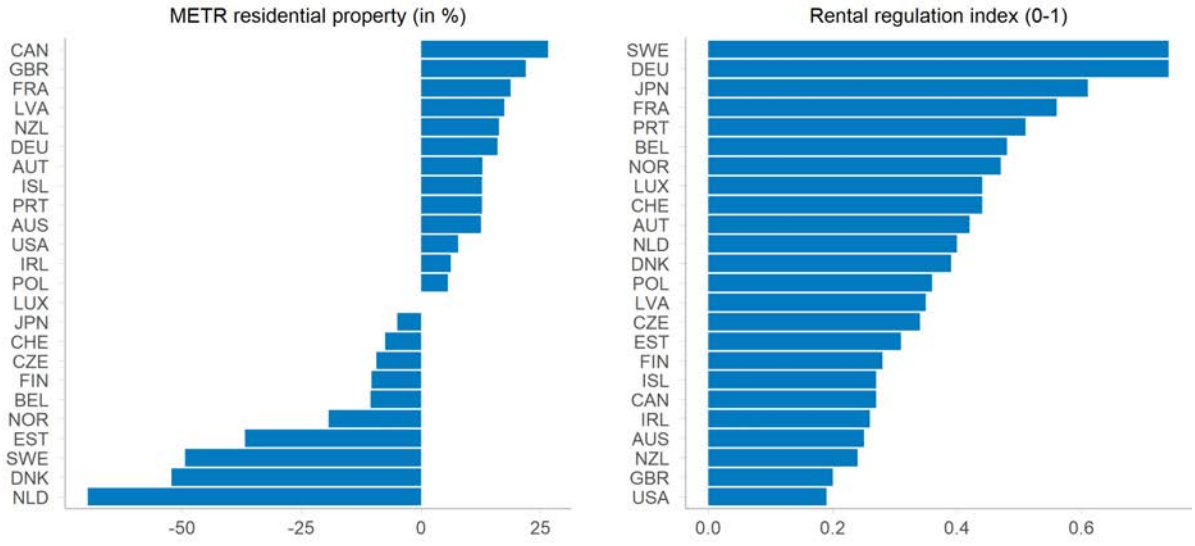
Align structural housing-related policies with the goal of economic resilience

Rental market regulation influences housing cycles

Rent controls and landlord-tenant rules have been devised for a variety of social and economic reasons, such as to provide affordable accommodation by limiting rent increases, and to balance the landlord-tenant bargaining power. However, excessively tight regulations can discourage investment in new dwellings and maintenance of the existing rental housing stock, and hamper the development of the rental market. This can lead to housing shortages, exacerbate speculative housing price bubbles and increase household debt, which poses significant vulnerabilities for macroeconomic stability and economic growth (Caldera and Johansson, 2013[7]; Cavalleri, Cournède and Özsöğüt, 2019[8]; Hermansen and Röhn, 2017[2]).

The tightness of rental market regulations varies considerably within the OECD area (Figure 3.6). Evidence suggests that tighter rental market regulations are associated with higher crisis risk and deeper business cycle downturns (Box 3.1), because they distort the adjustment of housing supply to demand, which can exacerbate the accumulation of imbalances. GDP fluctuations (measured by GDP at risk) however tend to be milder in countries with strong tenant protection as a result of the protection that such regulations provide to vulnerable tenants against the consequences of income shocks.

Figure 3.6. Rental market regulations and housing taxation vary considerably across countries



Note: METR stands for "marginal effective tax rate" for owner-occupied, debt-financed housing investments. The indicator is a preliminary 2019 update of (OECD, 2018), "Taxation of Household Savings". The final version will be released as Brys et al. (2021[9]). The rental regulation index comprises rent control and tenure security items of the 2019 OECD Questionnaire on Affordable and Social Housing and ranges from 0 (no restrictions) to 1 (all types of restrictions).
Source: Cournède, De Pace and Ziemann (2020[10]).

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Box 3.1. Empirical evidence of the influence of housing policies on economic resilience

Links between policies and ex-ante resilience

Macroprudential policies lower severe-downturn probabilities, a key component of ex-ante resilience. Probit regressions show that severe-downturn probabilities are lower in countries that implement tighter macroprudential measures (loan-to-value caps and capital requirements). This result is in line with the earlier economic literature, which finds a moderating effect of macroprudential measures on the build-up of housing booms and credit risk. This reduced probability of crises is not matched by a reduction in GDP at risk, the lowest 5% of the distribution of growth outcomes, as house price booms and credit bubbles typically build up slowly and burst with a protracted downturn (rather than frequent occurrences of very weak GDP growth).

A significant relationship is also found between rent regulations and ex ante resilience indicators. Quantile regressions indicate that tighter rent regulations are associated with a lower dispersion of growth outcomes, suggesting that they smooth household consumption. However, rent regulations are also linked with a greater risk of severe downturns. This link is consistent with the view that overly tight rent regulations (by creating disincentives to rent out existing properties or build rentals) create a bias towards home ownership, which in turn can result in excessive mortgage borrowing. By reducing the expected rental value of dwellings, they also contribute to a lower responsiveness of supply, exacerbating the risk of housing market boom-bust cycles.

Links between policies and ex-post resilience

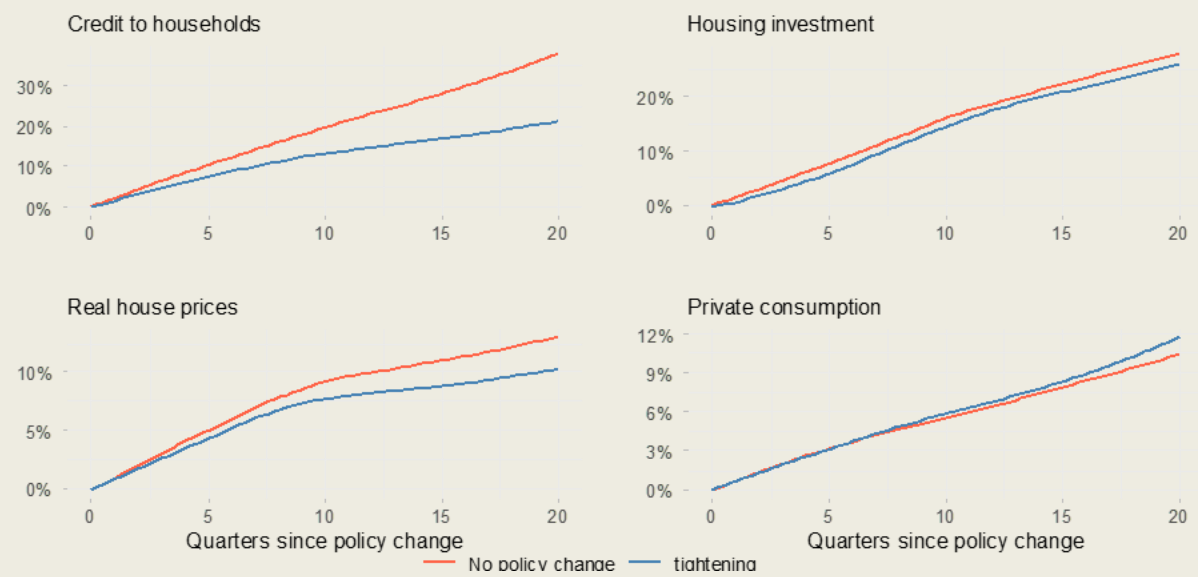
Ex-post resilience measures and indicators of the housing cycle have been related to macroprudential and housing policy indicators using pooled regressions. The results indicate that:

- Tighter LTV caps are associated with shorter booms and milder downturns but more sluggish recoveries.
- Tighter capital requirements are also linked with shallower cycles, but by contrast with LTV caps, they appear to be associated with stronger recoveries.
- More stringent rental market regulations are associated with shorter and less pronounced booms but also shallower downturns, which would suggest that they might provide a certain degree of smoothing through the protection they offer.
- Higher levels of property taxation are also linked with a more limited amplitude of business cycles, also pointing to a smoothing role.

Additional research have investigated the causality that runs from policy changes to real, financial and housing variables. The impact of a policy change on real, financial and housing variables has been assessed using propensity-score matching techniques, which enable comparing the countries where policy changes occurred to similar countries that left policies unchanged. The idea is to compare two episodes that are as similar as possible, one with a policy change (treatment) and one without (control). The policy change can then be considered as exogenous, so that observed differences in outcomes between the treatment and control groups can be attributed to the policy change.

The empirical analysis suggests that tightening LTV caps curbs credit to households and slows real house prices. Furthermore, there appears to be no sizeable impact on private consumption or aggregate output. These two sets of results point to stabilisation benefits of LTV caps with no significant macroeconomic costs.

Figure 3.7. Tightening LTV caps usually reduces credit and house price growth



Note: The treatment group consists of episodes where countries tightened their LTV caps at time=0. The control group comprises episodes where countries did not implement such a policy change although their conditions were otherwise similar. This treatment group has been determined by propensity matching techniques using a probit model with real and financial variables as covariates. The lines show averages for each group.
Source: Cournède, Sakha and Ziemann (2019[1]).

Property taxation can also have an effect on housing market dynamics

Housing markets are affected differently by different tax instruments. For example, stamp duties can slow down house price rises by reducing the expected returns on speculative house purchases. Higher stamp duties therefore reduce housing transaction volumes, but they also raise housing transaction costs and can lead to a lock-in effect, which poses an obstacle to reallocation in the labour market (see Chapter 6). By contrast, recurring taxes on property are broadly neutral with respect to the cyclical behaviour of housing markets and economic resilience. Their main effect is to reduce the size of the housing market, by making housing more expensive. As a result, it is important to gauge the combined effect of all tax instruments, rather than that of individual instruments, through marginal effective tax rates (METR) on owner-occupied and rental housing (Figure 3.6).

METRs are derived as the difference between the pre and post-tax rates of return of a marginal investment divided by the cost of capital of that investment where the post-tax real rate is the minimum rate of return necessary to make the investment worthwhile (OECD, 2018[11]). Overall property taxation (measured by the METRs) generally smooths business cycles: higher METRs are associated with a reduced severity of downturns (Box 3.1).

Supply responsiveness also has implications for economic resilience

The responsiveness of housing supply to changes in demand is influenced by policies, such as rental market regulations and land-use, which influence the dynamics of housing cycles. Indeed, countries where housing supply responds more strongly to demand have higher volatility of homebuilding (Cavalleri, Cournède and Özsöğüt, 2019[8]).

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Notes

[1] This chapter provides policy insights on the effect of housing on economic stability based on two background papers, which also provide detailed bibliographic references (Cournède, Sakha and Ziemann, 2019[43]; Cavalleri, Cournède and Ziemann, 2019[2]).

4 Boosting Housing Market Efficiency

The economy's capacity to align housing supply with demand is crucial to limit excessive price and rent increases, contribute to macroeconomic stability and facilitate residential mobility. This chapter focusses on the fundamental drivers of housing supply and demand to assess the relevance of housing policies in pursuing housing affordability. Simulations illustrate the expected benefits from adopting best practices in terms of rental market regulations, property taxation and the governance of land-use. The chapter concludes with a discussion of potential risks and benefits for housing affordability induced by the ongoing transformation, accelerated by the COVID-19 crisis, towards smart cities, urban sprawl and decarbonisation.

Main policy lessons

In many OECD countries, house prices have risen faster than income over the past three decades, gradually eroding housing affordability. Furthermore, the need to cut greenhouse gas emissions in line with agreed targets calls for changes in how homes are built, heated, cooled and supplied with electricity. Simultaneously, the digital transformation, particularly the emergence of short-term rental platforms, affects how the housing stock is used. These underlying trends raise questions about the future of housing.

There is scope for reforming housing policies to make housing markets more efficient:

- Removing mortgage interest relief would make homeownership less desirable relative to other tenure options and therefore ease price pressures: phasing out this tax advantage could decrease average real house prices by more than two years of average household disposable income in several countries.
- Making land-use decisions at more decentralised levels of government and avoiding responsibility overlaps could make housing supply more responsive to demand and reduce average house prices by more than half a year of average household disposable income in some countries.
- Easing rental market regulations in places where land-use regulation is flexible encourages residential investment, raises supply and helps to keep house prices in check relative to incomes.

The necessary deep energy-efficiency upgrading of the housing stock is most likely to involve substantial costs. Policy settings ensuring flexible supply adjustments are important to avoid amplifying these costs.

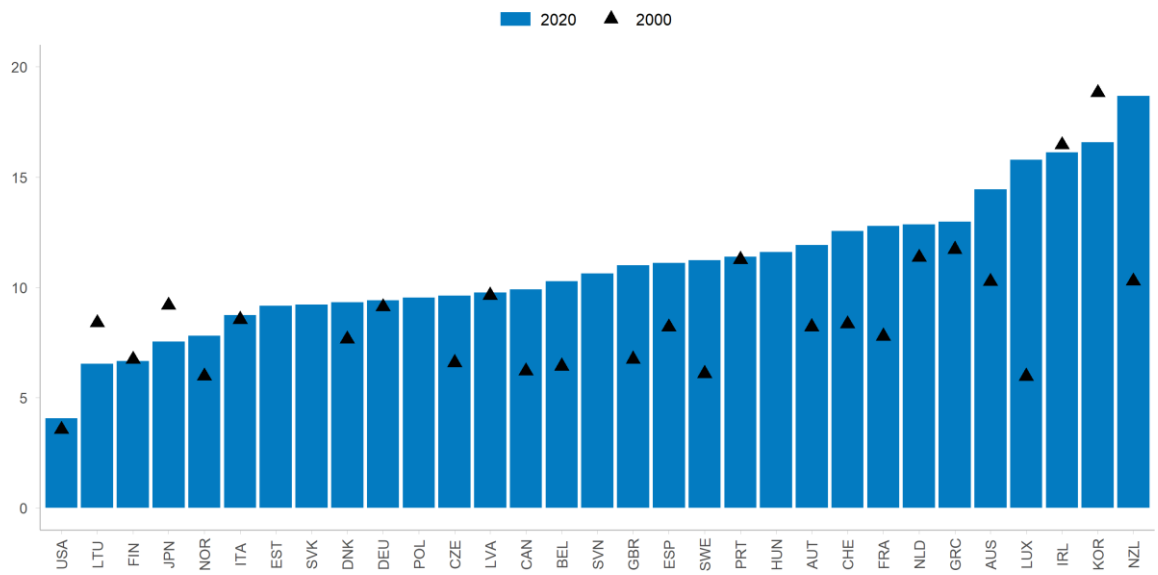
Make housing affordable

Rising house prices create socio-economic challenges

House prices have risen faster than incomes over the past two decades in many countries (Figure 4.1). This stands in stark contrast with earlier historical developments: house prices rose faster than income in the second half of the 19th century in many European countries but roughly in step or even less so than real construction costs in the first half of the 20th century. The massive destruction of housing capital during World War II alongside rising demand amid the baby boom period generation pushed real house prices up in the aftermath of the war. Most countries experienced a sharp acceleration in house prices since the mid-1980s, with notable exceptions in Japan and Germany, which experienced no demographic pressure. Historically low real interest rates have cushioned the impact of higher house prices on affordability but in most countries only in part (see Chapters 1 and 2).

Figure 4.1. House price-to-income ratios have risen in most countries

Number of years over which cumulated average household disposable income equals the average price of a 100m² dwelling



Note: The choice of fixed-size (100m²) dwelling is made to ease cross-country comparisons.
Source: Bricongne, Turrini and Pontuch (2019[1]) and OECD calculations.

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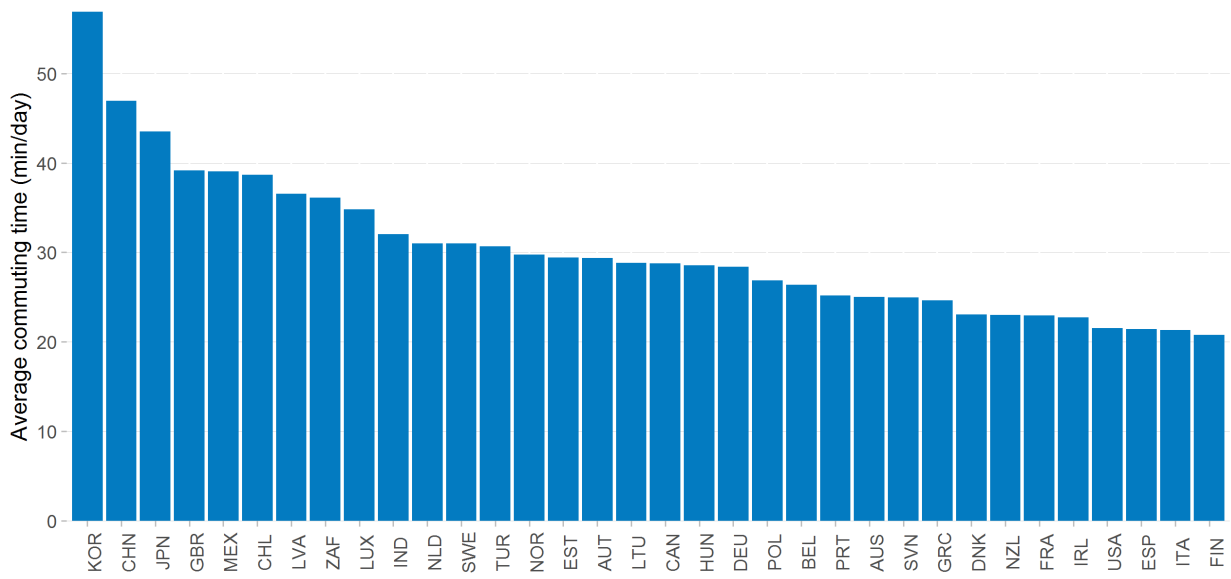
Average house prices can hide marked regional differences. Figure 1.6 highlights the scale of diverging house prices within countries. Recent research has pointed at several natural and man-made construction obstacles (Bétin and Ziemann, 2019[2]). In areas where housing demand is strong, these obstacles become binding constraints and push up house prices. These dynamics also occur within regions, for instance, between highly demanded city centres and areas in the corresponding commuting zones. Such divergences favour segregation between those than can afford a dwelling close to economic and social activity and those that cannot. Segregation has dire consequences for current and future generations as it undermines equality of opportunity and depresses intergenerational mobility.

One way to assess the extent of segregation is to compare commuting times between privileged citizens who can afford living close to good-paying jobs and unprivileged citizens that accept the burden of long commuting times. A caveat is that the relationship between commuting times and segregation is likely to be non-linear and multi-faceted. For instance, low average commuting times could also reflect very high segregation if good-paying jobs are simply not accessible from disfavoured neighbourhoods due to an inadequate public transport system or socio-demographic barriers. Nonetheless, average commuting times reflect inefficiencies in spatially aligning housing demand and supply and are a measure for many citizens' difficulty to move close to the centre of economic and social activity, often due to unaffordable housing in these areas. Figure 4.2 indicates that commuting times vary considerably across countries ranging from more than 50 minutes per day on average in Korea to less than 20 minutes in Sweden.

Figure 4.2. Average commuting times vary considerably across countries



Note: Average time spent travelling to and from work or study for all 15-to-64-year-olds (in minutes per day), except for Australia (15+ year olds), Lithuania (20-64 year olds) and China (15-74 year olds). The reference year for the countries are:
Australia: 2006; Austria: 2008-09; Belgium: 2013; Canada: 2015; China: 2008; Denmark: 2001; Estonia: 2009-10; Finland: 2009-10; France: 2009-10; Germany: 2012-13; Greece: 2013; Hungary: 2010; India: 1998-99; Italy: 2013-14; Ireland: 2005; Japan: 2016; Korea: 2014; Latvia: 2003; Lithuania: 2003; Luxembourg: 2013; Mexico: 2014; Netherlands: 2016; New Zealand: 2009-10; Norway: 2010-11; Poland: 2013; Portugal: 1999; Slovenia: 2000-01; South Africa: 2010; Spain: 2009-10; Sweden: 2010; Turkey: 2014-15; United Kingdom: 2014-15; and United States: 2019.
Source: OECD Family Database and Casen (2017) for Chile.

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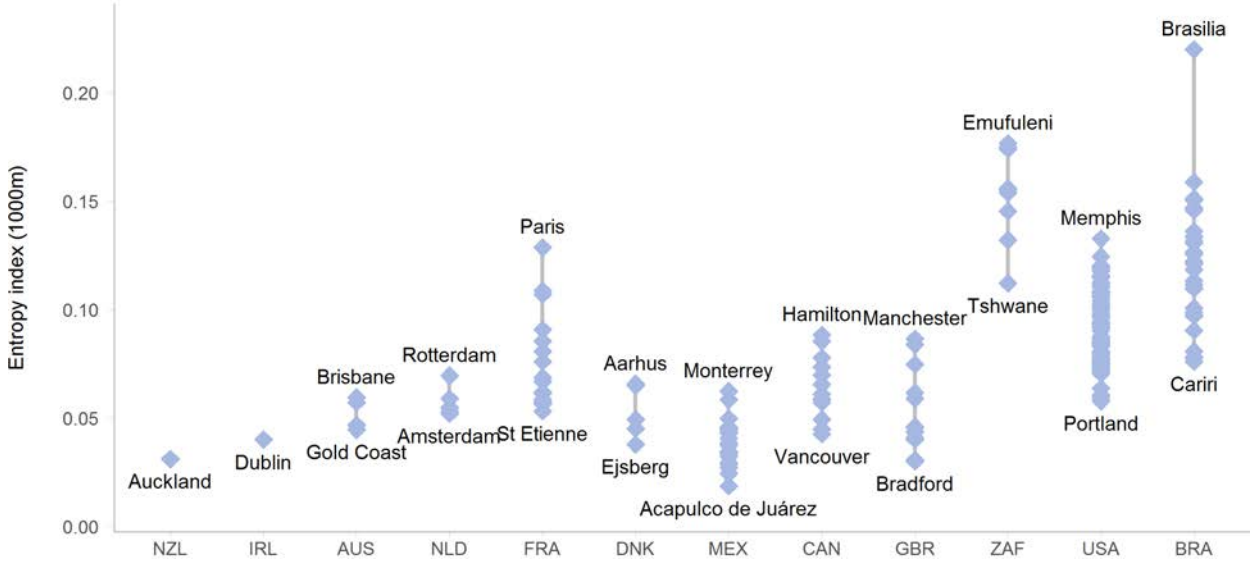
A more direct measure for segregation consists of assessing the concentration of income groups or, in other words, the sorting by income within urban areas. Based on highly disaggregated household income data for 12 countries, OECD research has developed entropy-based segregation indicators that measure how households at different income levels are spatially distributed within cities (OECD, 2018[3])[1]. High entropy signals a high level of segregation, low entropy a more uniform distribution of income groups across the city, hence a lower level of segregation. Figure 4.3 shows the dispersion of the entropy measures for urban areas across 12 countries. The results suggest that cities that combine strong demand for housing coupled with constrained supply, especially in the core urban areas, exhibit a high level of segregation (Paris, Brasilia) while cities that have sprawled rather than densified show lower levels of segregation (Auckland).

Figure 4.3. Segregation in high in many metropolitan areas



Note: Data refer to 2014 for the United States; 2013 for Denmark and New Zealand; 2011 for Brazil, Canada, France, Ireland, United Kingdom and South Africa; 2010 for Australia; 2008 for the Netherlands; 2000 for Mexico. National definitions of urban areas have been used in the case of Brazil, New Zealand, and South Africa as the EC-OECD FUA definition was not available for those countries.
Source: Divided Cities: Understanding Income Segregation in OECD Metropolitan Areas (OECD, 2018[3])

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Policies affect both demand for and supply of housing

On the one hand, housing markets are local, which would suggest that national housing policies are less suitable for making housing markets more efficient. On the other hand, housing market efficiency turns out to follow national patterns, as regional supply elasticities positively correlate with national supply elasticities (Bétin and Ziemann, 2019[2]) corroborating evidence that policies do affect housing market efficiency. This chapter investigates the impact of housing policies on house prices using a stock-flow housing model. It explores how policies affect the relationship between demand for and supply of housing and provides a set of scenarios for the future of housing.

The empirical framework for the scenarios builds on two recent OECD studies, which developed demand and supply elasticities for national and regional housing markets in a panel of OECD countries (Bétin and Ziemann, 2019[2]; Cavalleri, Cournède and Özsöğüt, 2019[4]). In this housing demand and supply framework, changes in demographics, per capita income or real interest rates generate shifts in housing demand, which in turn affect house prices. Developers then adjust supply according to price signals and construction costs. Income elasticities of house prices and price elasticities of residential construction jointly determine how much of a change in demand feeds into prices and how much into construction. The housing stock depends on depreciation, which is lower for housing than for most other types of capital and new construction. The resulting changes in the housing capital stock feed back into house prices.

Accordingly, housing affordability hinges on the housing sector's capacity to absorb demand pressures through the responsive supply of new dwellings and through the renewing of the existing housing capital stock to meet the quality requirements of its time. Policymakers face a complex web of interactions between fundamental drivers of housing demand, institutional settings and housing-related policies. There is indeed ample evidence that many housing policies have a considerable effect on the efficiency and the functioning of housing markets. Eliminating mortgage interest deduction, for instance, is found to attenuate

house prices increases, reduce the housing stock, increase homeownership, decrease mortgage debt and improve welfare (Sommer and Sullivan, 2018[5]; Alpanda and Zubairy, 2016[6]; US Council of Economic Advisers, 2017[7]). Recent investigations confirm these findings and find that a higher marginal effective tax rate (METR) on residential property reduces the income elasticity of house prices (Cavalleri, Cournède and Özsöğüt, 2019[4]). Hence, reducing income tax breaks for home buying offers the benefit that an increase in demand will have a smaller effect on house prices.

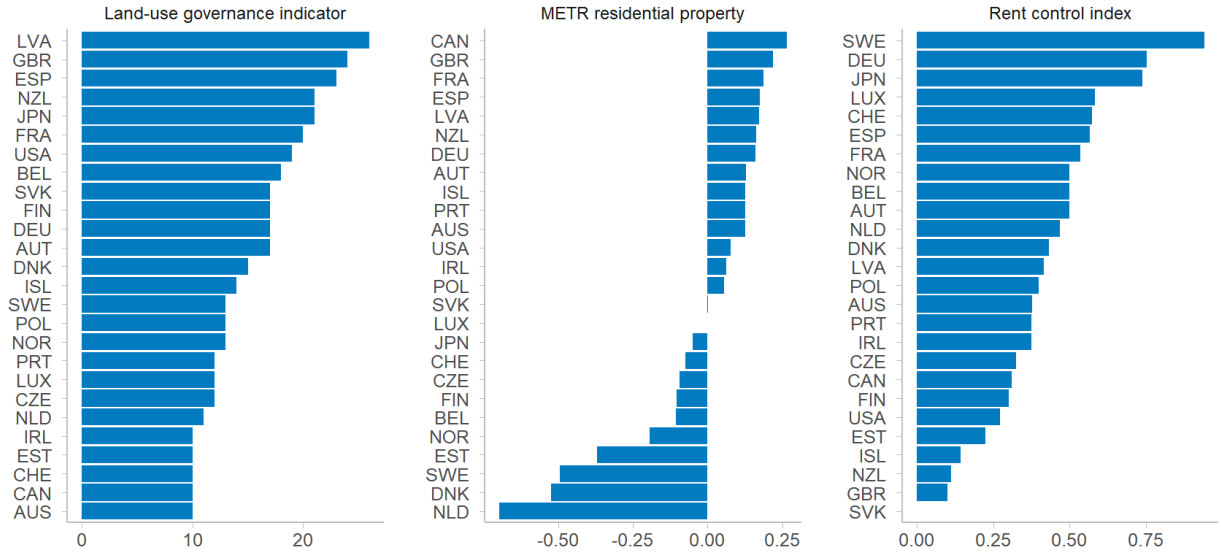
Another avenue for efficiency improvements lies in the reform of land-use policies. Its governance varies markedly across OECD countries (OECD, 2017[8]). A high degree of decentralisation of land-use decisions is generally associated with more restrictive land-use policy settings consistent with the home-voter hypothesis, which predicts that homeowners turn to local politicians to protect the value of their housing investment by restricting the additional development of land (Fischel, 2001[9]; Gyourko and Molloy, 2015[10]). Co-ordination at a higher level of administration, for instance at the metropolitan level, is found to facilitate the densification of cities by limiting urban sprawl and the development of greenfield land (Ahrend, Gamper and Schumann, 2014[11]). Responsibility overlaps, on the other hand, are associated with more stringency and delay as several levels of government can veto projects and political economy pressures intensify (Gyourko, Saiz and Summers, 2008[12]).

Similarly, strict rental market regulation inhibits new construction, in places where land-use regulation allows it, by reducing the incentives to invest in rental housing. The reasons are that rent controls lower rental revenues and landlord-tenant restrictions complicate the sale of rented real estate properties (Kholodilin and Kohl, 2020[13]). Diamond, McQuade and Qian (2019[14]) estimate that rent control in San Francisco reduces housing supply by as much as 15 percentage points. Cavalleri, Cournède and Özsöğüt (2019[4]) find that the house price elasticity of residential construction is considerably lower in the case of stringent rental market regulation. In the long run, higher house prices and insufficient supply impede access to homeownership, increase both rents and home prices, and are thereby likely to offset short-term benefits for rent-paying low-income households. However, easing tenant regulations poses real risks of increased numbers of evictions, which in turn can raise the likelihood of a range of life adversities for tenants, including homelessness (Kenna et al., 2016[15]). For example, countries with rather liberal rental market regulation, such as the United States and Canada, see vastly more eviction processes and issued eviction orders than other countries with more strict rental regulation (see Indicator HC3.3 in OECD (2020[16])).

Housing policies differ markedly across countries

The research presented in this chapter uses newly developed indices for the governance of land-use policy (Cavalleri, Cournède and Özsöğüt, 2019[4]) and the restrictiveness of rent control, both derived from the 2019 OECD Questionnaire on Affordable and Social Housing (QuASH). The governance indicator assesses the organisation of land-use decision-making processes across different levels of government. Higher values reflect more overlap (i.e. different government levels have similar responsibilities) and/or more fragmentation (i.e. decision-making responsibilities are split across municipalities or districts rather than integrated at metropolitan level). The rent control index summarises the extent of restrictions on setting the rent level initially, up-dating it and passing costs (such as renovation expenses) onto tenants. Figure 4.4 depicts these indicators for 27 countries for which all indicators are available.

Figure 4.4. Selected housing policy indicators



Note: The governance of land-use indicator ranges from 0 to 30 (least to most overlap and fragmentation in decision making) according to answers to the 2019 OECD Questionnaire on Affordable and Social Housing. METR stands for "marginal effective tax rate" for owner-occupied, debt-financed housing investments. The indicator is a preliminary 2019 update of OECD (2018[17]), *Taxation of Household Savings*. The final version will be released as Brys et al. (2021[18]). The rent control index ranges from 0 (no restrictions) to 1 (all types of restrictions) according to answers to the 2019 OECD Questionnaire on Affordable and Social Housing. It is back-casted using DIW's rent control index (https://www.remain-data.org/).
Source: OECD calculations.

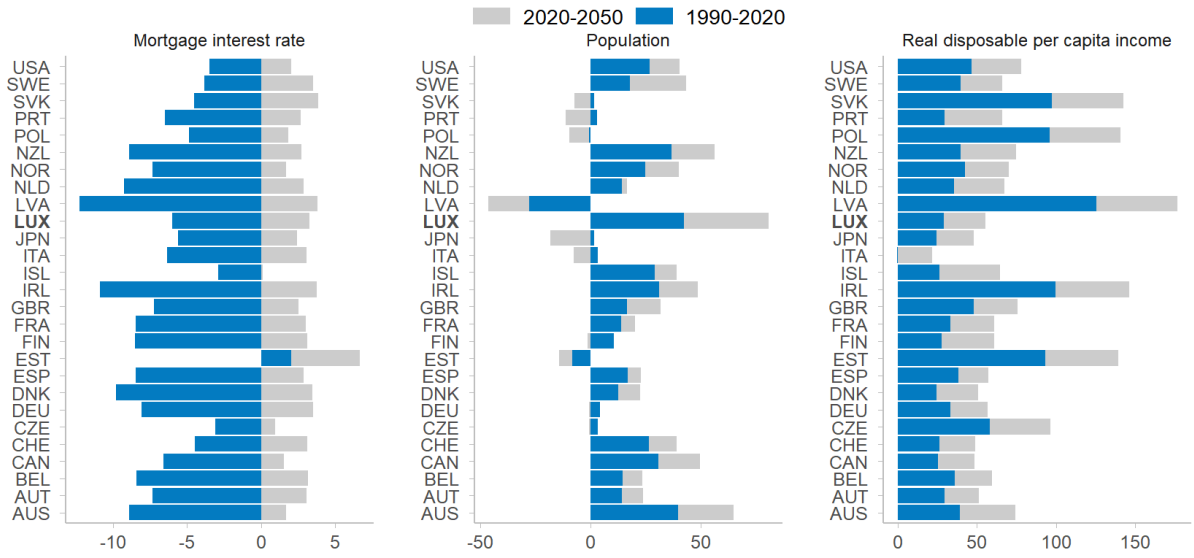
StatLink https://stat.link/epsnzm

Demand for housing will continue to increase substantially in most countries

Fundamental drivers, namely mortgage interest rates, population dynamics and real disposable income, are derived from OECD's long-term economic projections. Figure 4.5 shows past and expected future changes. These fundamental drivers are considered exogenous in the model that produces housing investment and house price projections |for a full presentation of the model see (Cournède, De Pace and Ziemann, 2020[19])]. The model is calibrated using observations for house prices, housing investments, the dwelling stock, exogenous variables and policies over the in-sample period ranging from 1990 through to 2018.

Projections are obtained through iterations of the equations for house prices, residential investment and the dwelling stock (Cavalleri, Cournède and Özsöğüt, 2019[4]). Under the baseline, assuming current policies as constant over the projection horizon, price-to-income ratios are projected to increase substantially in Luxembourg and Sweden and, to a lesser extent, in Australia, New Zealand, Denmark, the Netherlands and the United Kingdom (Figure 4.6). Sweden, Denmark and the Netherlands levy the lowest marginal effective tax rates on residential property (Figure 4.4), which increases the income elasticity of house prices. The United Kingdom and New Zealand have land-use policy settings that weigh on supply elasticities and thereby weaken the feedback loop from higher prices through more construction to house price moderation. Australia, Luxembourg and Sweden stand out as the countries with the most dynamic population growth over the projection horizon (Figure 4.5). Conversely, price pressures are projected to ease in several countries including Latvia, Portugal, Poland, Japan or Italy, mostly on the back of shrinking populations.

Figure 4.5. Past and projected developments of housing demand drivers



Note: Bars depict percentage point changes for each period.
Source: OECD calculations.

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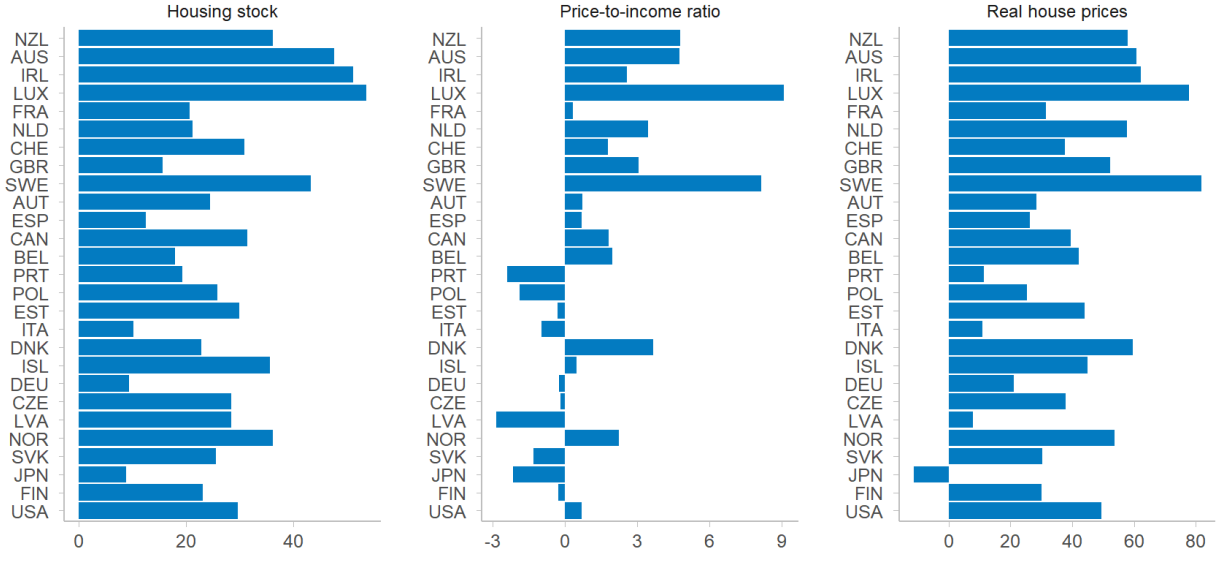
Figure 4.6. Baseline changes in the housing stock, house prices and price-to-income ratios

Change between 2020 and 2050



Note: Percentage point changes for "housing stock" and "real house prices"; change in the number of years of average disposable income equal to the average price of a 100m² dwelling in the case of "price-to-income ratios". Countries are ranked by price-to-income ratios in 2017 from highest (New Zealand) to lowest (USA) according to Bricongne, Turrini and Pontuch (2019[1]) (see Figure 4.1). Housing stock and real house price projections are obtained by iterating equations (1)-(3), while exogenous variables (income, population, interest rates, construction costs) are taken from OECD's long-term projections (e.g. Guillemette (2019[20])).
Source: OECD calculations.

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Learn from other countries' housing policies

The presented model is a useful tool to gauge the impact of policy reforms on housing construction and house prices. It allows generating alternative scenarios based on the assumption that policymakers implement reforms that bring the country's policy stance in line with best international practices regarding housing market efficiency. For the land-use and rent control scenarios, the assumption is that countries move to the third most flexible setting. The tax scenario assumes that countries remove mortgage interest relief from their tax code, which largely explains the heterogeneity of the METRs. Indeed, all countries with currently negative METRs would exhibit a positive one if they withdrew mortgage interest relief. Box 4.1 reviews successful examples for the conduct of such reforms.

Box 4.1. Examples of successful housing policy reforms

Deregulating rental markets (Finland)

Finland started deregulating the rents in the early 1990s. The deregulation was a consequence of the severe economic crisis in the early 1990s: the liberalisation of highly regulated financial markets led to a large inflow of capital and increased mortgage financing, then generating a housing market bubble, a banking crisis and severe depression in the first years of 1990s (see also Vartia 2006). As part of its policy response to the crisis, the government abolished rent control in 1991. This led to a liberalised market with no limits on initial rent or subsequent rent reviews. In the case of long-term rental agreements, the rent is typically reviewed annually. The size of rent increases must be specified in the lease agreement, and in most cases, the rent increases are based on the cost of living index. The motivation was to bring more rental apartments into the market in reaction to the economic and housing market crisis. This easing of rental market regulation occurred in the context of very strong housing support for vulnerable households, as Finland has the second highest spending on housing allowances in the OECD and a social housing stock equivalent to 10% of all dwellings.

Source: De Boer and Bitetti (2014[21]).

Streamlining the governance of land-use policies (Israel)

The major overhaul of land-use regulation in Israel is a prime example of an increased supply of housing following a relaxation of land-use regulation. In the light of a deep housing crisis, marked by skyrocketing house prices amid a combination of a soaring population and an undersupply of housing, the Israeli government introduced a series of reforms to increase the supply of housing by streamlining land-use procedures and removing barriers to construction. The creation of Housing Headquarters, a committee that oversees and concentrates all relevant housing authorities, allowed smoother cooperation and coordination between governmental organisations. It has significantly helped to shorten the average time required for planning and building. The government has also introduced strong tax incentives for the densification and renewal of already built areas.

Source: OECD (2017[22]); OECD (2018[23]).

Phasing out mortgage interest relief (The Netherlands)

In 2010, Household debt reached an all-time high of 128.5% of GDP, mainly due to a rapid expansion of mortgage debt. This situation is risky for both mortgage borrowers and lenders by heightening the sensitivity of the Dutch economy, and especially of leveraged households, to negative shocks. In 2013, some structural reforms were introduced to "reduce private housing market-related debts, both from a micro and a macro perspective, whilst simultaneously promoting confidence on the housing market" (Stability Programme of the Netherlands – April 2012 Update). For example, mortgage interest relief was restricted to mortgages with fully amortizable loans over a 30-year period. In 2014, the Dutch government decided to progressively reduce the maximum mortgage tax relief rate, which was 52% at that time, by 0.5 percentage points per year up to 2040 to "scale down private debts and allow the housing market to function more effectively" (Stability Programme of the Netherlands – April 2013). In 2017, a new coalition decided to accelerate this reduction by 3 percentage points per year starting from 49% in 2020 until it reaches 37% in 2023.

Source: OECD (2018[24]); OECD (2019[25]); "Confidence in the Future" (2017–2021 Coalition Agreement).

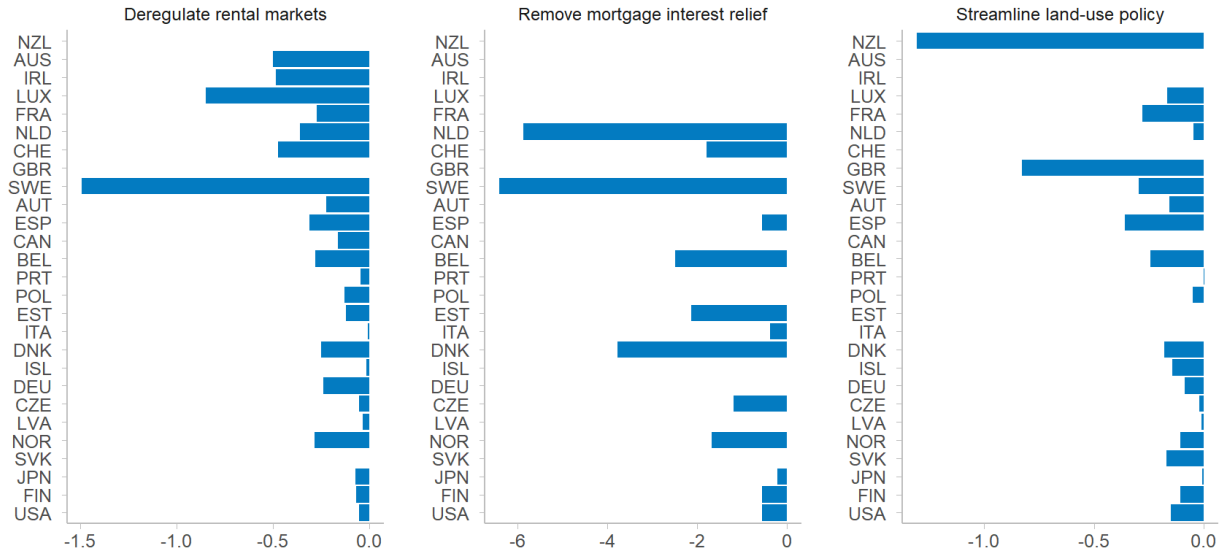
Figure 4.7 illustrates the estimated effect of moving towards best practices on house price-to income ratios by 2050. The most sizeable improvements in housing affordability are projected to be achieved by the Netherlands and Sweden in the scenarios where mortgage interest relief is phased out. Doing so reduces house prices by making house prices less sensitive to income changes. In the scenario for Sweden, the number of years over which cumulated average household disposable is equal to the average price of a 100m^2 dwelling falls by more than six years. The positive consequences for inclusiveness are large: the percentage of the population whose cumulated disposable income is more than 1/15th of the average price of a 100m2 flat in 2050 is projected to reach 55% following the removal of mortgage interest relief, against 20% in the no-policy-change scenario. In the short term, removing mortgage interest relief would make homeownership more difficult to afford for middle-class households through the direct effect on their budget. However, the mechanisms illustrated by the simulations mean that this effect over time fades and then reverses as house prices become lower than they would otherwise have been, especially so in countries where housing supply is more rigid.

The simulations also underline the benefits of relaxing rent controls for long-term real house prices. Swedish households would also benefit the most in terms of reducing the ratio of house prices to income from easing rent control (-1.5 years to buy a 100m^2 dwelling). Residential construction is simulated to expand by more than 20% if rent control becomes as flexible as in New Zealand, increasing the housing stock in 2050 by around 11%. More supply of housing then feeds into lower house prices, which enhances affordability.

There also appear to be sizeable benefits of implementing land-use governance frameworks that have been found associated with flexible supply. New Zealand could boost affordability the most by streamlining the governance of land-use policies across levels of government: such a move can involve reducing responsibility overlaps across government levels and ensuring a sufficiently strong involvement of the metropolitan level by comparison with lower levels. Under this scenario, the percentage of the population whose disposable income is at least equal to 1/15th of the average price of a 100m2 flat in 2050 would rise to 13%, compared to the projected 11% in the baseline scenario. Residential investment in the “streamlined land-use policy” scenario increases by more than 11% in New Zealand compared to the baseline scenario by 2050, ultimately leading to 7% more homes.

Figure 4.7. Simulated impact of reform scenarios on price-to-income ratios by 2050

Simulated 2020-50 change in the number of years over which cumulated average household disposable income equals the average price of a 100m² dwelling, years



Note: No bar signifies the absence of mortgage interest relief and, in the case of the rent control and land-use scenarios, that the country does not implement a reform as it was already less or as restrictive as the benchmark country (GBR, SVK and USA in the case of rent control; CHE, CAN and IRL in the case of land-use governance). The chart shows countries in the same order as in Figure 4.1, that is to say, price-to-income ratios in 2017 from highest (New Zealand) to lowest (USA) according to Bricongne, Turrini and Pontuch (2019[1]). A fixed-size (100m2) was chosen to ensure that cross-country comparisons relate to as similar as possible housing services: ideally, the comparisons should adjust for the other characteristics of the dwelling (*eg* energy efficiency, number of bathrooms) but in practice the corresponding data are not available.
Source: OECD calculations.

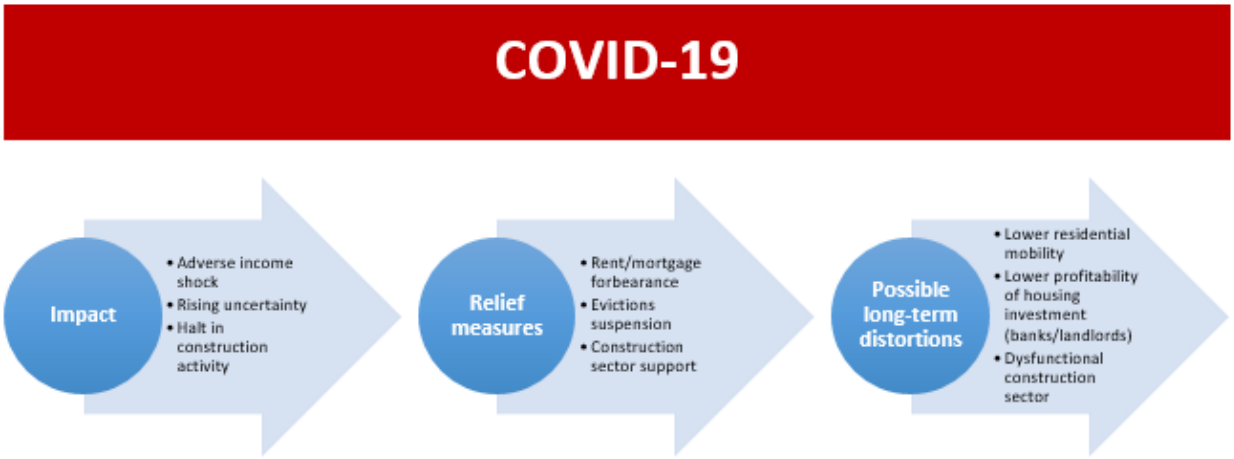
StatLink https://stat.link/eyluk5

Foster societal, technological and environmental transformations

Reduce structural disruptions brought about by the COVID-19 pandemic

Against this background, long-term considerations of efficient housing policies can sometimes conflict with stabilising measures in the event of adverse shocks as highlighted by the recent COVID-19. While meeting an important objective of supporting tenants and borrowers, and thereby contributing to economic resilience, several relief measures taken during the pandemic posed difficult policy trade-offs over the medium term (Figure 4.8). For instance, if maintained for too long, tax advantages for mortgage-holders can feed into house prices, creating instability and eroding affordability. Rent freezes reduce the return to the capital of residential investment and can create uncertainties for the home building industry which could reduce supply and ultimately hurt affordability for those that were meant to be protected by the measure. In contrast, direct public investment, for example by expanding capital spending on social housing, coupled with provisions ensuring that eligibility is portable, can generate benefits for both near-term affordability and long-term supply with limited adverse consequences for mobility. Some cities have initiated public investment or policy measures to expand the supply of adequate and affordable housing and improve disadvantaged neighbourhoods (Box 4.2). Furthermore, such a direct intervention in the market provides governments with an opportunity to promote and accelerate the spread of construction techniques in line with environmental-transition sustainability objectives.

Figure 4.8. Relief measures during COVID-19



Source: "Housing Amid COVID-19: Policy Responses and Challenges", (OECD, 2020[26]).

Box 4.2. Cities have taken various measures to recover from the COVID-19 crisis

The City of Vienna (Austria) has announced to build seven new municipal housing sites with 1 000 apartments in the coming years. The new buildings will be spread all over Vienna to create a high-quality and affordable offer in attractive residential environments. The housing projects aim to provide future districts with pedestrian zones, green spaces, as well as sports and cultural facilities within walking distance. The start of construction is planned for 2022.

Mexico City (Mexico) will invest USD 1 billion to create around 1 million new jobs in the construction sector. The investment will cover public infrastructure and social housing. The plan is expected to contribute to the redevelopment of 13 urban corridors through housing projects, mostly housing improvement projects and new social housing in areas with good transport connection. The strategy also uses resources for mobility projects that had already been announced before the crisis, such as a new bus rapid transit line and two 'cable buses' (cableways) lines.

Liverpool (UK) developed a GBP 1.4 billion recovery plan, which includes the development of more than 200 new modular homes and community centres, and the renovation of 4,000 homes for vulnerable households in the most deprived neighbourhoods, which are also most at risk from COVID-19. The plan is estimated to provide an additional 12 000 construction jobs and 25 600 jobs in total.

Source: "OECD Policy Responses to Coronavirus (COVID-19), City policy responses" (OECD, 2020).

Favour the transition towards greener and smarter cities

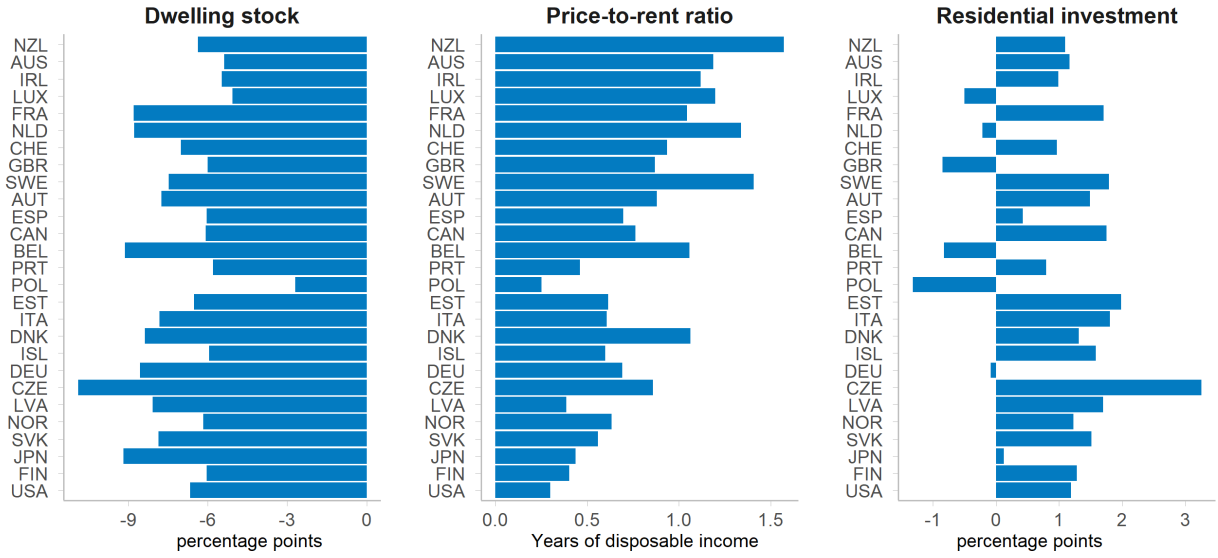
The profound changes in preferences caused by the COVID-19 crisis could herald deep transformations to commuting habits and urban structures. Aspirations towards less dense living environments and more public spaces for citizens together with the technological transformation of urban mobility could create momentum for rethinking urban structures with a view of supporting housing affordability. A recent study by Larson and Zhao (2020[27]) shows that the adoption of autonomous vehicles makes housing more affordable by increasing the effective supply of land in cities. Similarly, a recent OECD study found that shared mobility eases indeed pressure on house prices (OECD, 2019[28]). Specifically, falling transportation costs make the land outside the city more usable, encouraging the growth of cities, but it also frees up land

within the city due to less demand for parking space. Higher land availability relaxes the pressure on house prices, especially in cities where land-use policy is less restrictive. Similarly, the opportunity of teleworking replaces the need for physical commuting while also lowering the demand for parking and office space. This increases the availability of land and, in cities with less restrictive land-use regulation, is associated to a reduction in house prices (Kamal-Chaoui and Robert, 2009[29]; Larson and Zhao, 2017[30]).

The renewal of urban mobility brought about by car-sharing and other forces, such as tightening emission standards, the emergence of electric cars and policies to promote other transport modes, will reduce emissions and contribute to more sustainable cities. But, the necessary decarbonisation of the supply-side of the economy will also require a deep transformation of the housing sector. The uptake of flexible energy devices (e.g. smart meters and thermostats, active controls or responsive heat pumps) complements on-site renewable generation (e.g. rooftop solar thermal, PV or geothermal energy) to facilitate the integration of renewable energy sources. Energy efficiency improvements combined with a change in the heating fuel mix has curbed direct emissions by 10% over the past ten years, despite growth in floor area and energy demand. But further efforts are needed to put the residential buildings sector on a trajectory complying with the Paris agreement. Upgrading the energy performance of buildings is necessary to reduce energy service demand for heating, cooling and lighting. While building energy codes should also focus on facilitating the integration of low-carbon energy vectors to the built environment (e.g. PV, heat pumps or electric vehicle chargers), accelerated deep-energy renovation is necessary as half of the buildings that will be standing in 2050 are already standing today.

Following the simulation framework outlined above, these measures imply i) an immediate increase in construction costs and ii) acceleration of the rate at which the existing housing stock is upgraded. The increase in construction costs is assumed to be ten percentage points. The renewal or upgrade of the existing stock is modelled through a gradual increase in the renovation rate. The renovation rate is assumed to rise by one percentage point with respect to the baseline (average renovation rate of 2% per year). After 2035, the heavy renovation rate declines to a level of 1% per year by 2050. Figure 4.9 illustrates the simulated impact of the higher construction cost and renovation rate. Affordability deteriorates in all countries. The increase in the number of years over which cumulated disposable income equals the average price of a 100m^2 dwelling varies from 0.2 years in Poland or Latvia to more than 1.5 years in Sweden, Australia or New Zealand. Cross-country heterogeneity is driven by the initial level of the renovation rate and the housing supply elasticities.

Figure 4.9. Necessary energy upgrading of buildings will weigh on affordability



Note: Necessary energy upgrading is simulated by an immediate increase of 10% in construction costs as well as a gradual increase in the heavy renovation rate of one percentage point from baseline heavy renovation rate (varies by country) until 2035. After 2035, the heavy renovation rate declines uniformly towards 1% per year by 2050. Changes with respect to baseline are shown.
Source: OECD calculations.

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Accordingly, a reallocation of capital in the next decade is critical for achieving a cost-effective implementation of the long-term sustainable development ambitions in the buildings sector. The related costs are likely to heighten pressure on affordability at least in the short to medium term, before households substantially benefit from the cumulated gains from lower heating and cooling costs that follow enhancements in energy efficiency. Against this backdrop, the Italian government has implemented the "Superbonus 110" programme guaranteeing a 110% tax reduction for all expenses related to improving the energy efficiency of buildings.[2] Energy-efficient mortgages can also contribute to mobilising the large amounts required to fund these investments (Box 1.9). The high transition costs underscore the importance of moving towards best practices of housing policies to best accommodate supply and demand to ensure affordable and high-quality housing to all.

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Notes

[1] The OECD plans to extend the coverage of these indicators to all its member countries and key partners.

[2] Expenses incurred between 1 July 2020 and 30 June 2022 are eligible (cf. https://www.efficienzaenergetica.enea.it/detrazioni-fiscali/superbonus.html).

5 Measuring the Role of Housing in the Distribution of Wealth

Housing features prominently not only in household expenditure budgets but also in their balance sheets as it accounts for the lion's share of household assets and liabilities. This chapter delivers new evidence on the link between homeownership and wealth inequality. It assesses the socio-economic drivers for the different housing tenures and discusses the policy implications.

Main lessons

Housing is a fundamental driver of the accumulation and the distribution of assets, liabilities and wealth over the lifecycle and across generations.[1] The contribution of housing to wealth inequality varies significantly across countries, yet the following facts stand out from the data:

- Wealth inequality is much higher than income inequality, in part reflecting lifecycle effects as wealth accumulates over time.
- There is a strong negative cross-country association between homeownership and wealth inequality. Low homeownership countries exhibit high wealth inequality, even when income inequality is low.
- Housing tends to equalise the distribution of wealth because it is the most important asset in household balance sheets and it is more equally distributed than other assets like financial assets: housing represents in relative terms a much higher source of wealth in the middle than at the top of the distribution.

Access to mortgage markets allows credit-constrained households a better chance of owning their own home, but it entails risks:

- Housing-related debt is the most important liability in households' portfolios, particularly for young homeowners and homeowners at the bottom of the distribution. OECD countries exhibit stark variation in the extent to which households hold mortgage debt, ranging from almost half to less than a tenth.
- Mortgage debt is both an opportunity and a risk. While it allows households, especially those with little initial assets, to accumulate wealth it can expose households, especially those at the bottom of the distribution, to economic and social vulnerabilities.

Housing wealth: Trends, drivers and policies

Trends	Drivers	Policies
• **How important is housing for wealth accumulation and for wealth inequality?** • *Housing is a key driver of wealth, especially for the middle class. Housing is more equally distributed than other assets.*	• **What determines the distribution of housing wealth?** • *Differences in homeownership and housing wealth reflect historical and socio-economic factors such as the structure of households in terms of age and composition as well as that of policies.*	• **How can policies affect housing wealth?** • *Mortgage debt allows liquidity-constrained households to accumulate housing wealth, but it can also expose vulnerable households to financial risks in the event of house price declines or income loss.*

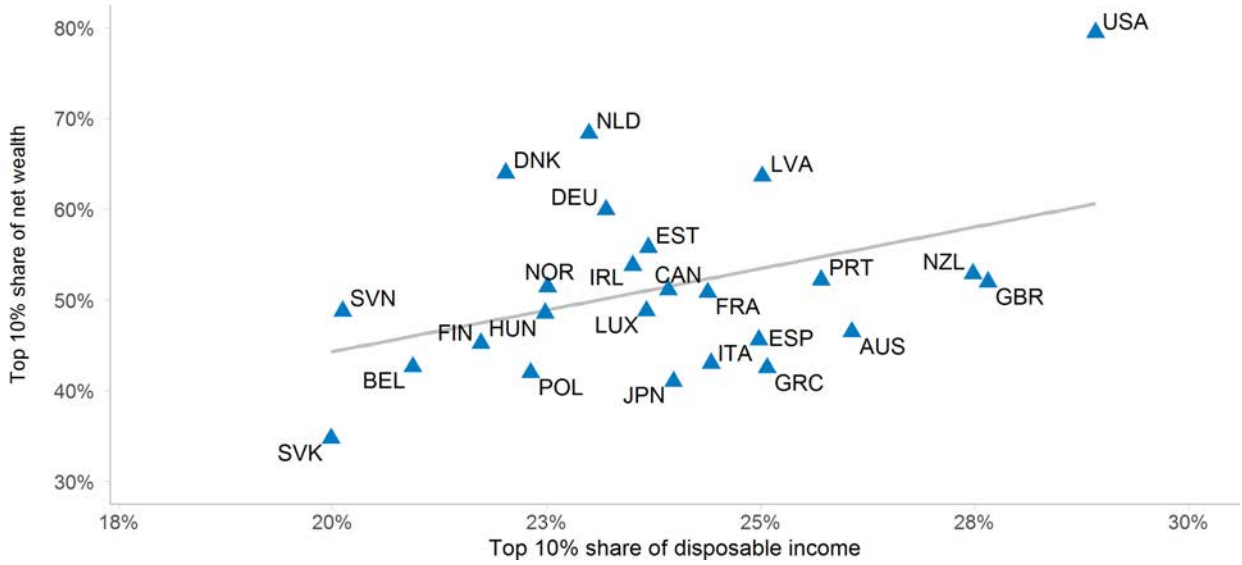
Quantify the importance of housing wealth in household balance sheets

Housing represents the largest asset in household portfolios

Housing and wealth distribution warrants attention for several reasons. Housing is the largest asset in household portfolios. It is therefore a fundamental driver of the accumulation and the distribution of assets and net wealth over the lifecycle and across generations, hence contributing to wealth inequality. Assessing housing from a wealth distribution perspective is all the more important in a context where income inequality has been rising in a number of countries, where the capital share of income has increased relative to that of labour, and where wealth inequality is much higher than income inequality (Figure 5.1) – even though the latter partly reflects lifecycle effects as wealth accumulates over time.[2]

Figure 5.1. Wealth inequality is much higher than income inequality

Top 10% shares, 2015 or latest available year



Note: This chart shows the top 10% of households in wealth distribution, and the top 10% of individuals in the income distribution. Available wealth inequality measures harmonised across countries do not include occupational or public pensions (see Box 5.1). Including net pension wealth can substantially change wealth inequality measures. See a publication from the Ministry of Economic Affairs and the Interior (2018[1]) for a quantification in the case of Denmark.

Source: OECD Wealth Distribution Database (oe.cd/wealth), OECD Income Distribution database (https://stats.oecd.org/Index.aspx?DatasetCode=IDD).

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Housing debt is the largest liability in household portfolios

Housing is also the largest liability in household balance sheets, because most homeowners borrow to finance the purchase of their homes. Housing-related debt allows households with low income and little assets, for example young households, to accumulate wealth. The benefits of leverage need to be balanced against its risks, and that is one major lesson from the Global Financial Crisis. Assessing housing from a wealth distribution perspective requires looking at housing assets and liabilities, with particular attention to the bottom of the income and wealth distributions (Box 5.1).

Box 5.1. Data sources to analyse housing and wealth distribution

The OECD relies on a dedicated statistical database, the OECD Wealth Distribution Database (WDD), to monitor and compare wealth inequality across countries. This database is based on national sources (household surveys and administrative records) and on common definitions, classifications and data-treatments. Estimates referring to the most recent year (around 2015) are currently available for 28 OECD countries, while estimates referring to more than one year are available for 19 countries. All the indicators available through this database are based on the concept of "household net wealth" as defined in the OECD Guidelines for Micro Statistics on Household Wealth (OECD, 2013[2]), i.e. the value of financial and non-financial assets net of the value of liabilities held by private households resident in the country, with no adjustment made to reflect differences in household size. The method of data collection used for the OECD WDD aims to maximise international comparability as well as inter-temporal consistency of data. This is achieved by a common set of protocols and statistical conventions (e.g. on wealth concepts and components) to derive comparable estimates. Public and occupational pension plans are not included in financial assets and thus neither in household net wealth. International guidelines on micro statistics on household wealth require to maintain consistency with the definition of financial assets in the system of national accounts (SNA), which reflects the view that reliable estimates of pension entitlement in social security schemes may not be readily available. For more information, see http://www.oecd.org/sdd/OECD-wealth-distribution-database-metadata.pdf and Balestra and Tonkin (2018[3]).

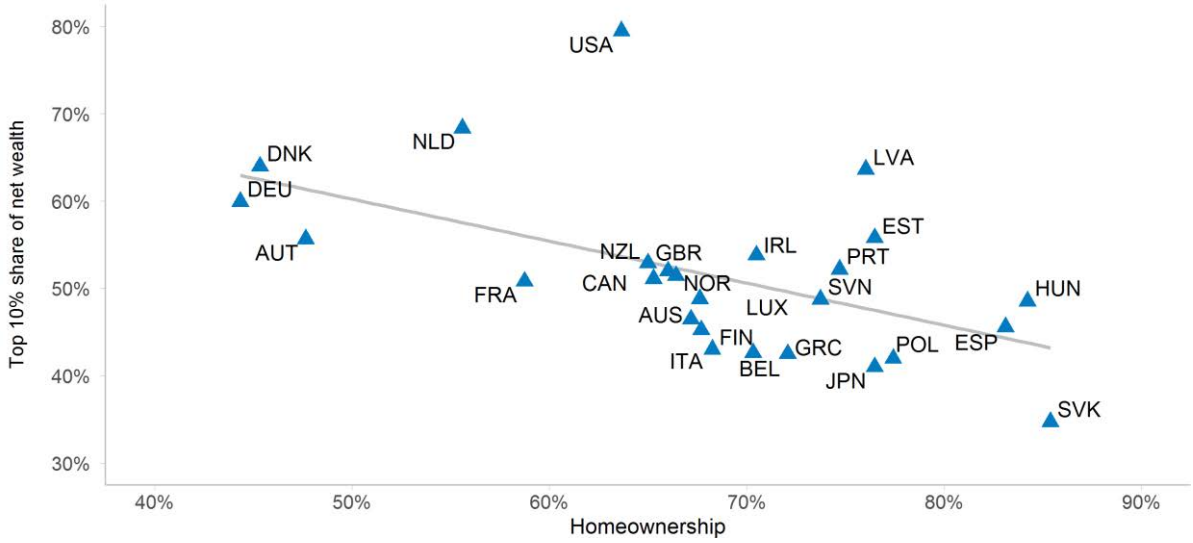
The use of the semi-aggregated data from WDD is complemented with micro data. One main source for this paper is the Household Finance and Consumption Survey (HFCS) database from the European Central Bank, second wave (2014). This dataset provides individual and household data collected in a harmonised way in euro area countries as well as Hungary and Poland. The main aim of the HFCS is to gather micro-level structural information on euro area households' assets and liabilities e.g. real assets and their financing, liabilities/credit constraints, private businesses, financial assets, intergenerational transfers and gifts, and consumption and saving. The survey also collects other distributional-relevant information in particular gross income, labour market status, education and demographic characteristics. The data allow to analyse the joint distribution of housing wealth, net wealth and income, while taking into account socio-demographic effects. The HFCS-based microdata analysis is complemented with the Luxembourg Wealth Study (LWS) for a number of non-euro area countries (Australia, Canada, Norway, the United Kingdom and the United States).

Analyse the link between housing and wealth inequality

There is a strong negative association between homeownership and wealth inequality (Figure 5.2). High (low) homeownership countries tend to display low (high) wealth inequality, because housing wealth is much more equally distributed than non-housing wealth. This can be seen by comparing inequality in net total wealth, which includes all households' assets and liabilities, and inequality in net housing wealth, which includes only housing assets (defined here primary residence) and liabilities. Top 10% households receive on average across countries around 55% of total net wealth, against around 35% of total net housing wealth (Figure 5.3). This is because non-housing sources of wealth, such as financial wealth, are more unequally distributed and more important at the top of the distribution.

Housing equalises the net wealth distribution. Indeed, excluding housing from net wealth equalises the wealth distribution across countries. It implies a significant increase in measured wealth inequality, around one-quarter on average across countries (Causa, Woloszko and Leite, 2019[4]).

Figure 5.2. High-homeownership countries tend to exhibit low wealth inequality



Source: OECD Wealth Distribution Database (oe.cd/wealth). Available wealth inequality measures harmonised across countries do not include occupational or public pensions (see Box 5.1).

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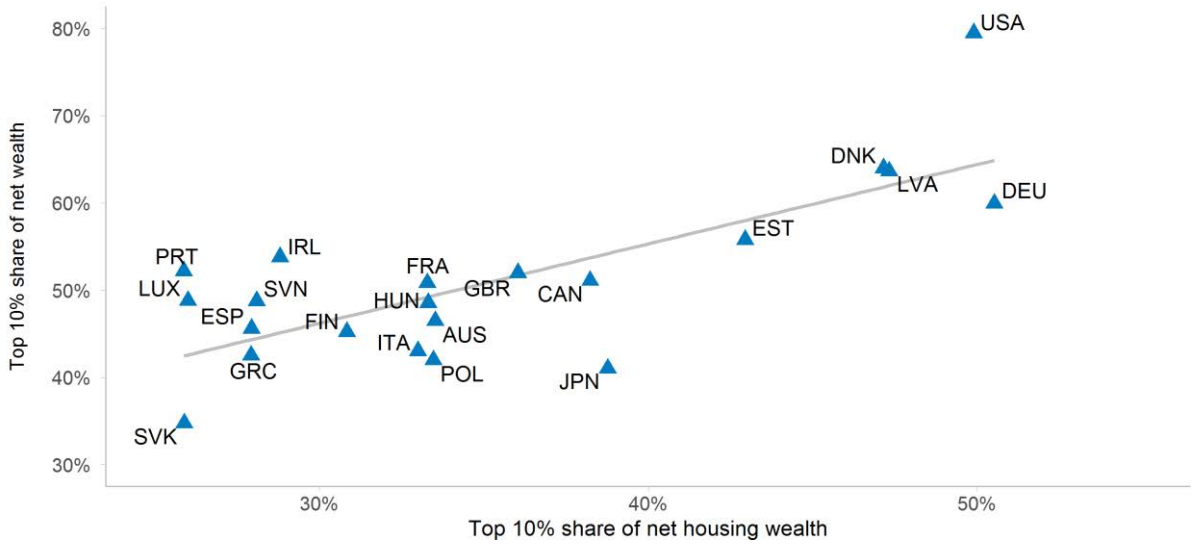
Figure 5.3. Housing wealth is much more equally distributed than non-housing wealth

Inequality in net housing wealth and in net total wealth, top 10% shares



Note: Households are ranked by net wealth. Available wealth inequality measures harmonised across countries do not include occupational or public pensions (see Box 5.1).
Source: OECD Wealth Distribution Database (oe.cd/wealth).

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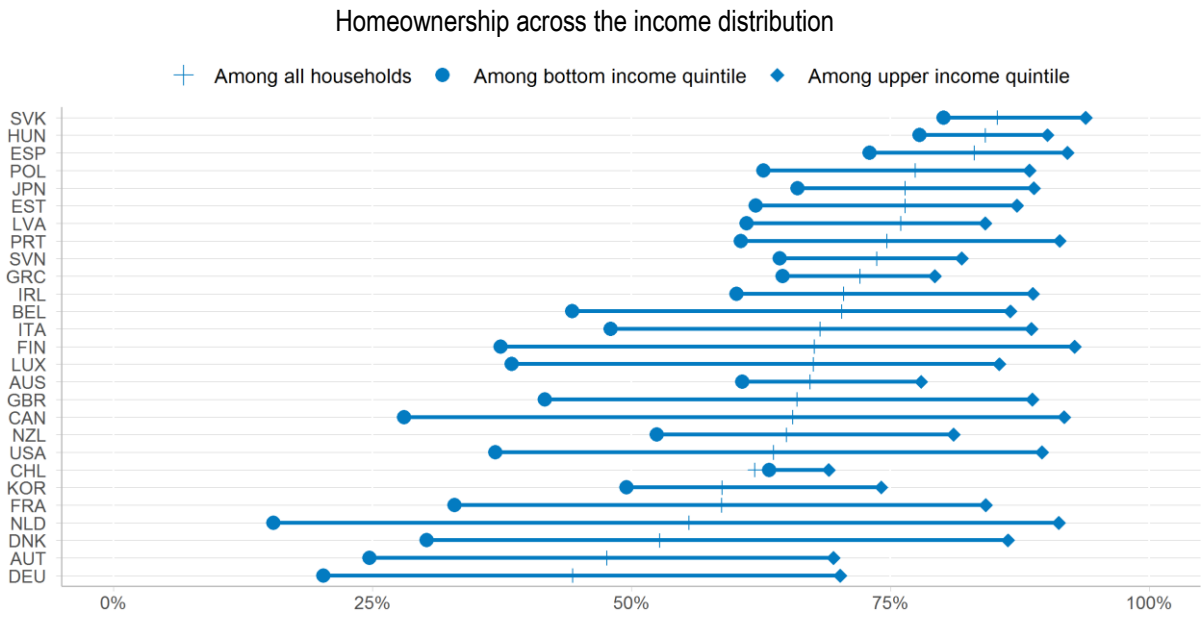
Housing tenure varies largely across countries

OECD countries exhibit great variation in the housing tenure mix (i.e. in homeownership rates and in the relative proportion between outright owners and owners with a mortgage) (see OECD Affordable Housing Database). Homeownership rates are highest in the Slovak Republic, Hungary and Spain and lowest in Germany, Denmark and Austria (Figure 5.4). Such cross-country differences reflect historical legacies,

exceptionally high homeownership rates in Eastern European countries as a result of mass privatisation at submarket prices to sitting tenants. Another part reflects differences in households' socio-demographic characteristics, notably the structure of households in terms of age and size. In the vast majority of countries, households composed of retirement age members and larger households are more likely to be owners.

In contrast, households composed of younger members and single-person households are more likely to be renters. Among owners, households composed of retirement age members are more likely to be outright owners relative to younger households (Causa, Woloszko and Leite (2019[4]). Moreover, countries where the average homeownership rate is high exhibit a low difference in homeownership between low and high-income households, while the reverse tends to apply in countries where the average homeownership rate is low (Figure 5.4).

Figure 5.4. Homeownership is more equally distributed across income groups in high-homeownership countries



Source: OECD Wealth Distribution Database (oe.cd/wealth). Household Economic Survey database for New Zealand.

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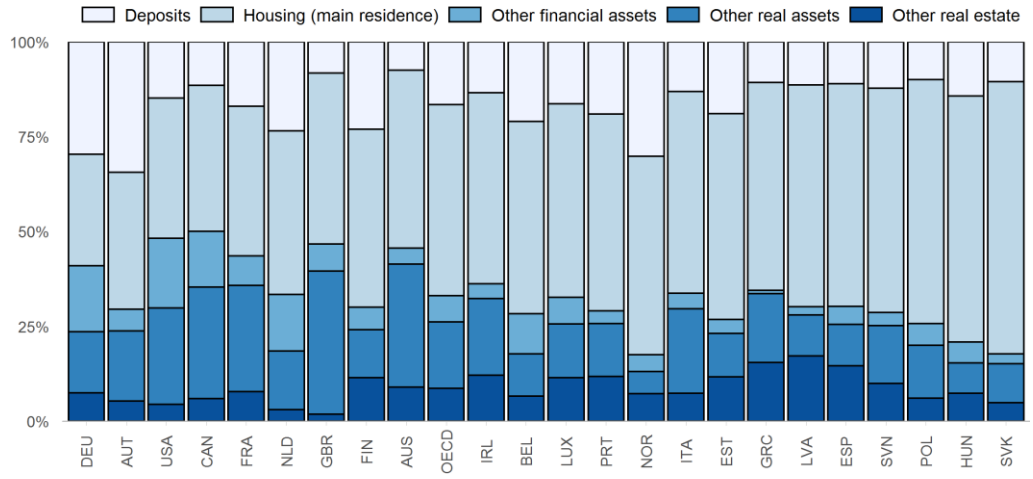
Housing features prominently in household balance sheets

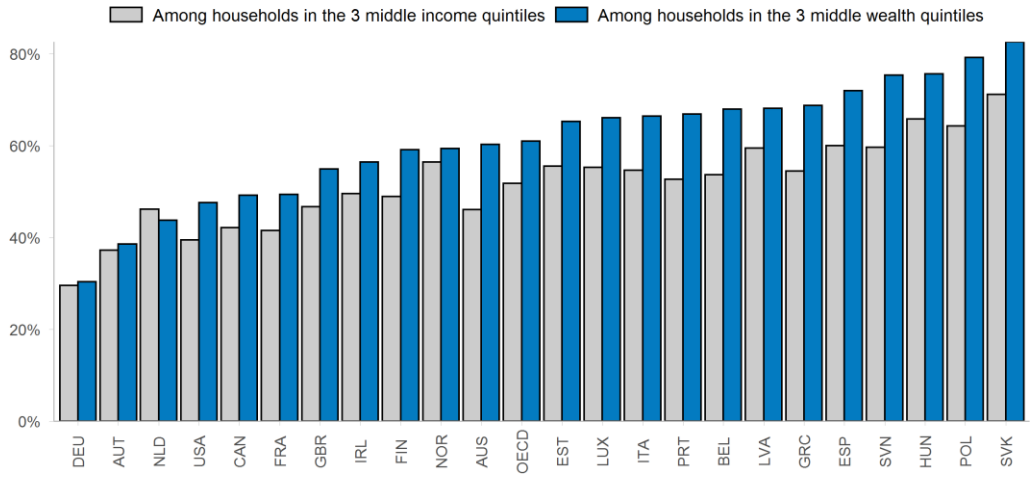
Housing is the highest ranked asset in households' portfolios (Figure 5.5). It accounts on average for around one-half of total assets, ranging from around 70% in the Slovak Republic to around 25% in Germany. The share of the value of secondary residences ("other real estate") in total assets tends to be relatively high, for instance higher than that of financial assets in a number of countries, further highlighting the importance of real estate for household wealth. Also, housing is the chief asset of the "middle class", or households in the middle three quintiles of the income or wealth distribution, amounting to over 60% of assets in the majority of OECD countries. Moreover, housing is a relatively less important asset at the very top of the distribution. On average, it represents around one-quarter of total assets among households at the top 1% of the net wealth distribution. Average figures mask substantive cross-country differences, part of which may reflect policy factors, e.g. concessionary tax treatment of housing relative to other assets and their effects on developments in house prices relative to prices of other assets.

Figure 5.5. Housing is the chief asset of the middle class

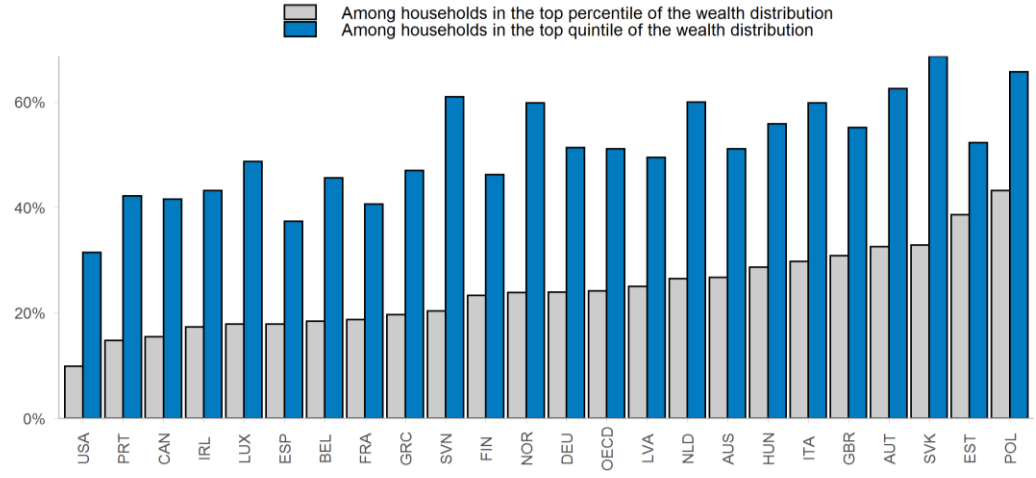
Panel A. Asset decomposition of households' portfolio



Panel B. Housing as a share of total assets among households in the middle of the distribution



Panel C. Housing as a share of total assets among households at the top of the distribution



Note: In this chart due to data availability income refers to gross income, that is, disposable income less income taxes.
Source: Data from HFCS and LWS.

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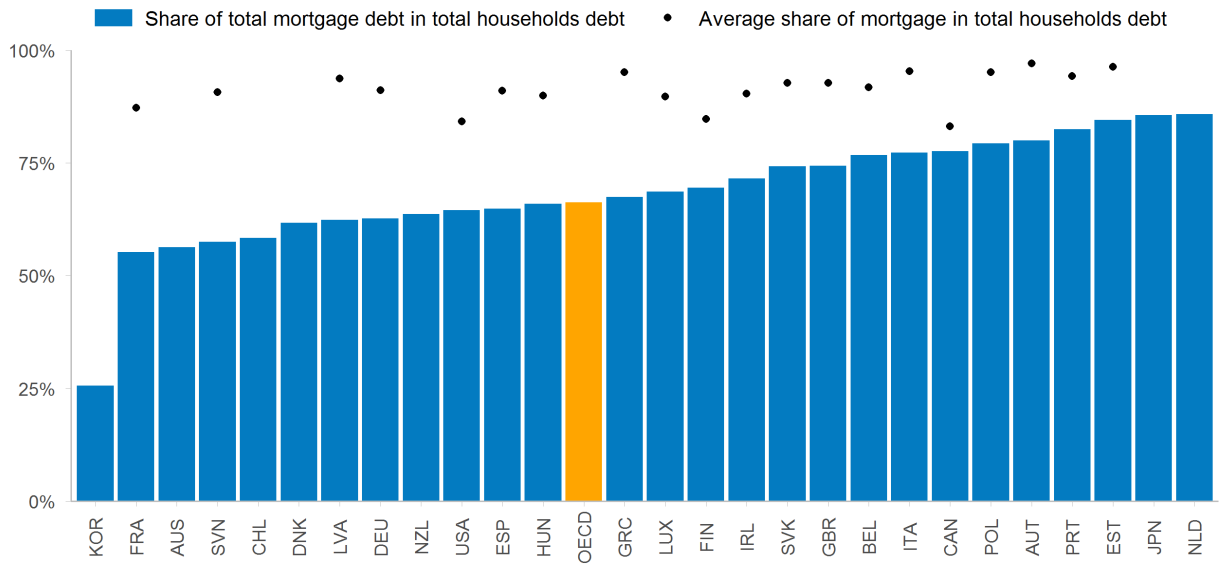
Weigh opportunities and risks of housing debt

Mortgage debt is the largest component of household debt portfolios (Figure 5.6). From an economic resilience perspective, monitoring household debt and housing market developments requires a careful focus on mortgage debt, as discussed in Chapter 3. From a distributional perspective, mortgage debt entails opportunities but also risks, particularly for vulnerable households, as witnessed during the financial crisis (Mian and Sufi, 2011[5]).

Figure 5.6. Mortgage debt is the largest part of household debt



Note: How to read this figure: in France, total mortgage debt represents 55% of total household debt; among households with mortgage debt, the latter represents on average 87% of the household's total total debt. The numbers refer to principal residence debt only.
Source: OECD Wealth Distribution Database (oe.cd/wealth), HFCS database.

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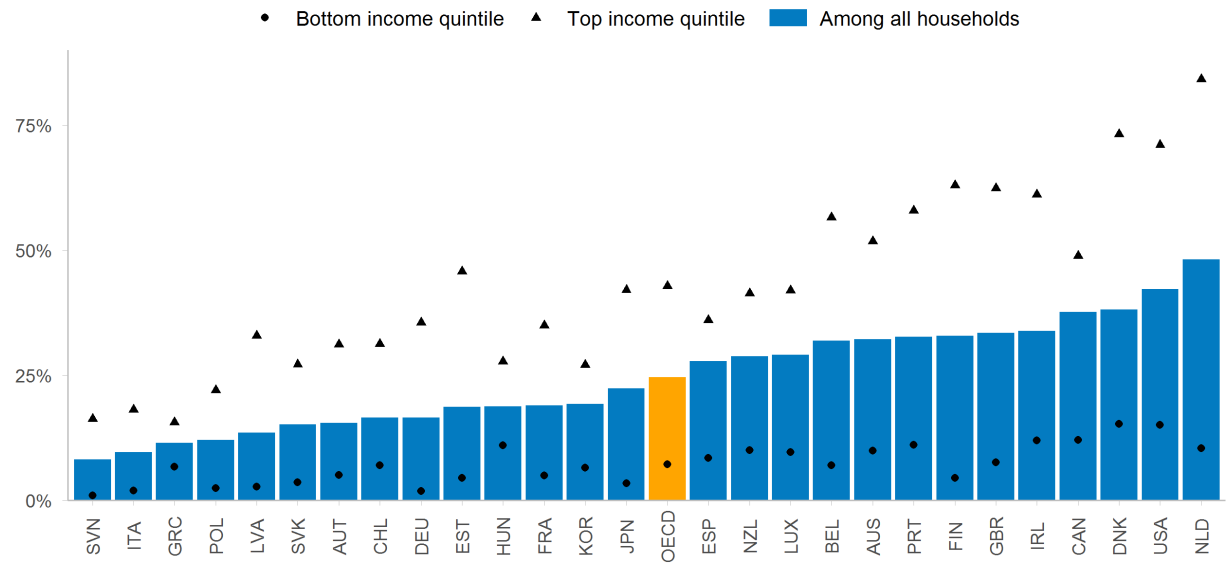
The proportion of households that hold a mortgage varies significantly across OECD countries (Figure 5.7). On average, around 25% of households have mortgage debt, ranging from around 10% in Slovenia and Italy to between 40 and 50% in the United States and the Netherlands. Mortgage debt shares increase with household income (Figure 5.7), as mortgage markets are regulated and bank lending is conditional on household repayment capacity, measured primarily by their level of income. Yet, the link between household income and mortgage debt is somewhat steeper in some countries than in others, reflecting a variety of country-specific considerations, including differences in housing finance, not least prudential regulations, house prices, and social preferences.

Figure 5.7. Participation in mortgage markets increases with household income

Proportion of households with mortgage debt across OECD countries and in bottom and top income quintiles



Note: The numbers refer to principal residence debt only.
Source: OECD Wealth Distribution Database (oe.cd/wealth).

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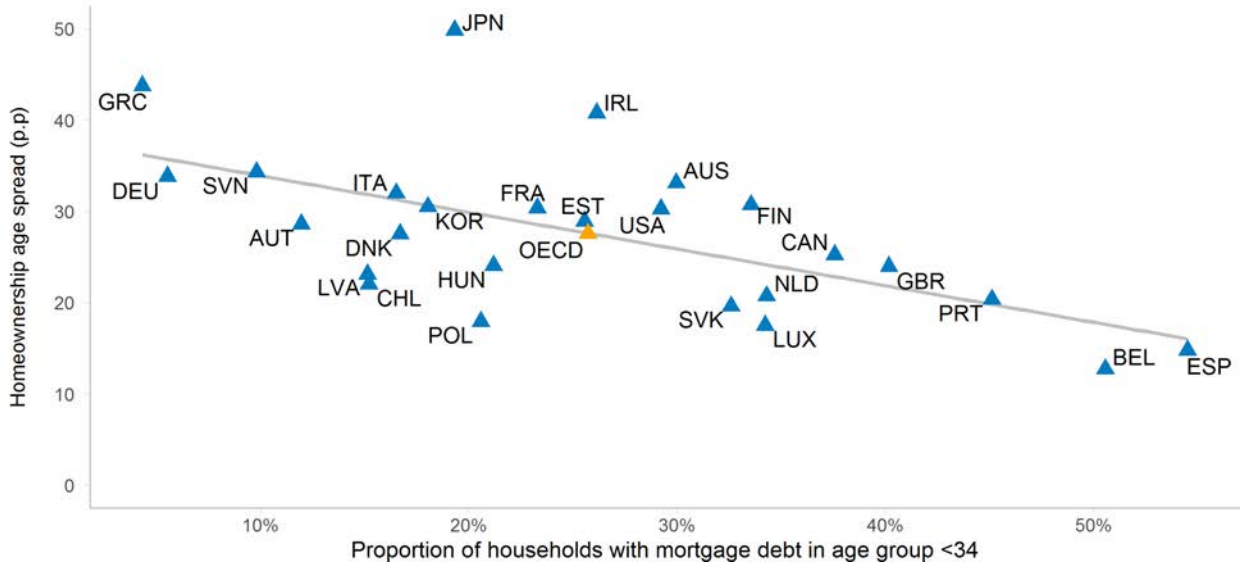
Access to mortgage debt is a key driver of homeownership

Access to mortgage debt for young household is likely to be one key driver of homeownership for this group, given their relatively low current wealth and income. Indeed, across OECD countries, the higher the participation in mortgage markets among young households, the lower is the difference in homeownership between the young and the rest of the population (i.e. the homeownership age spread) (Figure 5.8). Young households are relatively more sensitive than other groups to policy settings affecting homeownership, in particular mortgage market regulations (Andrews, Caldera Sánchez and Johansson, 2011[6]). Cross-country differences in homeownership between young people and the rest of the population are also likely to reflect differences in housing affordability.

Figure 5.8. Access to mortgage finance is particularly important for young cohorts



Note: The numbers refer to principal residence debt only.
Source: OECD Wealth Distribution Database (oe.cd/wealth).

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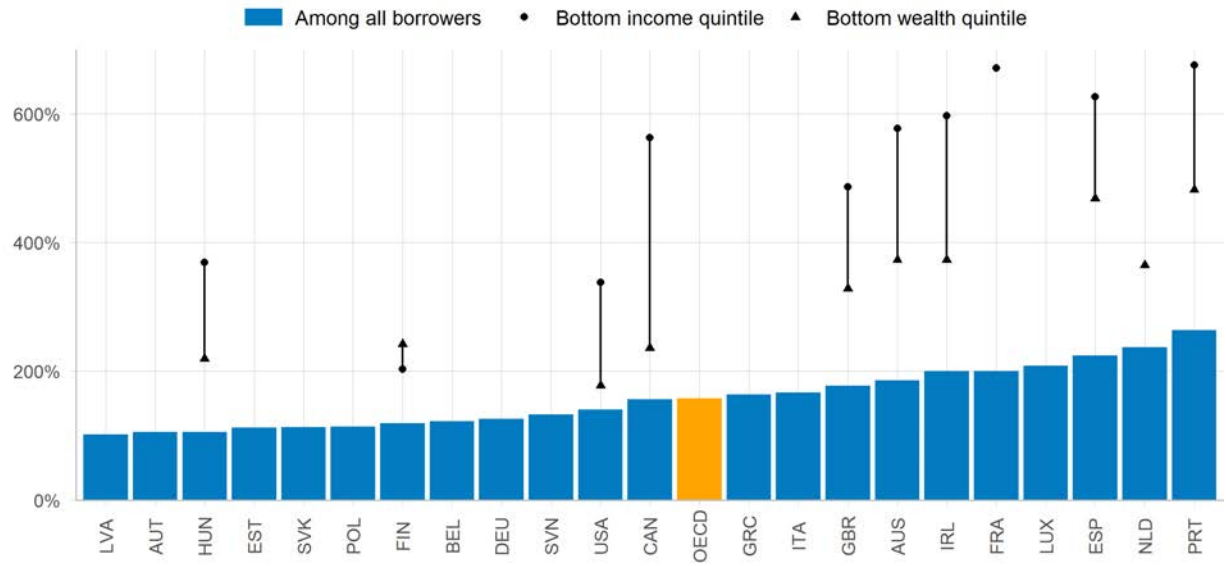
High housing debt exposes households to financial vulnerabilities

From a household perspective, mortgage debt is both an opportunity and a risk. On the one hand, it allows households, especially young households and those with little initial assets to accumulate wealth. On the other hand, it can expose households, especially those at the bottom of the distribution, to financial risks in the event of income losses, of house price declines as well as interest rates increases. Indeed, the expansion in mortgages over the last decades, in particular prior to the Global Financial Crisis, led to an increase in the debt-to-income ratios for households with mortgage debt. This ratio is well above 100% in most OECD countries and it exceeds 200% in some of them such as Portugal, Spain and the Netherlands (Figure 5.9). This is likely to partly reflect, at least for the Netherlands, the prevalence of interest-only and contractual savings mortgages, which delay repayment of the principal (ECB, 2009[7]). Households at the bottom of the income distribution are particularly vulnerable, with debt-to-income ratios exceeding the conventional at-risk threshold value of 300%. Associated risks seems to be particularly significant in some countries, including Australia and Canada, reflecting the strong increase in house prices over the last decade, especially in Canada.

At the current juncture, the COVID-19 crisis is creating mortgage-related financial vulnerability among households, in particular due to falling income as a result of job or earnings loss. Liquidity constraints prevent households, at least temporarily, from paying back their debt. Low- income homeowners are likely to be particularly vulnerable. To address this issue and prevent social hardship, some OECD countries including Italy, Portugal, Spain and the United Kingdom temporarily suspended mortgage payments (see Box 1.7 in Chapter 1).

Figure 5.9. Mortgage debt can make low-income households financially vulnerable

Debt-to-income ratio among borrowers, median



Note: The numbers refer to principal residence debt only. These ratios are calculated only for households with principal residence mortgages. The calculation is done only in cases where the number of observations exceeds 50, which is why some data is not shown for bottom income and wealth households. In this chart due to data availability income refers to gross income, that is, disposable income less income taxes.
Source: HFCS database, LWS database.

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Mortgage-related policies need to strike the right balance between allowing access to mortgage debt as an opportunity to accumulate wealth, and preventing the building up of excessive leverage with potential large economic and social risks. Indeed, borrower-based prudential regulations involve a trade-off between stability and distributional concerns as borrowers with high loan-to-value ratios are concentrated at the bottom of the wealth distribution, and borrowers with high loan-to-income ratios at the bottom of the income distribution. Subsequently, caps on loan-to-value and debt-to-income may exclude low-income and low-wealth households from the mortgage market. The down-payment constraint resulting from more restrictive caps will be particularly binding for first-time buyers and liquidity-constrained households such as younger and low-income households.

Excessive expansions of mortgage credit can trigger higher house price increases, which reduce housing affordability, and thus price out low-income households from the market. By curbing the joint increase of credit volume and house prices during leverage cycle booms, prudential caps may enhance housing affordability. This can enhance microeconomic resilience, especially for those households most vulnerable to price and income shocks. As a result, from both a macroeconomic and a distributional perspective, long-term positive gains from borrower-based prudential policies are likely to outweigh short-term costs.

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Ministry of Economic Affair (2018), *Distribution and Incentives (Fordeling og incitamenter)*. [1]

OECD (2013), *OECD Guidelines for Micro Statistics on Household Wealth*. [2]

Notes

[1] This chapter delivers new evidence and stylised facts on housing, wealth accumulation and wealth distribution based on Causa, Woloszko and Leite (2019[4]).

[2] Patterns of wealth inequality are more nuanced than that of income inequality (Clarke, Königs and Fernandez, 2021[224]).

6 Lifting Obstacles to Residential Mobility

While promoting residential mobility is not an end in itself, it is an important policy challenge, especially in countries with large spatial disparities and labour market skills mismatches. Policies that remove disincentives to move are likely to bring efficiency and equity gains by lifting productivity growth and social mobility. Removing policy obstacles to residential mobility can do much to facilitate labour market adjustment during the recovery from the COVID 19 crisis.

Main policy lessons

OECD countries exhibit substantive differences in residential mobility, which tends to be relatively high in Australia, the United States and the Nordic countries, while it is much lower in Eastern and Southern European countries.[1] In all countries, homeowners are much less mobile than renters.

Housing conditions and policies influence people's decisions and possibilities to move:

Residential mobility is higher where housing supply is more responsive to changes in demand. Reforming poorly designed land-use and planning policies, may facilitate mobility by reducing house price differences across locations.

Social cash and in-kind spending on housing are positively correlated with residential mobility. Social housing can be designed to avoid lock-in effects, for example, by waiving residency or queuing requirements in the case of unemployed workers taking up a job in the region.

Stricter rental market regulations, both rent control and greater security of tenure, are associated with lower residential mobility, particularly for renters, low-educated and low-income households. Rental regulations need to strike a balance between tenants' and landlords' interests, create security of tenure and encourage the supply of affordable rental housing.

Higher transaction costs in buying and selling a home, in particular from transaction taxes such as stamp duties and notary fees, are associated with lower residential mobility, especially among younger households, which are more likely to be first-time buyers.

Tax reforms shifting housing taxation from non-recurrent (e.g. transaction) to recurrent taxes would help reduce barriers to mobility. However, this may entail a trade-off with resilience as transfer taxes can curb excessing house price volatility and speculative behaviour.

Social and labour market policies also affect mobility. In particular, higher levels of cash income support to low-wage job seekers and minimum income schemes embedded in social transfers are associated with greater residential mobility.

Housing mobility: Trends, drivers and policies

Trends	Drivers	Policies
• **Why does mobility matter?** • *Mobility enhances the functioning of the labour market by improving the job-matching process. It affects well-being through access to better paying jobs, education and neighborhoods.*	• **What determines residential mobility?** • *Mobility largely reflects households' desire to change tenure status, to have a new or higher quality dwelling, or to move to a better neighborhood.*	• **How can policies affect mobility?** • *Policies affect households' decisions and possibilities to move, for instance, well-designed land-use and urban planning as well as social housing and housing allowances can raise supply and access to affordable housing.*

Do not hinder residential mobility

Residential mobility matters. The ease of moving residence geographically has efficiency implications, because it affects the job-matching process. Low rates of residential mobility can be an obstacle to labour adjustment, making labour markets less efficient, with adverse effects on overall economic performance (Oswald, 1996[1]; Caldera Sánchez and Andrews, 2011[2]; Blanchflower et al., 2013[3]; World Bank, 2018[4]).The ease of moving residence geographically has resilience implications. Indeed, it affects the speed of adjustment to shocks by determining the capacity of workers to move from high to low unemployment areas.

The ease of moving residence geographically also has well-being and equity implications, because it affects individual and family opportunities to climb the socio-economic ladder through various channels (Judge, 2019[5]); for instance, by facilitating access to better paying jobs in more prosperous areas, through better education and training opportunities and also to better neighbourhoods, especially for children and young people coming from disadvantaged backgrounds. Evidence from the US Moving to Opportunity (MTO) project shows that the young children from families that were randomly selected to receive housing vouchers allowing them to relocate from high to low-poverty areas later in their lives had improved rates of college attendance, higher earnings and lower incidence of single parenthood (Chetty, Hendren and Katz, 2016[6]). These findings underscore the benefits of combatting segregation and reducing spatial income and wealth sorting. They also show that benefits from mobility are strongest for children as they can kick-start towards better lifetime opportunities. Moving, however, is not always beneficial. Evictions, for instance, force people to move which is neither suitable for the affected individuals nor for the economy and society as a whole. Indeed, excessive residential mobility may have adverse implications for social stability within neighbourhoods by depreciating local social capital or for the educational performance of children if they are forced to change school too often (OECD, 2020[7]).

To complement this work, future OECD work in the area of housing and mobility will deliver new granular evidence on inter-regional mobility, on the extent to which people move in responsive to local economic shocks including unemployment shocks, and on how policies can shape such responsiveness (Causa, Abendschein, Cavalleri, 2021; Cavalleri, Luu, Causa 2021). By doing this, the work will discuss the need to implement packages of structural and place-based policies that strike the right balance between encouraging people to move towards better opportunities if they wish so, and policies that create opportunities and foster local development in places lagging behind.

Housing matters for mobility and homeowners are much less mobile than renters

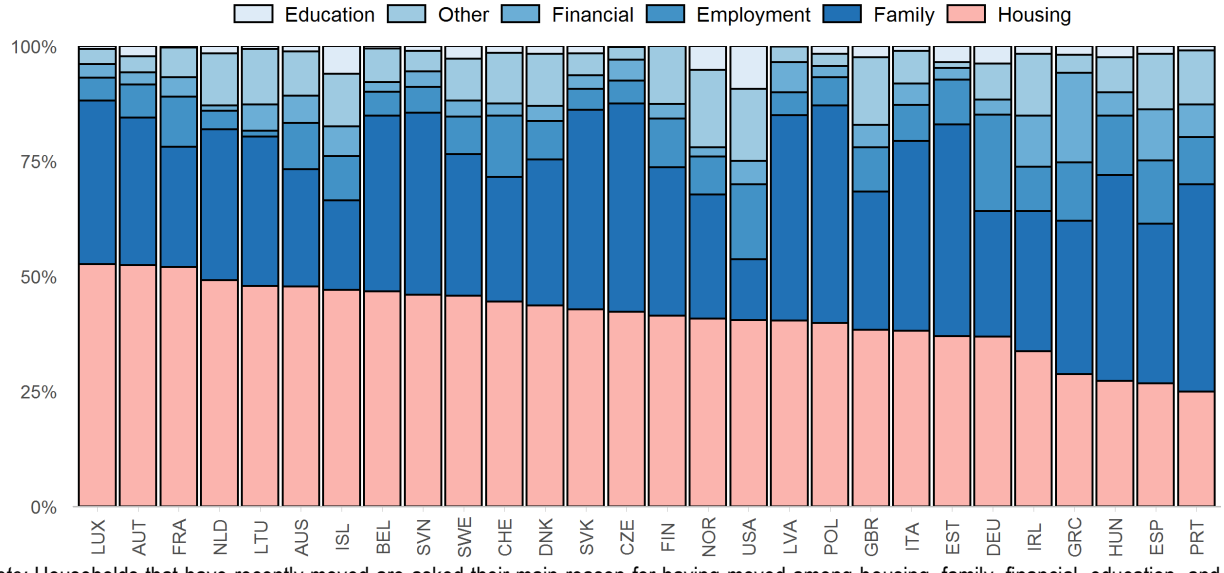
Empirical analysis shows that residential mobility is closely tied to housing market conditions and policies (Box 6.1). Household surveys show that the main reasons for re-locating are related to housing preferences and needs, including the desire to change tenure status, to have a new or better dwelling, or to move to a better neighbourhood (Figure 6.1). The degree to which households relocate varies widely across OECD countries: residential mobility is highest in Australia and in the United States, where more than 40% of individuals move over five years, while it is low in Southern and Eastern European countries, where less than 10% of individuals move over five years (Figure 6.2).

Box 6.1. Household-level data and empirical approach to study residential mobility

The analysis in Causa and Pichelmann (2020[8]) draws on household-level survey data for OECD EU countries, the United States and Australia. The advantage of these datasets is that they are based on a representative random sampling of the population and include information on residential moves, i.e. change of dwellings, and household socio-economic characteristics, including housing tenure status, income, household composition and size, labour market information, education, as well as urbanisation of the area of residence and region. This allows for a comprehensive analysis of individual and household drivers of mobility. Household data for the EU comes from the European Union Statistics on Income and Living Conditions (EU-SILC) household database. The analysis focuses on the 2012 cross-section, which in that year contained a specific module on household housing conditions, including information on change of dwelling and the reasons for doing so. The data for European countries is complemented with household data for the United States and Australia. The Australian data come from the Household, Income and Labour Dynamics in Australia (HILDA) survey, a household panel survey collecting information about economic and subjective wellbeing, labour market dynamics and family dynamics of Australian households. The American data is collected from the American Housing Survey (AHS), which collects data on housing and household characteristics, as well as recent movers.

To investigate the factors influencing residential mobility in OECD countries, a two-step approach is adopted. First, the effects of household and individual characteristics, such as housing tenure, income and age, on residential mobility are estimated for each country. This key step allows for comparing the effects across countries of household's attributes on mobility and for assessing the effect of individual housing tenure status on mobility while filtering out the confounding effects of other individual drivers of mobility such as age and education. In a second step, the empirical approach exploits cross-country variation in policies and institutions to assess the role of policy settings in explaining residential mobility. Policies included in the analysis cover housing policies such as rental market regulations and housing transaction costs as well as other policies that may influence mobility such as social and job protection. Policy effects are also estimated by socio-economic groups (e.g. by housing tenure status, education, age) to identify differential effects across groups, which underscores the distributional effects of these policy levers.

Figure 6.1. Housing is the most important reason for moving



Note: Households that have recently moved are asked their main reason for having moved among housing, family, financial, education, and other (see Causa and Pichelmann (2020[8]) for details). This charts provides the breakdown of such reasons across households, for each country.
Source: OECD Calculations based on 2012 EU SILC Data for EU countries, AHS 2013 for the United States, HILDA 2012 for Australia.

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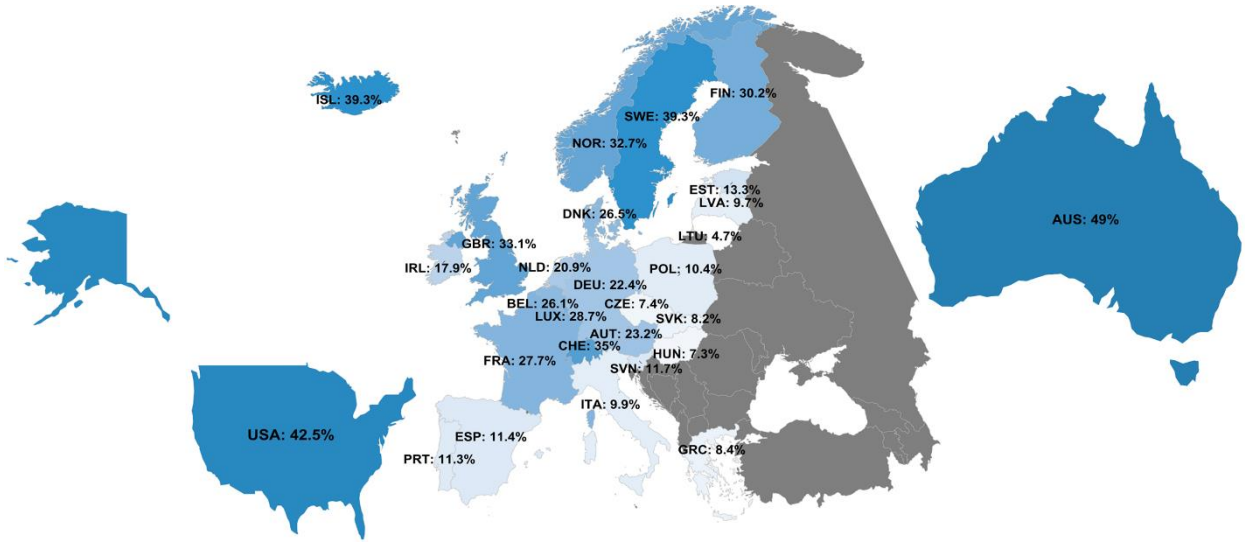
Figure 6.2. Selected OECD countries display wide variation in residential mobility



Note: Light blue refers to a mobility rate ranging from 5% to 20%, medium blue to a mobility rate in-between 20% and 35% and dark blue to a mobility rate of above 35%.
Source: OECD Calculations based on 2012 EU SILC Data for EU countries, AHS 2013 for the United States, HILDA 2012 for Australia.

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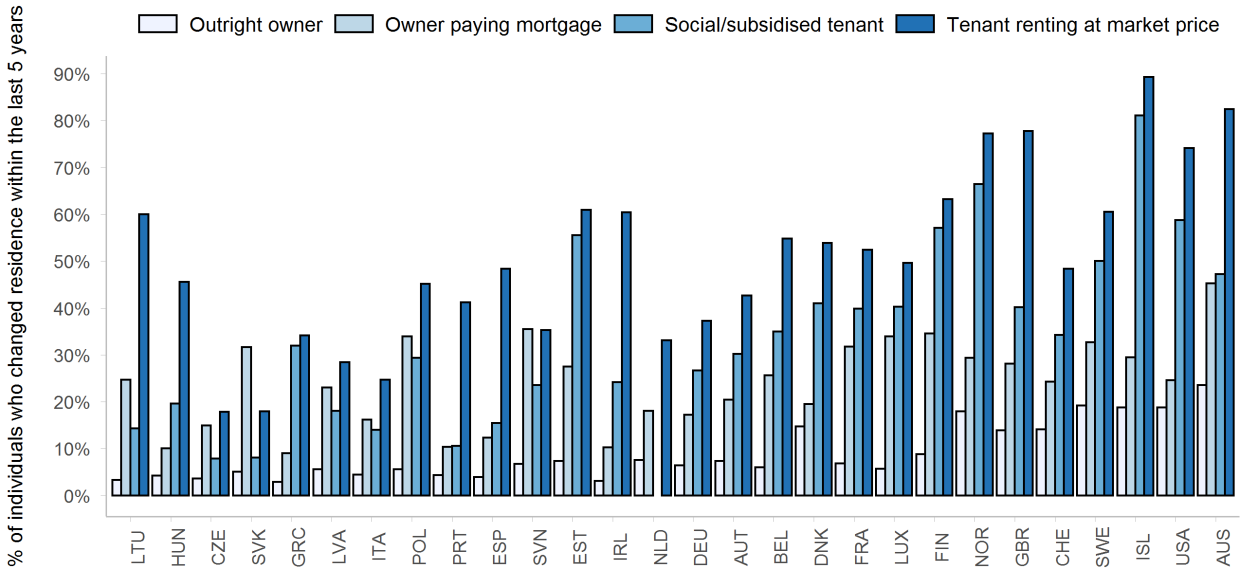
While there are large differences in mobility rates across countries, homeowners are systematically less mobile than renters (Figure 6.3), implying a negative cross-country correlation between homeownership and residential mobility (Figure 6.4). Mobility differences between housing tenure status persist after taking into account a wide array of individual and household drivers of mobility such as age, education, incomes (Causa and Pichelmann, 2020[8]).

- Mobility is the highest among tenants renting at market price and the lowest among outright owners. Social or subsidised tenants tend to be less mobile than private tenants.
- Mobility differences by tenure status are very large in all countries: for instance on average across OECD EU countries, private renters are around 5.6 times more mobile than outright owners. In The United States, displaying among the highest mobility rate in this study, the gap across housing tenure status is also very large, as private renters are around 3 times more mobile than outright owners.

Figure 6.3. Homeowners are much less mobile than renters

Residential mobility by housing tenure status



Source: OECD Calculations based on 2012 EU SILC Data for EU countries, AHS for the United States, HILDA for Australia.

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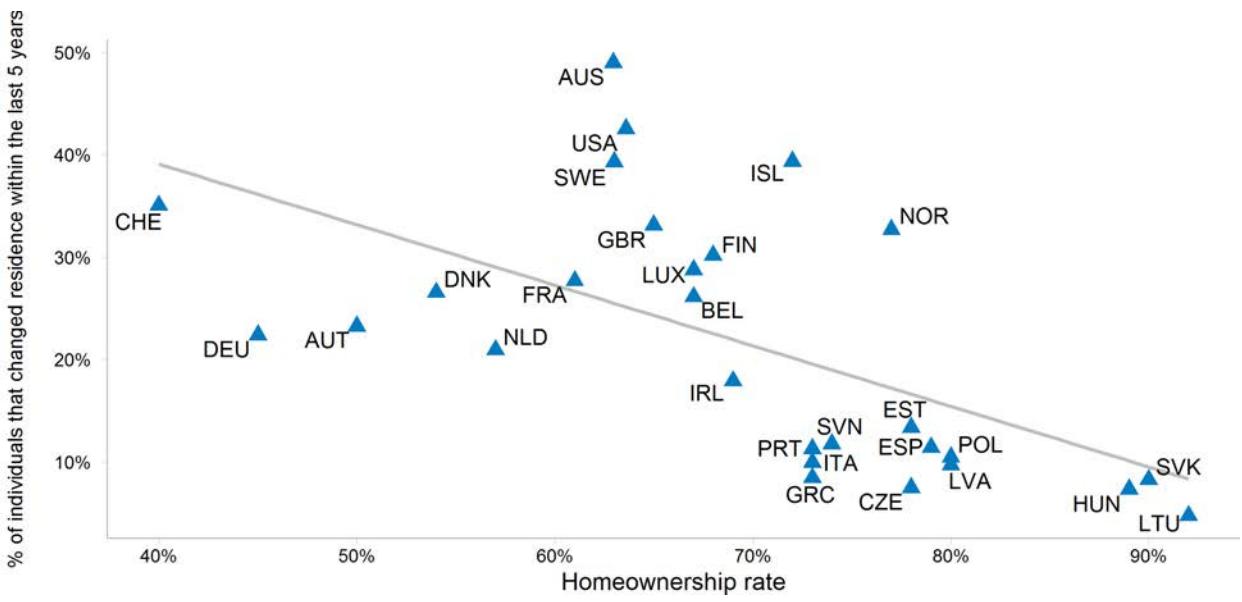
Figure 6.4. High-homeownership countries tend to have low residential mobility



Source: OECD Calculations based on 2012 EU SILC Data for EU countries; AHS 2013 for the United States; HILDA 2012 for Australia. Homeownership rates from the OECD Affordable Housing Database.

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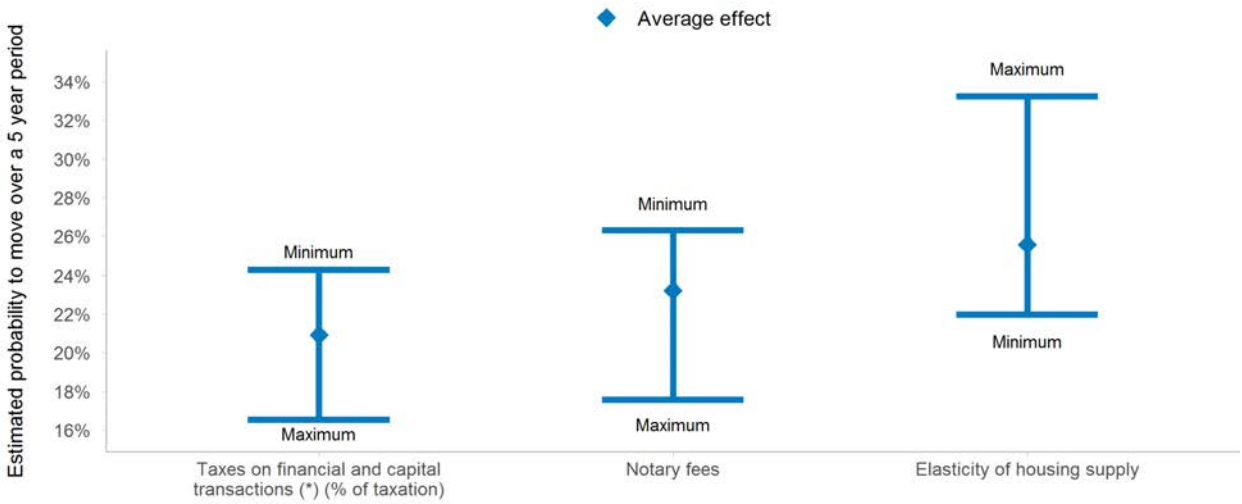
Embrace policies that favour residential mobility

Reduce housing transaction costs

Reducing policy-driven housing transactions costs encourages residential mobility. Housing-related transfer taxes, which are non-recurrent taxes due when buying or selling a property, discourage residential mobility, especially among young households, because these levies are likely to be more binding for first-time buyer. Notary fees associated with housing transactions, which are also due in certain countries when buying or selling a property, also discourage residential mobility. As a result, shifting housing taxation from non-recurrent to recurrent taxes, such as annual taxes on immovable property, can do much to enhance residential mobility.

Indeed, policy simulations suggest that shifting housing taxation away from non-recurrent levies would increase residential mobility (Figure 6.5). Reforms to reduce housing transaction levies have been recently implemented in a few countries (Box 6.2).

Figure 6.5. The probability to move depends on taxes, transaction costs and housing supply



Note: OECD calculations based on estimates reported in Causa and Pichelmann (2020[8]). The dot is the average estimated probability to move evaluated at average policy and household characteristics. The distance between the Min/Max and the average is the change in the estimated probability associated with a policy change.

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Box 6.2. Recent reforms to reduce housing transaction costs

In 2017, the United Kingdom abolished the Stamp Duty (transfer tax) for first-time homebuyers in England and Wales for home purchases up to GBP 300 000.

In 2011, Ireland reduced its stamp duty from 9% to 1% on the value of a property up to EUR 1 million, and 2% on the value exceeding the EUR 1 million. Simultaneously, all existing reliefs and exemptions for stamp duty on residential property were abolished. In 2013, the government completed these reforms by deciding to impose a recurrent property tax: 0.18% on all residential properties worth up to EUR 1 million and 0.25% for properties worth more than EUR 1 million.

Australia shifted from non-recurrent to recurrent housing taxation as part of a 2014 reform as the Capital Territory reduced transfer duties on conveyances and abolished insurance taxes while increasing land taxes.

The Netherlands reduced the housing transaction tax from 6% to 2% in 2012. The reform was financed by abolishing the tax exemption for work-related travel allowances, including the tax exemption for private travel in company cars.

Remove bottlenecks to responsive housing supply

Residential mobility is higher where housing supply is more responsive to changes in demand. The responsiveness of housing supply depends on geographical characteristics and also on policies, in particular on land-use regulations which influence the allocation of land and housing among different uses (see Chapter 2). For instance, restrictive regulations typically give rise to large house price differentials across regions and prevent households from moving from lower-priced areas to higher-priced areas, where jobs and training opportunities tend to be better. This situation has the potential to undermine both allocation of resources and social mobility.

Simulations indeed show that policy reforms that enhance housing supply responsiveness can do much to boost residential mobility (Figure 6.5). Such reforms have recently been implemented in a number of OECD countries. For example, in 2018 the Netherlands simplified the approval procedure and removed constraints for housing corporations which seek to rent on the private market and is progressively allowing municipalities to have more control over zoning and the planning of the private rental market. Steps in this direction were also taken by Sweden in 2016, where the government presented legislative measures to make the planning system more efficient and introduced support to municipalities based on the number of dwellings permitted.

In addition, housing supply conditions can affect the economic incentives to inter-regional migration and, consequently, the spatial allocation of workers within countries (Causa, Cavalleri and Luu, 2021[9]; Causa, Abendschein and Cavalleri, 2021[10]). A flexible housing supply enhances the responsiveness of people to both local GDP per capita and regional unemployment, thus potentially contributing to an efficient matching between workers and jobs, a reduction of local imbalances and more flexibility in case of local shocks. Reducing policy-driven barriers to a responsive housing supply, for example by reforming the governance of land-use, may also improve inclusiveness as it supports people's access to better jobs and limit the risks that people are trapped in less-advantaged areas. In fact, in the United States, rising cross-regional divides in house prices have been found to create barriers especially to the mobility of low-skilled workers towards metropolitan areas (Causa, Cavalleri and Luu, 2021[9]; Bayoumi and Barkema, 2019[11]). Overall, the lack of opportunities for regional mobility for some socioeconomic groups can have adverse consequences in terms of growth and inclusiveness (Hsieh and Moretti, 2019[12]).

Box 6.3. The role of housing in inter-regional migration

Inter-regional migration has been declining in several OECD countries over the past decades. The decline has been attributed to a reduction in the economic returns to migration due to, among other factors, rising housing costs (Bayoumi and Barkema, 2019[11]). The expected income gains from moving no longer compensate for the rising costs of housing, especially for workers at the bottom of the wage and skill distribution.

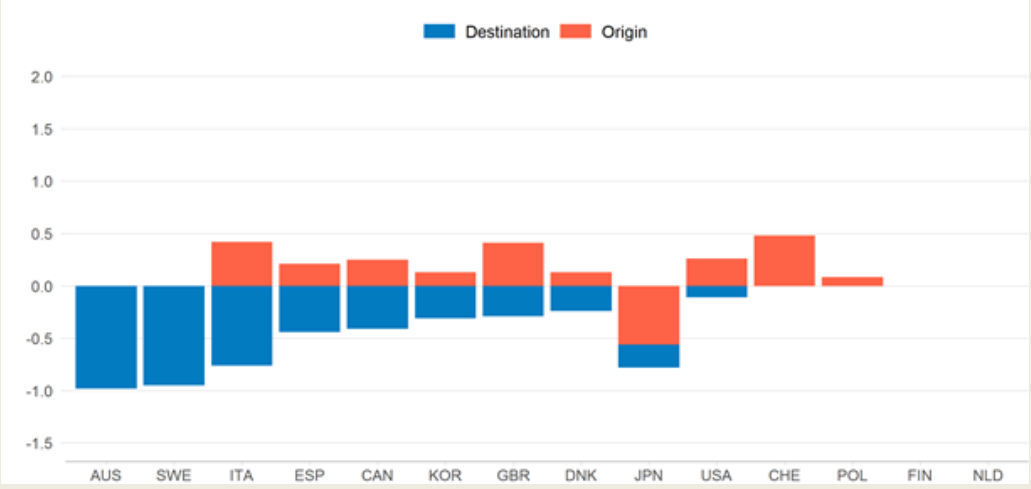
Recent OECD research (Causa, Abendschein and Cavalleri, 2021[10]; Causa, Cavalleri and Luu, 2021[9]), exploiting both cross-country and country-specific regression analyses, show that economic and housing-related factors affect the direction and intensity of inter-regional migration flows. High GDP per capita and low regional unemployment rates are found to attract migrants, while high regional house prices discourage mobility. High or rising regional house prices reduce the economic attractiveness of a region. For example, a 10% rise in house prices in a region deter inward migration by on average 3%.

At the same time, high house prices in the region of residence could induce outward migration because of affordability concerns. Some people – especially among disadvantaged social groups – may leave an area because they cannot afford stable or adequate quality housing. In some European countries, rising outward migration from large metropolitan areas, often of young families, has occurred in parallel with a rise in inter-regional commuting. This trend is sustained by the improvement of transport infrastructure and the increase in housing costs and congestion in major metropolitan areas. Indeed, migration outflows are stronger from regions where house prices grow comparatively faster: on average, a 10% rise in house prices is associated with a rise of outflow migration by 1.5%. Overall, the negative effect of house prices on inward migration is comparably larger in magnitude than the positive effect on migration outflow, implying that rising house prices in a region could result in a sustained loss of population over time.

The significance and magnitude of the effect of house prices on inward and outward migration vary across countries (Figure 6.6). House prices have a stronger impact on internal migration where they have increased more sharply (such as Sweden, Switzerland, Australia and Canada), or where cross-regional differences in housing costs are more pronounced (e.g. the United States and the United Kingdom).

Housing-related policies can affect the evolution of regional house prices and hence have a direct impact on inter-regional migration. However, they can also have an indirect impact because they affect the responsiveness of migration to other economic factors. For example, where housing supply is more flexible, inter-regional migration is more responsive to local economic conditions, such as GDP per capita and unemployment. On the contrary, stricter rental regulations, both rent control and greater security of tenure, are associated with lower responsiveness of inter-regional migration to local labour market conditions.

Figure 6.6. Estimated regional migration elasticities to local house prices at origin and destination



Note The charts show the estimated elasticity of inter-regional migration to real regional house prices by destination and origin region. The estimates have been derived from country-specific gravity models of inter-regional migration. The size of the bar represents how much, in percentage points, migration towards or out of a region would change following a 1% increase in the house prices in that region. Countries are ranked in ascending order by the elasticity in the destination region.
Source: Causa, Cavalleri and Luu (2021).

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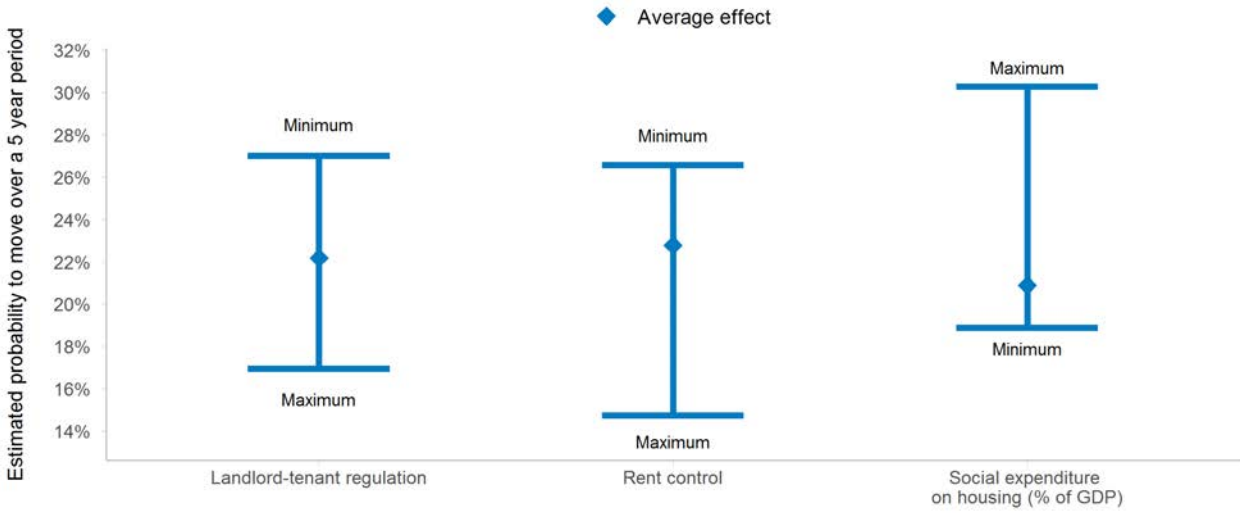
Reform excessively rigid rental market regulations

Residential mobility is lower where rental market regulations, both rent control and tenant-landlord regulation, are stricter. Tenants in rent-controlled dwellings may be reluctant to move and give up their below-market rents. Also, rent control and tenant protection measures affect disproportionately low-income households as well as low- and middle-educated ones. These social groups are the least mobile to start with, which implies that too restrictive rental market regulations may unintendedly constitute an additional barrier to the mobility of the least mobile groups. Moreover, where rents are out of line with housing market conditions, landlords are discouraged from letting their property, which reduces the size of rental markets (see Chapter 3), with potentially negative repercussions for affordability. Also, excessive protection of tenants puts vulnerable workers, such as those with non-standard contracts, including young people, at a particular disadvantage.

Policy simulations suggest that adopting more balanced regulations between landlord and tenants and reducing rent control have the potential of facilitating residential mobility (Figure 6.7). The majority of OECD countries have made landlord-tenant regulations more landlord-friendly over the last decade, in particular Austria and Finland, even though rent control has often increased at the same time, with few exceptions such as the Czech Republic, the United Kingdom and the United States, where rent control has actually been eased.

While reducing excessively rigid rental market regulations is found to encourage mobility, reforms in this area can raise trade-offs. Too stringent rental regulations can discourage new construction and maintenance by capping the price of rentals. Regulations are motivated by the legitimate goal of counteracting the asymmetric bargaining power between landlords and tenants. This is particularly salient at the current juncture where countries' need to avoid evictions of financially distressed households.[2] As a response to the COVID-19 crisis, several countries have temporarily increased the stringency of rental market regulations, most often by temporarily suspending evictions and also, less often, by reducing or postponing rent payments for disadvantaged tenants (see Box 1.6 in Chapter 1).

Figure 6.7. Rental market regulations and social housing also affect the probability to move



Note: OECD calculations based on estimates reported in Causa and Pichelmann (2020[8]). The dot is the average estimated probability to move evaluated at average policy and household characteristics. The distance between the Min/Max and the average is the change in the estimated probability associated with a policy change.

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Invest in social housing

Residential mobility is affected by the level and design of cash and in-kind housing transfers, especially among renters and low-income groups. Both housing allowances (i.e. housing-related cash transfers) and the provision of social housing are associated with higher mobility. However, social housing tenants are less mobile than private renters (Figure 6.3), because of limited portability of entitlements, which creates lock-in effects.

Based on policy simulations, increasing social spending on housing, including cash (e.g. housing allowances) and in-kind transfers (e.g. social housing), would foster residential mobility (Figure 6.7). As developed in Chapter 2, social spending on housing, which is primarily motivated by affordability and inclusiveness concerns, has declined over time in many countries. Countries such as Belgium, Canada, Luxembourg and New Zealand have nevertheless taken steps to increase the supply or renovate their social housing stock. Provided eligibility rules are designed to avoid lock-in effects, such reforms may address housing affordability issues and at the same time make it easier to relocate for disadvantaged households.

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Notes

[1] This chapter presents new evidence on housing and residential mobility across OECD countries and on the role of housing-related and other policies in influencing mobility based on Causa and Pichelmann (2020[8]).

[2] New OECD data in the Housing Affordable Database show that at least 3 million formal eviction procedures we initiated in 18 OECD countries for which data are available. See Affordable Housing Database - OECD.

7 Reconciling Housing and the Environment

The nexus between the residential sector and environmental quality is reciprocal and complex. The residential sector generates environmental impacts via land and materials use, energy consumption and the transport activity it engenders. Environmentally motivated policies on land-use, construction and energy efficiency, and transport seek to alleviate these impacts by incorporating the cost of environmental externalities into house prices. As a result, such policies often have negative impacts on affordability. Housing policies can also have environmental implications insofar as they affect the environmental footprint of residential development. The impacts of environmental policies on housing markets, and vice versa, depend on policy and the characteristics of the urban areas where they are implemented. Sustainability in the housing market can be promoted according to social welfare approach that accounts for housing affordability, as well as the environmental and economic impacts of policies.

Main policy lessons

The residential sector has a sizeable environmental footprint. It generates environmental externalities directly, through the use of materials in construction and demolition. It also impacts the environment indirectly, through the energy consumed during construction and use of residential buildings. The housing sector is also related to transport-related environmental externalities, as spatial development patterns determine the extent to which urban mobility depends on car use.

Environmental policies in the residential sector aim to correct these externalities by better aligning the private and the social costs of housing. The net environmental impacts of common land-use policies depend on how these policies internalise the external costs from land-use, energy consumption, materials use into property prices and rents.

Although evaluating the housing-related impacts of environmental policies in specific contexts involves the use of cost-benefit analysis on a case-by-case basis, certain policy interventions tend to have consistent impacts on housing supply, demand and affordability. For example, because environmentally related policies tend to increase the cost of housing, it is important to consider possible trade-offs between environmental sustainability and affordability objectives. In contrast, some environmental policies, such as densification, can mitigate the environmental footprint of the residential sector while also ameliorating housing affordability. Such policies that achieve net improvements in environmental quality and in housing affordability could be identified and prioritised in housing policy reform packages.

There is scope for better accounting for the impacts that environmental policies can have on housing markets, and *vice versa*. These impacts can be anticipated *via ex-ante* approaches that estimate the cross-sectoral implications of policies based on the characteristics of the housing market, urban form, transport systems and consumer preferences in specific contexts. *Ex-post* approaches that evaluate the impacts of housing and environmental policies on the housing markets and the environment, respectively, are also important in better understanding the trade-offs between the two and of the role of contextual factors therein.

Implications of select environmentally-related policies on the housing market

Policy	Housing supply	Housing demand	House prices	Environmental impact
Maximum density restrictions	↘	-	↗	-
Property taxation	-	↘	↗	-
Urban growth boundaries	↘	-	↗	-
Energy efficiency regulations	-	-	-	↗
Preservation of open space	↘	↗	↗	-

Note: Cells with no arrow either mixed evidence, evidence of no significant impact, or a lack of evidence. As significant heterogeneity exists within policy measures, specific findings will differ by specific policies and the context in which they operate. Impacts on house prices are considered in the absence of any compensatory measures. Environmental impacts reflect only those impacts considered by the studies in question, and therefore do not necessarily represent net environmental impacts.

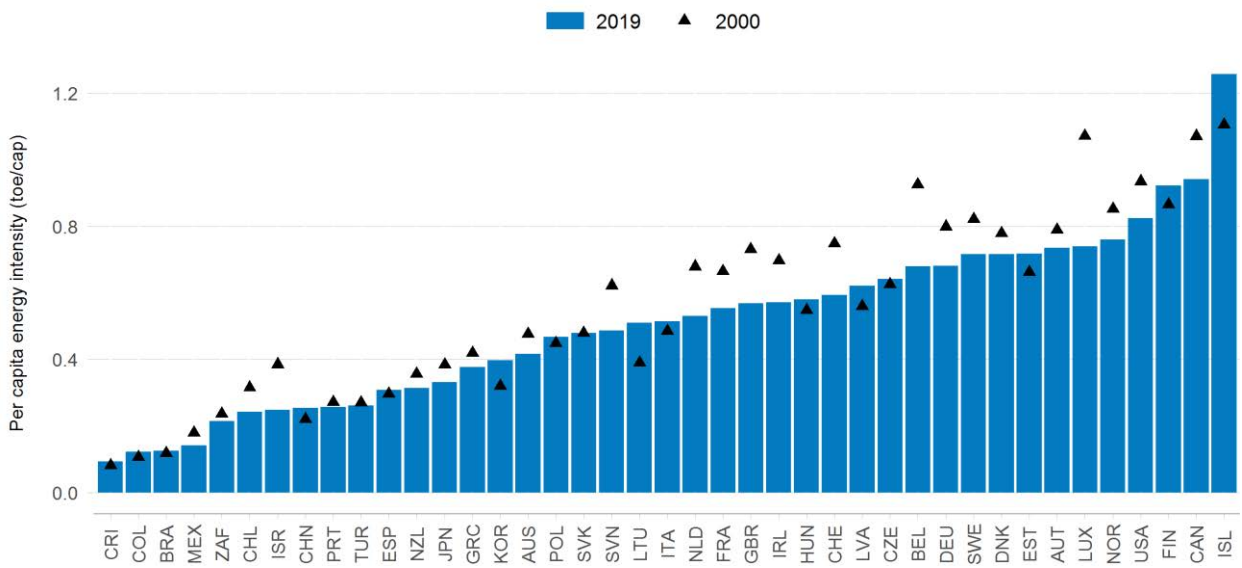
Recognise the strong environmental impact of housing

A residential structure generates various pecuniary and negative externalities across its life cycle. First, it implies the use of land, which in many cases is relatively scarce and may have other productive uses. Its construction requires materials and energy that generate greenhouse gas emissions and other environmental pollutants. Globally, urban land area is projected to rise nearly five-fold, to almost 3 million km^2 by 2050 (Angel et al., 2011[1]), and 70% of the world population is expected to live in these areas. To meet the increasing housing demand globally, the construction sector is expected to more than double between 2017 and 2060, along with its use of materials. This expansion is set to lead to almost 84 Gt of construction materials use per year in 2060 (OECD, 2019[2]).

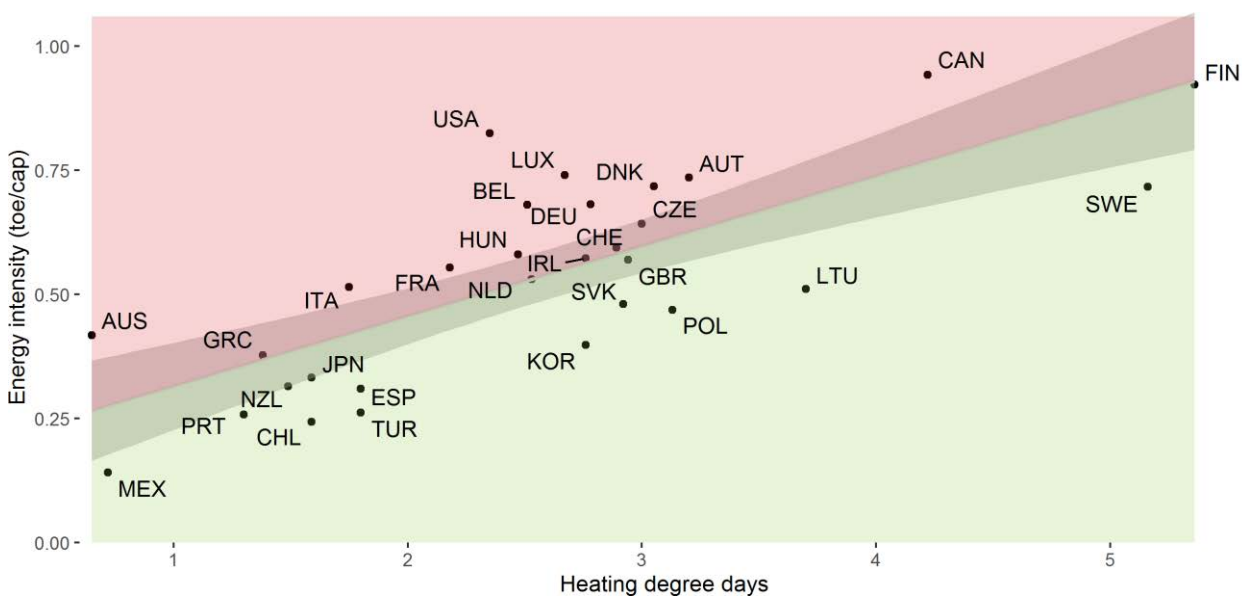
Once a structure is built, it continues to have environmental impacts through energy and water consumption on the one hand, and waste and sewerage creation on the other. Many countries have improved housing-related energy efficiency, as evidenced by declining residential energy consumption per capita (Figure 7.1, Panel A). Exceptions are most Eastern European countries as well as Brazil, Italy, Spain and Finland. Countries that achieved small reductions in energy intensity however saw overall energy consumption increase on the back of rising population, a trend that is set to continue on unchanged housing and energy policies. The bulk of the energy consumption of the residential sector originates comes from heating, which explains why countries exposed to cooler temperatures usually exhibit higher per capita energy consumption. Still, there are large discrepancies in terms of how heating degree days, an indicator for the intensity and duration of cold temperatures, translate into residential energy consumption per capita (Figure 7.1, Panel B). In some countries that consume a lot of energy relative to what the number of heating degree days would suggest, the use of air conditioning explains a good chunk of energy consumption (United States, Australia, Canada). Another key determinant of high energy consumption seems to be the size of dwellings. Indeed, the United States leads the country ranking in terms of floor area per capita followed by Canada and Denmark, all countries that exhibit a residential energy intensity above the average for a given number of heating degree days.

Figure 7.1. Energy intensity of the residential sector varies considerably across countries

Panel A: Energy consumption per capita



Panel B: Energy consumption per capita vs. heating degree days, 2019



Note: The residential sector's energy consumption includes space heating and cooling, water heating, cooking and appliances.
Panel B: Heating degree days are defined as the number of degrees that a day's average temperature is below the country's base temperature, that is, the temperature below which residents typically turn on the heating system. The green (red) area signifies energy consumption smaller (greater) than expected given the number of heating degree days. Shaded areas around the regression line denote confidence intervals
Source: Energy Efficiency Indicators, IEA, 2020 edition.

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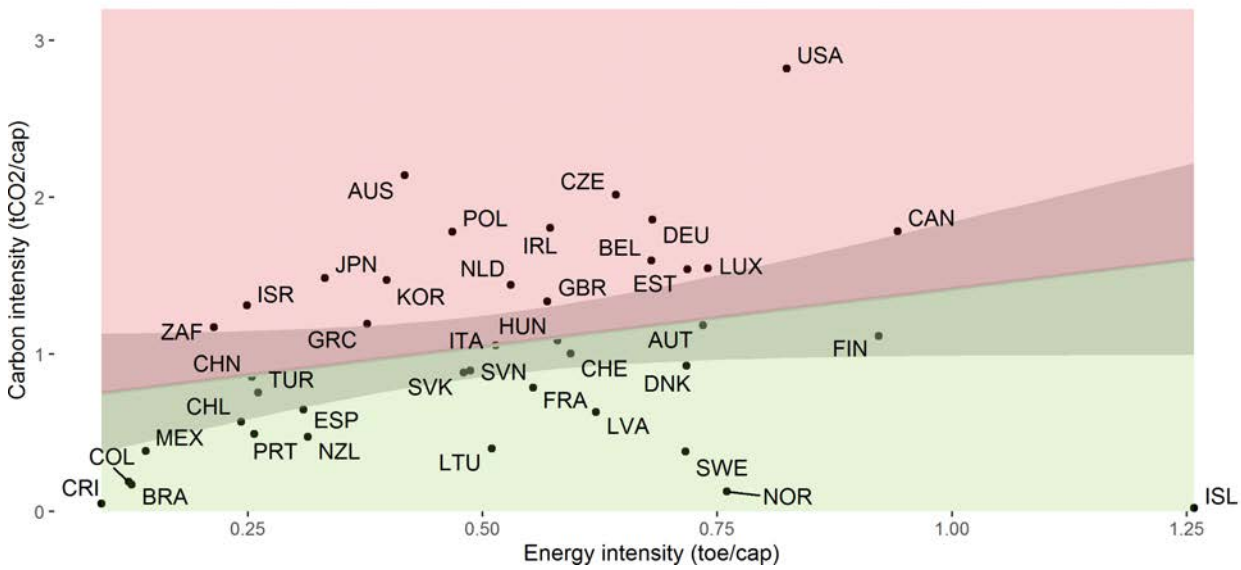
Including the indirect emissions from power generation are considered, buildings are responsible for nearly 30% of global energy-related CO_2 emissions. In absolute terms, buildings-related CO_2 emissions rose to an all-time high of 9.6 $GtCO_2$ in 2019 (IEA, 2020[3]). While the residential sector's carbon intensity strongly correlates with energy intensity (Figure 7.2), differences in the energy mix explain a significant part of cross-country differences in the carbon footprint per capita. Countries with a high share of low-carbon energies (i.e. nuclear and renewables) achieve a much lower per capita carbon footprint for the same per capita energy consumption. Countries that stand out in this respect are France with a high share of primary energy from nuclear (37% in 2019), Sweden with both a high percentage from nuclear (27%) and renewables (42%) and Brazil that displays the highest share from renewables (45%) mainly from hydroelectric power (28%).

Figure 7.2. Link between energy intensity and carbon footprint



Note: Green (red) area signifies a carbon intensity smaller (greater) than expected given the level of energy intensity. Shaded areas around the regression line denote confidence intervals. All data refers to 2019.
Source: Energy Efficiency Indicators, IEA, 2020 edition.

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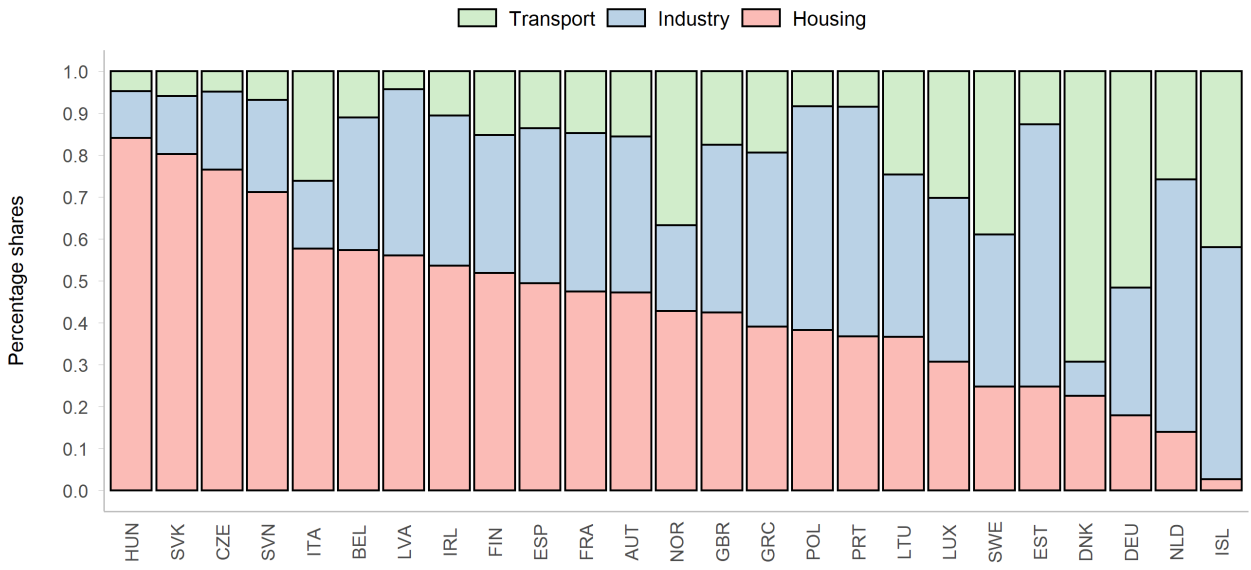
1. Residential activities are also responsible for 44% of fine particulate matter (PM2.5) emissions on average across OECD countries (Figure 7.3).[1] Housing is a critical source of PM2.5, especially in Central and Eastern European countries, due to the relatively high proportion of solid fuels, notably wood and coal, in residential heating (Karagulian et al., 2015[4]). PM2.5 is the air pollutant that poses the greatest risk to health globally, and critical exposure to these particles considerably increases the risk of respiratory and cardiovascular diseases. Exposure to PM2.5 concentration is positively correlated with the density of urban areas (Borck and Schrauth, 2021[5]). Mean exposure to PM2.5 emissions is decreasing in most OECD countries (Figure 7.4) – due to optimised combustion processes (in industry and in residential heating), a decrease of coal in the energy mix, and lower emissions from transport and agriculture – but still remains high and above the 10 $\mu g/m^3$ recommended by WHO (OECD, 2020[6]).

Figure 7.3. Housing accounts for the bulk of emissions in many countries

Origin of PM2.5 emissions, 2017



Note: The "Housing" category includes the sub-categories: *Housing, water, electricity, gas and other fuels*, and *Housing-other*. The "Industry" category includes all ISIC rev.4 classification activities from A to U except for H, which is merged together with the Households-Transport subcategory into "Transport".

Source: Air emission accounts, OECD Environment Database.

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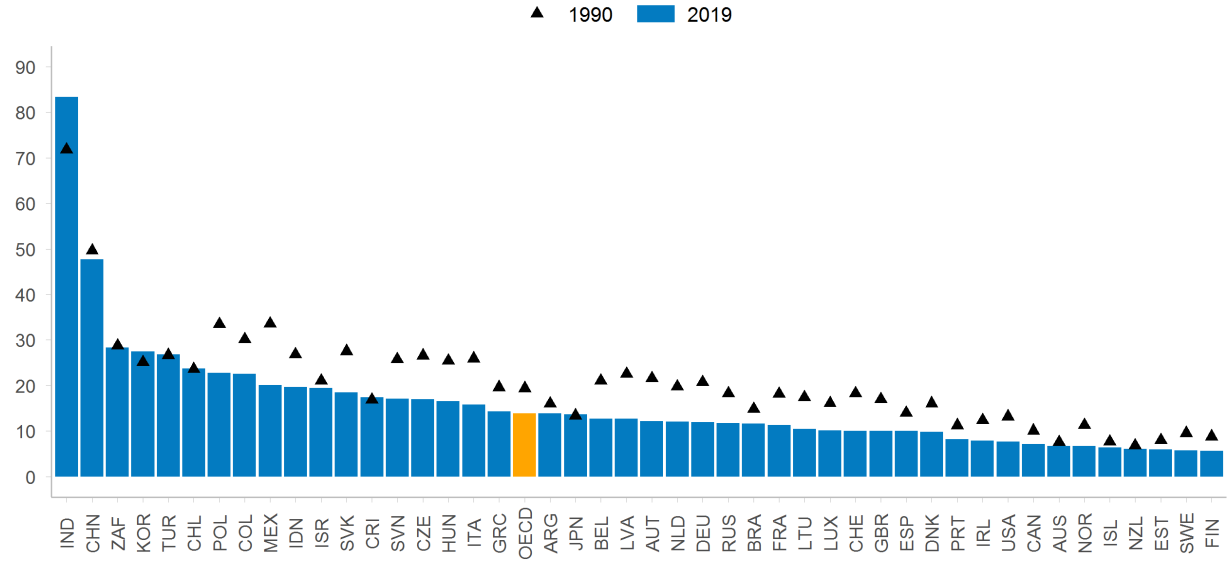
Figure 7.4. Exposure to emissions has been reduced in most countries

PM2.5 emissions, in µg/m³



Note: Mean annual outdoor PM2.5 concentration weighted by population living in the relevant area, that is, the concentration level, expressed in microgram/m3, to which a typical resident is exposed throughout a year. 2019.

Source: Enviromental risks and health, OECD Environement Database.

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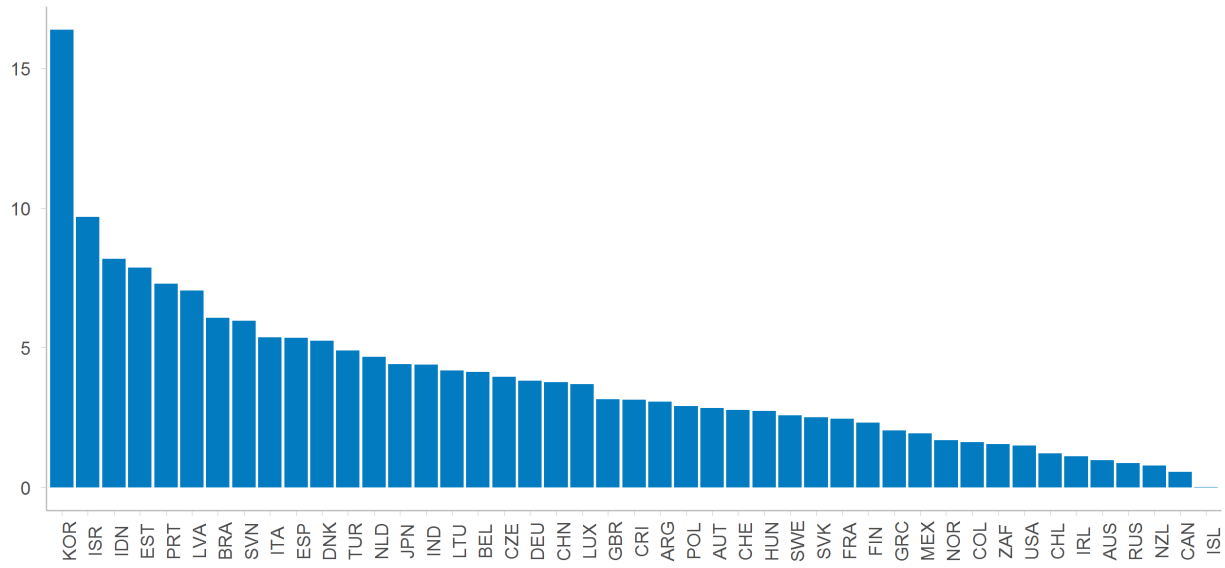
2. The housing sector also generates environmental impacts related to the transport activity that it engenders. In general, a less accessible location implies greater reliance on private cars and a larger environmental footprint. The relationship between environmental quality and the housing sector is bidirectional, as the former also has implications for the latter. Proximity to environmental amenities is an important determinant of housing demand, and the elasticity of property values with respect to the quality of environmental amenities is generally greater than one (Kuethe and Keeney, 2012[7]; Wang et al., 2015[8]). Finally, urban growth is often characterised by a scattered, low-density development pattern known as urban sprawl, which is associated with multiple environmental externalities, social inefficiencies and car dependence (OECD, 2018[9]). The loss of biodiversity is among the most pressing global environmental challenges related to urbanisation. Figure 7.5 illustrates the percentage of tree cover, grassland, wetland, shrubland and sparse vegetation converted to cropland or artificial surfaces from 1992 to 2015 in functional urban areas. The results suggest large discrepancies across countries.

Figure 7.5. Urbanisation threatens biodiversity

Loss of natural and semi-natural vegetated land in functional urban areas, from 1992 to 2015, in %



Note: The indicator shows the percentage of tree cover, grassland, wetland, shrub land and sparse vegetation converted to any other land cover type (cropland or artificial surface).
Source: OECD.Stat: Land Cover in Functional Urban Ares (http://dotstat.oecd.org/Index.aspx?DataSetCode=LAND_COVER_FUA).

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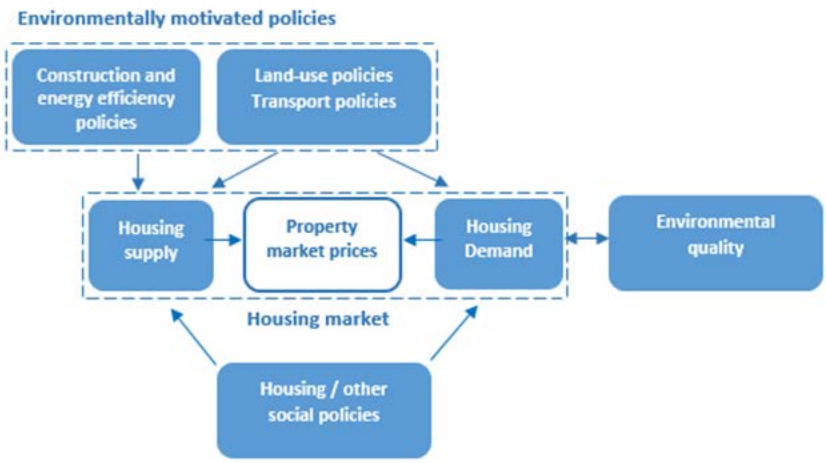
Identify policies that lead to improvements in environmental quality and housing affordability

The general aim of environmental policies in urban areas is to reduce the environmental externalities of urban development, such as greenhouse gas emissions and other pollutants generated by buildings and transport. Other interventions aim at limiting land-use change, preserving open space and protecting biodiversity. Such policies can affect the functioning of housing markets through their impacts on supply and demand for housing, and therefore on housing prices and affordability. The impact of environmentally-related policies on housing supply is twofold. In the long term they may induce more gradual changes in urban form and other factors that affect supply and housing prices.

3. The interactions between environmentally related policies and housing markets are complex (Figure 7.6). Land-use and transport policies may impact either housing demand or housing supply, or both, whereas construction regulations mainly influence housing supply. Policies surrounding construction practices and energy efficiency mainly influence housing supply. Non-environmentally related policies can also have impacts on environmental quality through their impacts on housing markets. In turn, environmentally related policies that impact housing supply and demand will also impact housing prices and affordability.

Figure 7.6. Environmental policies affect housing markets



Policies also interact with fundamental drivers of housing supply, including the cost of land, renovation/site improvement, labour and materials, as well as finance, administration and marketing. In addition to the cost of these inputs, the price of the existing stock of dwellings, and the technologies used in construction also impact housing supply. Insofar as the housing supply is elastic to the availability of land and other factors, any policy affecting these factors will have an impact on the housing market via changes in housing supply. The extent to which environmentally related policies will impact housing supply in specific areas depends on local conditions that determine how supply responds to changes in these factors.

Environmentally related policies can impact housing demand by affecting accessibility of jobs, economic centres, and environmental and other amenities. For instance, policies that make an area more accessible to public transport and soft mobility, as well as less exposed to traffic congestion will render it more attractive as a residential location and will consequently serve to raise housing and land prices in that area. In addition, other powerful factors drive housing demand, such as demographics (e.g. population growth, family size and age composition, net migration), income, the user cost of capital, the availability of credit, consumer and investor preferences, and the prices of substitutes and complements to housing. The analysis of the impacts that follows considers these factors as fixed, thus the reported impacts should be interpreted as assuming that all else remains equal.

Land-use policies must be carefully designed to achieve their environmental objectives without inducing substantial welfare losses in the housing market. Land-use policies play an important role in shaping urban form, which has direct as well as indirect environmental implications. Environmentally related land-use policies seek to mitigate the negative externalities of the residential sector *via* several approaches, including managing growth, reducing the environmental impacts of existing development, and preserving open space (Table 7.1 and Table 7.2). In addition to reducing the negative environmental externalities of urban areas, land-use policies also aim to foster social cohesion and security, protect public health and safety, secure property rights and improve the functioning of housing markets, capture the value accruing

from public sector investments and raise revenues to finance continued infrastructure provision (UNECE, 2008[10]; Silva and Acheampong, 2015[11]).

Table 7.1. Examples of environmentally related land-use policies affecting the housing market

Regulatory constraints	
Urban containment measures	Set a geographic boundary on urban development, limiting urban growth. May also limit the provision of urban services, or establish a greenbelt that surrounds the urban area.
Land-use zoning	Zoning that confines land-use to preserve non-residential purposes (e.g. agricultural, forestry, open space)
Performance zoning	Adjusts the development standards to increase performance with respect to various environmental indicators (e.g. noise, open space, water flow, etc.)
Regulatory incentive	
Density bonuses for sensitive design	Encourages development patterns that maintain a maximum of open space
Spending	
Brownfield remediation grants	Tax-based instruments, incentive-based funding schemes to encourage the regeneration of urban areas.

Source: Adapted from Wu and Oueslati (2016[12]) and Silva and Acheampong (2015[11]).

Table 7.2. Impact of relevant environmentally related land-use policies on housing markets

Land-use policy	Housing supply	Housing demand	House prices	Environmental impact
Regulatory restrictions				
Urban containment measures	↘	-	↗	-
Land-use zoning	↘	-	↗	-
Performance zoning	-	-	-	↗
Regulatory incentives				
Density bonuses for sensitive design	↗	-	-	-
Spending				
Brownfield remediation grants	↗	-	↗	↗

Note: Cells with a dash indicate either mixed evidence, evidence of no significant impact, or a lack of evidence. As significant heterogeneity exists within policy measures, specific findings will differ by specific policies and the context in which they operate. Impacts on house prices are considered in the absence of any compensatory measures. Environmental impacts reflect only those impacts considered by the studies in question, and therefore do not necessarily represent net environmental impacts.

Source: Ball et al. (2014[13]), (Staley, Edgens and Mildner, n.d.[14]), (Mathur, 2014[15]), Bengston (2006[16]); Quigley et al. (2005[17]), Jepson et al., (2014[18]); (Baker, Sipe and Gleeson, 2006[19]); Carroll et al. (2009[20]), Otto (2010[21]), Furman Center for Real Estate and Urban Policy (2014[22]); Whitaker and Fitzpatrick (2016[23]), Kelly (2015[24]); US EPA (2011[25]), Sullivan (2017[26]), Haninger, Ma and Timmins (2017[27]); Gilderbloom et al. (2009[28]); Krizek (2003[29]); Been (2005[30]), Byrne and Zyla (2016[31]); Brandt (2014[32]); Morris (2000[33]); OECD (2018[9]); Dzigbede and Pathak (2019[34]), Allen (2018[35]).

Despite their generally positive environmental impacts, land-use policies have substantial distortionary impacts on the functioning of the housing market in urban areas. For instance, the economic benefits of greenbelts include the higher amenity value of protected land and fiscal savings from more efficient provision of public services and infrastructure. However, greenbelts can also give rise to economic side-

effects such as rising housing costs and social pressure if housing supply within the area is not able to accommodate growing demand (see Box 7.1; Glaeser and Kahn, 2008). Furthermore, although they often result in improvements in local environmental quality, the net environmental impacts of these types of measures are not always positive. Net environmental impacts can in fact be negative in cases where the urban area located within the containment zone is not able to accommodate additional development. This may occur, for example, when an urban growth boundary coexists with stringent maximum building height restrictions. For instance, leapfrog development may create a scattered development pattern (Vyn, 2012[36]) that increases the social cost of public service provision. Car dependency and increased CO_2 emissions are among the most important consequences of such development (Matteucci and Morello, 2009[37]).

Therefore, environmentally motivated land-use policies must be carefully designed to achieve their environmental objectives without inducing substantial welfare losses in the housing market. Ensuring an adequate amount of developable area within an urban perimeter and periodically reevaluating the boundaries defined by urban containment measures, for example, can prevent housing supply from becoming inelastic and mitigate the negative impacts of containment policies on house prices (Silva and Acheampong, 2015[11]; Ball et al., 2014[13]; Bengston and Youn, 2006[16]; Blöchliger et al., 2017[38]). Similarly, the net environmental impacts of zoning regulations are unclear, as considerable diversity exists regarding specific zoning mechanisms and the contexts in which they are implemented.

Maximum building height restrictions are among the most common regulatory mechanisms worldwide, with considerable impacts on the housing market and the environment. For instance, maximum building height restrictions are often invoked to protect historical buildings in city centres and to maintain non-market attributes, such as visibility, primarily in suburban areas. As such, they often confer social benefits, which may increase residential satisfaction (Brown, Oueslati and Silva, 2016[39]) and raise land and house prices. Flexible building height restrictions are a particularly effective instrument to prevent population density from reaching levels that are socially detrimental, such as in areas where the spatial concentration of air pollutants is high (Schindler and Caruso, 2014[40]). In spite of this, widespread building height restrictions can have severe adverse effects in the markets of land and housing, as well as on the environment. When deployed without sufficient justification, this type of zoning policy contributes to excessive sprawl, generates additional congestion and emissions whose social cost may well exceed 2% of household income (Bertaud and Brueckner, 2005[41]; Tikoudis, Verhoef and van Ommeren, 2018[42]).

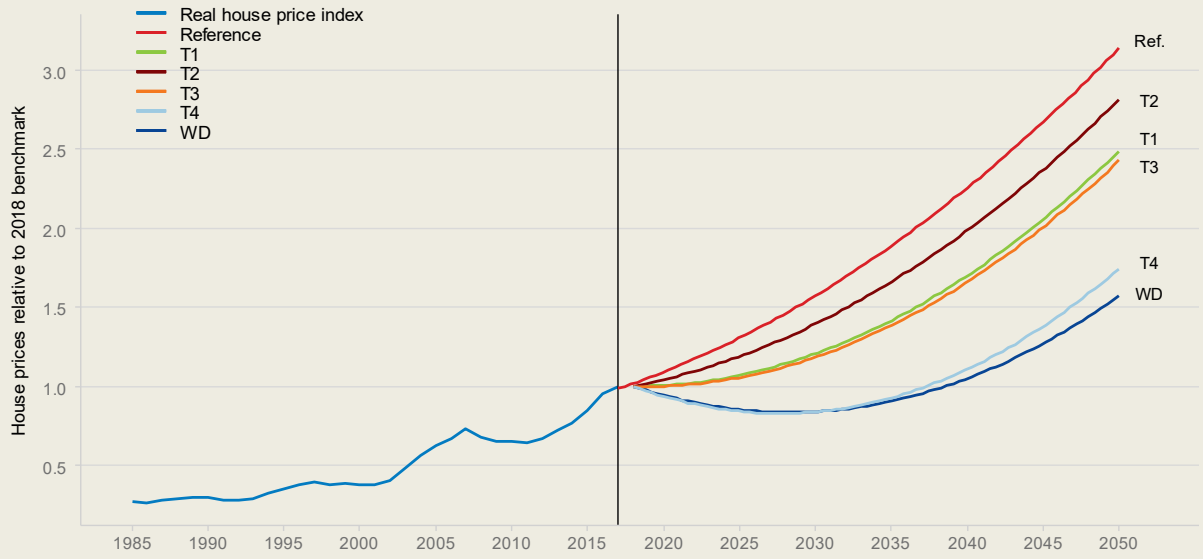
Other measures, while theoretically efficient, are not in widespread use due to practical issues related to their implementation. For example, performance zoning, which requires properties to meet certain standards of environmental performance, allows for flexibility in how developers achieve environmental outcomes. However, this type of zoning is more difficult to administer than more classic approaches based on simpler metrics, such as how a property is used and its physical characteristics (Wilson et al., 2018[43]; Frew, Baker and Donehue, 2016[44]; Baker, Sipe and Gleeson, 2006[19]).

Box 7.1. The link between environmentally related policies and housing markets: A case study of Auckland, New Zealand

Land-use policies can have substantial environmental repercussions, but they also affect the housing market, often *via* their interactions with transport policies. That is, these policies have an impact on housing demand and supply, with implications for housing prices. A case study of Auckland, New Zealand, carried out by the OECD examines these interactions. They study compares a reference scenario characterised by zoning regulations that preserve low population density, with five scenarios characterised by alternative densification policies.

The study finds that, apart from contributing to car dependency, existing maximum density restrictions can cause housing prices to rise much faster than they would if such restrictions were relaxed (Figure 7.7). The study also demonstrates how growth in housing prices can have substantial distributional effects. The simulations employed in the study show that widespread densification can limit real house price growth in the period 2018-50 to 58%, as opposed to a total increase of more than 200% predicted in the reference scenario. Rising house prices benefits the segments of the population with a net positive income from rents, to the detriment of tenants with limited access to borrowing mechanisms. These findings demonstrate that the widespread densification is an effective instrument in the long-run policy response to the challenge of housing affordability in Auckland. This type of densification has the potential to prevent housing prices from reaching levels that will lead to welfare losses. Targeted densification packages, which in two cases represent a shift to transit-oriented development, can also slow down house price growth.

Figure 7.7. House price evolution under alternative land-use policy scenarios in Auckland



Note: TD refers to one of four targeted densification programs; TD1 refers to further densification of already-dense areas lying close to major employment hubs and public transit nodes; TD2 refers to densification of low-density zones surrounding the central business district; TD3 refers to densification of low-density areas in Auckland's isthmus; TD4 refers to densification of areas in close proximity to employment hubs; WD refers to a widespread densification program.
Source: OECD (2020[45]).

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The study demonstrates the various trade-offs policymakers should consider in designing urban policies. These include the desirable effect of densification on housing affordability, the welfare losses it may imply for those that highly value open space and its impacts on accessibility, car dependence and CO_2 emissions.

Source: OECD (2020[45]).

Environmentally related construction practices and energy efficiency measures affect construction and maintenance costs

A number of environmentally related policies and measures target construction processes and energy efficiency. Such policies aim to promote or impose durable building design, recycling of construction and demolition waste, energy efficiency standards and the use of renewable energy (Table 7.3 and Table 7.4). In general, environmentally related construction and energy efficiency policies do not have a considerable impact on housing supply, but they affect house prices primarily *via* their impacts on construction and maintenance costs. Subsidies for energy-efficiency upgrading can ease adverse near-term impacts on affordability but are likely to be neutral over the long term as the value of the improvement gets capitalised in the dwelling price (Taruttis and Weber, 2020[46]). One large-scale example is Italy's "Superbonus 110" programme, which provides a tax reduction equal to 110% of the expenses made by households to improve the energy efficiency of their homes.[2] The COVID-crisis is likely to alter workplace and housing preferences bringing about challenges and opportunities for the environmental policy agenda (Box 7.2).

Table 7.3. Environmentally related policies regarding urban construction and energy efficiency affecting the housing market

Building codes	Require certain residential energy performance through requirements for the design and regulations on the materials and equipment used in buildings
Commissioning and retro-commissioning	Can be incorporated into the design, construction and operations of construction to ensure a building's systems are correctly installed and operating properly
Energy benchmarking and disclosure	Disclosure of energy use to increase building energy performance awareness and support demand for energy efficiency improvements
Financial incentives and programs	Lowering cost burdens through public benefits funds, grants, loans, or property-assessed clean energy financing; property assessed clean energy bonds, assistance with permitting fee reduction or elimination
Lead-by-example	Adoption of energy efficiency programs and policies for public facilities, and government operations
Industry outreach and coalitions	Involves the industrial sector by encouraging and supporting implementation of energy efficiency programs at commercial enterprises as well as the adoption of energy efficiency technologies in the production process and final goods
Strategic energy management and continuous improvement	Sets goals, tracks progress, and reports results while building long-term relationships with energy users and targeting persistent energy savings
Retrofitting incentives	Support the renovation of housing stock to improve energy efficiency performance

Source: U.S. EPA (2020); U.S. DOE (2020).

Table 7.4. Impact of relevant environmentally related construction or energy efficiency policies on housing markets

Construction/energy efficiency policy	Housing supply	Housing demand	House prices	Environmental impact
Building codes	-	-	↘	↗
Energy benchmarking and disclosure	-	↗	-	↗
Financial incentives and programs	-	-	↗	↗
Retrofitting incentives	-	-	↗	↗

Note: Cells with a dash indicate either mixed evidence, evidence of no significant impact, or a lack of evidence. As significant heterogeneity exists within policy measures, specific findings will differ by specific policies and the context in which they operate. Impacts on affordability are considered in the absence of any compensatory measures. Environmental impacts reflect only those impacts considered by the studies in question, and therefore do not necessarily represent net environmental impacts.

Sources: Kontokosta, Reina and Bonczak (2020[47]); Yeganeh, McCoy and Hankey (2019[48]); Listokin and Hattis (2005[49]), Heeren et al., (2015[50]);Mims et al. (2017[51]), Cerin, Hassel and Semenova, (2014[52]), Im et al. (2017[53]); (US DOE, 2020[54]); (US DOE, 2020[55]); de Feijter, van Vliet and Chen (2019[56]), Bardhan et al. (2014[57]).

Measures that rely on voluntary engagement, such as some benchmarking efforts and information campaigns to encourage behaviour change also have a role to play. Benchmarking measures, for example, have been found to yield 2-14% energy savings across 8 studies in the United States (Karatasou, Laskari and Santamouris, 2014[58]; Mims et al., 2017[51]). The programmes that yielded these reductions relied on providing owners with information on how the emissions from their buildings compare with similar ones and also on concrete measures that can be taken to reduce emissions.

Box 7.2. Environmental policies in response to the COVID-19 crisis and implications for housing

The COVID19 crisis has sparked a global economic downturn and has contributed to widening inequalities. Addressing these challenges deserves concerted policy responses in a range of areas. The OECD has issued a number of environmental policy recommendations in response to the COVID19 crisis. These include:

- Maintaining existing environmental standards as part of recovery plans;
- Continuing to develop and implement comprehensive strategies to achieve air quality objectives via a better integration of land-use planning, transport and environmental policies;
- Implementing economic instruments to address pollution from mobile and stationary sources, and improving data collection and quality across monitoring networks.

As is evident by these recommendations, the crisis should not fundamentally alter the key aims of the environmental policy agenda in the long term. Because environmental policies essentially seek to reconcile housing market prices with their social costs, complementary measures to maintain affordability will be even more important in the aftermath of this crisis. For example, efforts to increase the share of soft modes in urban transport via financial incentives and infrastructure improvements. All else equal, this can be expected to lead to increased housing prices in the urban areas with improved accessibility. As a result, simultaneous efforts should be made to ensure the availability of affordable housing in the areas served by enhanced infrastructure.

A number of policy responses to COVID-19 in other areas can be expected to have environmental implications. Policies that facilitate teleworking will have two opposing environmental effects: a short-term positive effect, as the total number of commuting trips with widespread teleworking decreases; and a mid-term rebound effect, as less total commuting time decreases time valuations and induces household relocation further away from working locations. In a scenario in which the pandemic persists beyond the short run, promoting teleworking will increase the value of suburban and exurban properties and will have the opposite effects in more central and accessible urban locations. Preliminary evidence suggests that the crisis has generally led to increased property values and more stringent loan eligibility criteria (Carrns, 2020[59]).

Persistent risk aversion could also mean that housing markets may also need to contend with a shift in demand towards less-dense areas following the crisis, as has occurred in the vicinity of New York City (Hughes, 2020[60]).The extent of these changes, as well as the corresponding effects on property tax bases are currently unknown and require further research. Despite this, the pandemic should not reduce the appeal of increasing density as a strategy for improving the environmental footprint of urban areas. Density is far from the determining factor in virus transmission rates (Barr and Tassier, 2020[61]), as illustrated by the fact that many high density cities such as Singapore, as well as those in South Korea, Taiwan, Japan have been more successful than less dense urban areas in controlling the spread of the virus.

Source: OECD (2020[62]), OECD (2020[63]), Kholodilin (2020[64]), Barr and Tassier (2020[61]), Hughes (2020[60]), Carrns (2020[59]).

Environmentally related transport policies affect both demand and supply of housing

Transport policies can have a long-term impact on housing markets to the extent that they alter the desirability of different residential locations, primarily through their impact on travel time and costs. Transport policies may also affect local levels of air pollution, noise and traffic accidents. While transport policies can significantly affect the demand for housing and property prices across space, they can also impact housing supply insofar as they shape the investment decisions of residential developers.

Several environmentally related transport policies that regulate traffic-related externalities have an impact on urban form and house prices (OECD, 2018). These include a series of market-based instruments: pricing of road use, either with a flat kilometre tax or with charging schemes based on a cordon surrounding the central business district; pricing of on-street parking and public transport services; and motor fuel taxes. Regulatory mechanisms include various forms of urban vehicle access regulations, such as low emission zones, i.e. areas in which entry of vehicles is regulated based on their emission profile. Finally, the provision of infrastructure for public transport, walking and cycling also have clear implications for the environment and a simultaneous impact on demand for housing (Table 7.5 and Table 7.6).

Table 7.5. Examples of environmentally related transport policies affecting the housing market

Regulatory	
Urban vehicle access regulations	A defined area in which either all or certain types of vehicles are prohibited from circulating. Can vary by day or time of the day.
Incentives	
Road pricing	Sets a price for road travel with the objective to reduce congestion, time losses and adverse environmental impacts. Schemes can be distance- or area-based, and may vary by time of day, vehicle type, congestion levels, and geographic extent.
Parking pricing	Charges commuter, non-commuter and residential parking. Fees can vary by time of day, location, vehicle type and level of parking demand.
Fuel tax	Raising the price of fossil fuels in order to internalise climate-related externalities and, though imperfectly, impacts on local air pollution.
Bike sharing programs	Public or private bikes for public rental; can be dockless or fixed return points; can be public or privately funded.
Registration and ownership fees	Increasing polluting vehicle ownership costs by implementing purchase and registration fees; can be one-time or annual.
Infrastructure	
Public transport infrastructure	Extending the spatial coverage of public transport networks (e.g. metro, bus).
Public transport services	Improving the services of existing public transport networks, e.g. affordability, frequency, comfort, integrated ticketing.
Soft mobility infrastructure	Expanding the coverage and quality of public space designated for walking and cycling (e.g. sidewalks and pedestrian crossings; protected cycle lanes and signage).
Park and ride facilities	Providing parking space near public transport stops at the margins of urban areas.
Development of alternative fuel infrastructure	Installing infrastructure to support the use of alternative fuel vehicles (e.g. electric vehicles, hydrogen vehicles).

Table 7.6. Impact of relevant environmentally related transport policies on housing markets

Transport policies	Housing supply	Housing demand	House prices	Environmental impact
Regulatory				
Urban vehicle access regulations	-	↗	↗	↗
Incentives				
Road pricing	-	-		↗
Parking pricing	-	-	↗	↗
Bike sharing programs	-	↗	↗	↗
Fuel tax	-	-	↗	↗
Infrastructure				
Expanded public transport infrastructure	-	↗	↗	↗
Improved/expanded soft mobility infrastructure	-	↗	↗	↗
Development of alternative fuel infrastructure	-	-	-	↗

Note: Cells with a dash indicate either a lack of evidence, mixed evidence, or evidence of no significant impact. Includes measures from with documented evidence. Significant heterogeneity exists within policy types, specific findings will differ by policy design elements and the context in which they operate. Impacts on prices are considered ceteris paribus, absent any compensatory measures and without adjusting for the improvement in environmental quality. Environmental impacts reflect only effects considered by the studies in question.
Sources: Rouhani (2016[65]); Eliasson and Mattsson (2001[66]); Littman (2020[67]); Safirova et al. (2006[68]), OECD (2018[9]); Pelechrinis et al. (2017[69]), El-Geneidy van Lierop and Wasfi, (2016[70]), Qiu and He (2018[71]); Rodriguez (2013[72]), Knittel and Sandler (2013[73]); Yiu and Wong (2005[74]), Efthymiou and Antoniou (2013[75]), Chen et al. (2019[76]), Gallo (2018[77]), Wang et al. (2018[78]); Krizek and Johnson (2006[79]), Zahabi et al. (2016[80]), Matute et al. (2016[81]); Gan and Wang (2013[82]), Meek, Ison and Enoch (2008[83]), Mingardo (2013[84]); Haller et al. (2007[85]), Melaina et al. (2013[86]).

Evidence on the impact of transport policies on housing markets is well documented. For instance, simulations for cities with relatively monocentric structures find that common pricing schemes substantially increase property prices and rents closer to central business district areas, while property values and rents in remote areas generally decrease (Verhoef, 2005[87]; Tikoudis, Verhoef and van Ommeren, 2015[88]). To some extent, these findings also apply to polycentric cities with multiple business districts. For instance, pricing traffic with a cordon toll surrounding the inner core of a polycentric city can result in housing costs changing from -4% to +12% (Tikoudis and Oueslati, 2020[89]). These changes largely correlate with house and land prices prior to policy implementation, implying that larger capital gains are expected in the most expensive areas, while smaller or negative capital gains are anticipated in less expensive ones. These results suggest that the distributional impacts of road pricing that materialise through the housing market are substantial and need to be carefully considered in policy design. However, despite their substantial effects on housing costs, urban road pricing generates aggregate welfare gains. Once road charges are aligned with the volume of traffic externalities and streamlined to account for interactions with the rest of the fiscal system, these welfare gains can be considerable.

Fuel taxes also affect house prices. As in the case of a flat kilometre tax, the price effect of the two instruments are at first identical, since in the short run the fuel consumption of private vehicles is fixed. Consequently, fuel tax increases in the short run generally have the effect of inflating property prices in locations of high accessibility since the tax makes travelling more expensive. In general, road pricing and fuel taxes encourage compact urban forms (Creutzig et al., 2015[90]). However, the disincentive created by a fuel tax will gradually subside over time as increasingly fuel-efficient vehicles become used.

Soft mobility and public transport infrastructure have a positive effect on property values. Opinion surveys show a substantial willingness-to-pay for walking and biking infrastructure, as this type of infrastructure can increase accessibility to public transport (Yang et al., 2018[91]). Making public transport more accessible, especially by promoting transit-oriented development, has been empirically found to have a positive effect on house prices (Bartholomew and Ewing, 2011[92]). As a result, investments in public transport and soft mobility can result in higher local property values.

Anticipate the impact of housing policies on the environment

Many policies targeting land-use and housing markets have an impact on the environment. Given that these impacts can be considerable, they need to be taken into account in the design of housing refom packages (Table 7.7 and Table 7.8).

Table 7.7. Examples of housing related policies affecting the environment

Regulatory	
Purchase/transfer of development rights	Allows landowners of environmentally valuable areas to exchange their development rights with others in areas where growth is socially beneficial.
Advance acquisitions, land banking	Government purchases land before it is developed.
Maximum density restrictions	Limits the height of building and regulates the private open space between them.
Development exactions	The regulator places requirements on developers as a condition for development approval. Such requirements can be fine-tuned to mitigate the environmental social cost of development.
Incentive-based	
Location-efficient mortgages	Income, and possibly other, requirements for mortgage approval become looser in locations where development is socially desirable, and vice versa.
Special economic zones	Areas characterised by unique business and trade laws to encourage development
Tax and spending	
Historic rehabilitation schemes	Tax credits and exemptions, income, subsidised renovations, maintenance cost deductions to preserve historic building stock
Tax	
Special assessment tax	Places the cost of certain public facilities on the landowners in a specific area
Property taxation	Taxes levied on the value of the land and buildings to finance public services
Split-rate property tax	Places higher taxes on developed land than on the structures built on the land
Tax increment financing	Public financing method to provide subsidies for redevelopment, infrastructure provision and other community-improvement projects

Source: Adapted from Wu and Oueslati (2016[12]) and Silva and Acheampong (2015[11]).

Table 7.8. Impact of relevant housing related land-use policies on the environment

Land-use policy	Housing supply	Housing demand	House prices	Environmental impact
Regulatory				
Purchase/transfer of development rights	↗	-	↘	↗
Advance acquisitions, land banking	-	↗	↗	-
Maximum density restrictions	↘	-	↗	-
Development exactions	-	-	↗	↗
Incentive-based				
Location-efficient mortgages	-	-	↘	↗
Tax and spending				
Historic rehabilitation incentives	↗	-	↘	↗
Tax				
Special assessment tax	-	-	↗	↗
Green property taxes, preferential property taxes	-	-	↗	-
Split-rate property tax	↗	-	↘	↗
Tax increment financing	-	-	↗	-

Note: Cells with a dash indicate either a lack of evidence, mixed evidence, or evidence of no significant impact. Includes measures from Table 7.1 with documented evidence. Significant heterogeneity exists within policy types, specific findings will differ by policy design elements and the context in which they operate. Impacts on prices are considered ceteris paribus, absent any compensatory measures. Environmental impacts reflect only impacts considered by the studies in question.
Source: Ball et al. (2014[13]), (Staley, Edgens and Mildner, n.d.[14]), (Mathur, 2014[15]), Bengston (2006[16]); Quigley et al. (2005[17]), Jepson et al., (2014[18]); (Baker, Sipe and Gleeson, 2006[19]); Carroll et al. (2009[20]), Otto (2010[21]), Furman Center for Real Estate and Urban Policy (2014[22]); Whitaker and Fitzpatrick (2016[23]), Kelly (2015[24]); OECD (2018[9]); Gilderbloom et al. (2009[28]); Krizek (2003[29]); Been (2005[30]), Byrne and Zyla (2016[31]); Brandt (2014[32]); Morris (2000[33]); Banzhaf and Lavery (2010[93]); Dzigbede and Pathak (2019[34]), Allen (2018[35]).

Property taxes can induce urban sprawl with negative consequences on the environment, but also be leveraged to reduce the environmental impact of development

Ad-valorem (based on market value) property taxes have two important environmentally related functions (Chapter 8). First, they increase the overall cost of housing and thus may reduce the demand for residential floor space. In this sense, *ad-valorem* taxes could foster compact development, given country-specific context and circumstances. More compact development implies economies of density and saves resources by shortening travel distances and reducing transport-related externalities. Second, *ad-valorem* taxes impose a burden per unit of surface that is higher for dwellings located in areas where land is more expensive. Therefore, they could have a long run centrifugal impact on development patterns, redirecting development to peripheral areas. The environmental impact of the latter can be positive only to the extent that this redirection does not increase car use and exacerbate congestion. This could be the case in polycentric urban environments, where remote areas with relatively low property values may lie close to local job hubs that can provide an employment alternative to the central business district.

Property taxation can also be leveraged to reduce the environmental impacts of development. “Green” property taxes seek to incorporate the full cost of externalities arising from development, and environmentally oriented preferential property taxes can encourage property owners to preserve environmental amenities (Brandt, 2014[32]). Split-rate property taxes are characterised by higher tax rates on the value of land than on the value of buildings and other property improvements (OECD, 2021[94]). By encouraging the development of underdeveloped land, split-rate taxes reduce development pressure at the rural-urban fringe (Banzhaf and Lavery, 2010[93]) and provide further incentive to redevelop urban

brownfields. Land taxes also serve to encourage homebuilding where it is most needed if land-use rules are compatible with such development (Chapter 8). They could however also induce construction in areas of high environmental value, for instance those close to ecologically sensitive areas. For this reason, they can be used in conjunction with other regulatory or market-based instruments designed to discourage development in environmentally sensitive areas (OECD, 2018[9]). Location-efficient mortgages constitute another class of instruments with important environmental implications. They can target direct spatially varying environmental externalities, since they can incentivise home purchase in areas where population density lies below socially optimal levels. Location-based mortgages possess plenty of theoretical appeal, but have little precedent demonstrating their effectiveness due to shortcomings in implementation and design (Chatman and Voorhoeve, 2010[95]; Kaza et al., 2016[96]).

Other policies that have a bearing on housing markets can also have an impact on the environment. Policies that seek to increase home ownership and revitalise declining rural areas (e.g. the French "one house for 1000 euros" initiative) can reduce house prices but also contribute to scattered development and urban sprawl. Housing finance regulations could also have an environmental impact in addition to the efficiency considerations discussed in Chapters 3 and 4. For instance, the gradual relaxation of regulations governing low collateral mortgages (sub-prime) played a substantial role in the Great Financial Crisis, and it also affected the spatial distribution of dwellings acquired with sub-prime loans, which were located typically in low-income and predominantly minority neighbourhoods (Rosenblatt and Sacco, 2018[97]; Gerardi and Willen, 2008[98]). The extent to which the sub-prime boom contributed in urban sprawl has not yet been examined empirically.

Coordination between the different levels of government is necessary to reconcile the objectives of housing affordability and environment preservation

Housing and environmentally related policies are often administered by different levels of government and jurisdictions, and therefore they need to be coordinated appropriately to achieve their intended objectives. Without coordination, different jurisdictions face incentives to implement taxes and charges above socially optimal levels, especially when they can use the generated revenue to the benefit of local residents (Phillips, 2020[99]). For example, jurisdictional differences in urban containment policies can create incentives for leapfrog development and spatially scattered development. Similarly, differences in property taxes across municipalities can be harmful for the environment and lead to negative distributional outcomes (Banzhaf and Walsh, 2008[100]).

Environmental policies also affect other dimensions

Environmental policies often have diverging impacts on the environment and housing markets. While many environmental policies improve environmental quality in targeted areas, they can involve trade-offs in the residential sector, notably with respect to housing affordability. The opposite can also be true, as several instruments that appear ineffective have plenty of positive by-products. Also, policies can be both beneficial and detrimental in all its objectives, depending on the stringency of the corresponding policy instruments.

Use cost-benefit analysis

Reliable evaluations of alternative policy instruments requires welfare calculations that monetise their various costs and benefits across sectors. A cost-benefit approach can help policymakers to rank competing policies whose primary objectives are the same but whose mechanisms and implications may differ. Such an endeavour is to a large extent context specific and resource intensive, and as such goes beyond the scope of this chapter.

Re-evaluate the stringency of land-use policies

In spite of variation in policy measures and their impacts, a series of general insights can nevertheless be drawn from the evidence gathered. The first is that the net environmental impacts of many environmentally motivated land-use policies are in fact indeterminate, due in part to variations in their stringency and the diverse secondary effects they can entail in terms of development, energy use and transport activity. Similarly, some housing market policies can have negative impacts on affordability insofar as they raise housing costs without yielding substantial additional social value. Thus, in many cases governments should re-evaluate the stringency of some housing policies in light of the negative secondary effects they may create.

Invest in public transport and soft mobility

In contrast to regulatory land-use interventions, investments in public transport and soft mobility increase the social value of land and housing, rather than simply raising housing costs. Although such policies can render housing more expensive, the higher property values they generate reflect local benefits (e.g. increased accessibility) and the fact that certain local externalities are internalised. As long as investment costs are reasonable and willingness-to-pay for the advantages they afford is substantial, the social benefit of investments in public transport and soft mobility infrastructure should be expected to be positive.

Consider tailored compensation mechanisms in case of hard trade-offs

A number of environmentally related market-based mechanisms that attempt to correct for the externalities of urban development can impact house prices. Once these externalities are incorporated into market prices *via* such mechanisms, the resulting adjustments in property prices will reflect improvements in accessibility or environmental quality. Policy makers should evaluate this type of strategy against policy-driven cuts in housing supply, which can have a similar negative impact on housing costs without necessarily increasing the social value of the existing housing stock. For this reason, housing price adjustments should not be the primary concern in policy reforms that attempt to mitigate the considerable social cost of some types of externalities. There are certain exceptions to this rule, the most important being the case in which environmental taxation causes house price adjustments with large distributional effects. In these cases, tailored compensation mechanisms can support social objectives such as poverty reduction, inclusive growth, and reduced inequalities.

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Notes

[1] Similarly, Karagulian F. et al., (2017[219]) find that the residential sector (heating/cooling of buildings and equipment/lighting of buildings and waste treatment) accounts for 37% of PM2.5 emissions *globally*.

[2] The programme covers expenses incurred between 1 July 2020 and 30 June 2022 (cf. https://www.efficienzaenergetica.enea.it/detrazioni-fiscali/superbonus.html) .

8 Improving the Governance of Housing

Country-specific context and institutional arrangements influence the design and implementation of housing policies, as well as their outcomes. Typically, functions are assigned among the different layers of public administration, calling for intergovernmental coordination mechanisms for the effective design and implementation of housing policies. There are a range of policy tools for subnational governments to use in improving housing outcomes, including in the area of immovable property taxation and land-use regulations.

Main policy lessons

Governments utilise a variety of policy instruments to meet housing policy objectives. In addition to national governments, local and regional governments are also essential agents in the overall governance of the housing sector, with the bulk of housing expenditures being performed by subnational governments. The provision of social housing together with land-use regulations are two instruments related to housing for which subnational governments play critical roles. For social housing in particular, decisions regarding inputs, outputs and monitoring are mainly under the purview of subnational governments and housing providers, while for land-use, local governments set specific regulations and rules that adhere to general national standards.

Policies to improve housing outcomes and better align housing policies across levels and sectors of governments call for:

- Developing spatial planning frameworks together with strong coordination measures across the levels of government and administrations, which can help to avoid functional fragmentation and overlap, while addressing inclusivity and access of certain groups;
- Ensuring that land-use regulations are flexible in addressing local housing needs at the level of metropolitan areas, while promoting the efficient use of land and facilitating attractive built-environments;
- Providing appropriate decision-making authority to local governments, notably with regard to spending and investment on social housing;
- Implementing and reforming taxes on immovable property.

While the organisation of the housing market varies a lot across OECD and partner countries, a broadly shared trend has been to allocate more housing responsibilities to the local levels. Over the last 30 years, many national governments have implemented policy reform to allow local governments to assume a larger role in developing, coordinating and implementing housing policies, including those focused on the social housing stock and affordability challenges. Subnational expenditure on housing and community amenities is the most decentralised area of spending; as noted in Chapter 2, current spending on housing has been rising while investment in social housing has been on a declining trend.

Consequently, in the majority of countries, housing policy responsibilities are shared between national and local governments. National governments are usually responsible for setting overall policy priorities. Local governments typically have more responsibility for the output and budgeting decisions of social housing provision. This chapter discusses the impact of governance arrangements and the need, in some cases, to strengthen coordination mechanisms to ensure intergovernmental policy coherence and consistency.

Streamline governance across and within government levels

In the majority of OECD and key partner countries, the governance of the housing sector is shared between national and local governments, with national governments having a more predominant role in setting the overall housing policy priorities, and local governments being generally responsible for the implementation and allocation of housing programmes, such as social housing, land-use regulation and sustainable urban development. The recent trend of decentralisation experienced by most OECD countries in the last 30 years has resulted in subnational governments being responsible for more than 75% of expenditures in housing and community amenities.

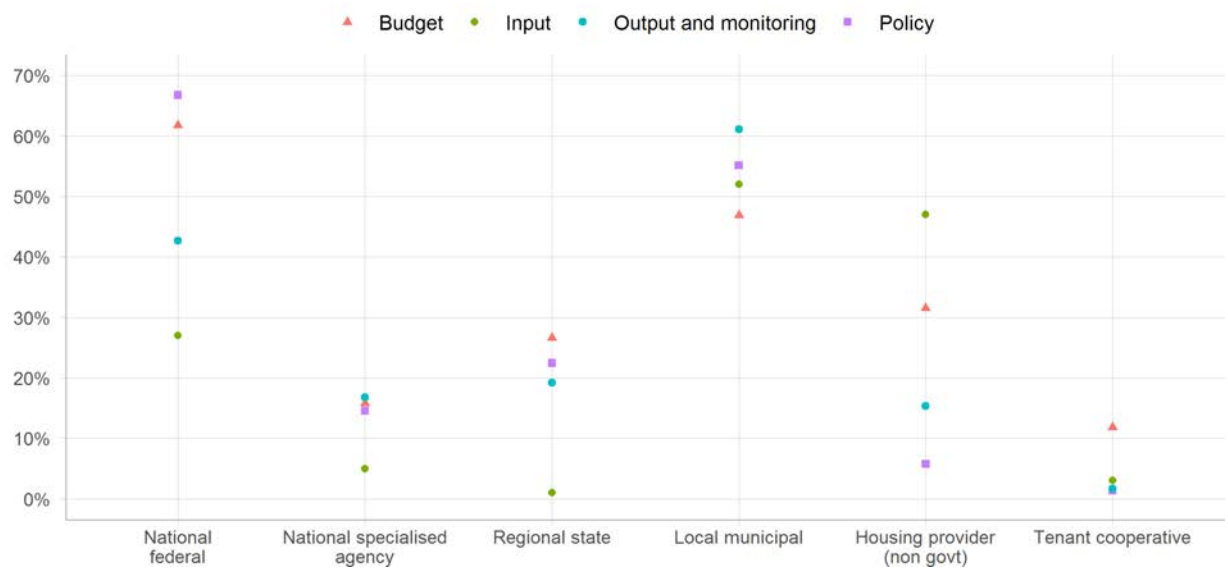
The shared governance of social housing between central and local government should be used to combine local adequacy with portability

National and local governments share social housing responsibilities in most OECD countries. Typically, national governments are more responsible for decisions regarding the budget of social housing, while local governments are in charge of output and monitoring of social housing provision (Figure 8.1). Canada, Estonia, Colombia, Iceland and the Netherlands are among countries with the most decentralised setting (Figure 8.2) (Phillips, 2020[1]). The delivery and management of social housing is often provided through non-profit social housing organisations: the case of Denmark is typical in this respect (Box 8.1).

While local delivery helps to ensure that the supply is adapted to local conditions, there is a role for national coordination to ensure that social housing rights are portable. Without effective portability, there is a risk that being allocated a social housing dwelling becomes an obstacle to mobility, in particular complicating the take-up of better jobs (Chapter 6).

Figure 8.1. Social housing responsibilities are spread across government levels

By actor, average of respondents (%)



Source: OECD Fiscal Decentralisation database.

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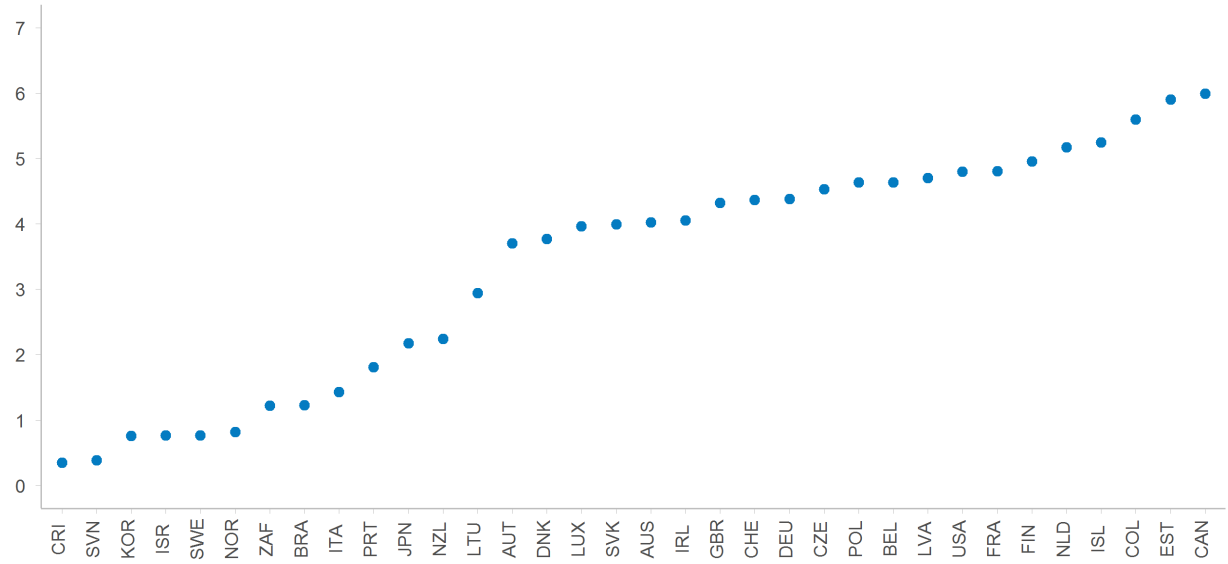
Figure 8.2. Social housing spending is decentralised in most countries

Social housing spending autonomy indicator (0-7 scale in ascending order of decentralisation).



Source: Phillips (2020[1]), *based on 2019 OECD QuASH Survey data.*

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Box 8.1. Denmark's experience with social housing

Denmark has a two-tier system of local government which underwent reform in 2017 to produce five regions and 98 municipalities. The Danish social housing sector comprises a total of about 700 social housing organisations with 7 500 divisions (estates) in total, all of which are run on a non-profit basis. There are approximately 615 000 social dwellings, which add up to about 21% of the total housing stock. Investments are made through the Denmark's National Building Fund, an independent institution outside the state budget and partly funded by tenants' rents (see Box 2.4).

Denmark's social housing system only has minimal eligibility requirements. Waiting lists are open to everyone from a minimum age of 15 years. Housing is allocated to people according to time spent on the waiting list and household size. Although there are no income ceilings for beneficiaries, there are limits for costs of construction and therefore rents and size of the dwellings. The waiting lists for the most popular estates can be several decades. In return of their co-funding of non-profit housing, local governments have the right to assign people in acute need of housing to 25% of vacant dwellings. Priority can be given, for instance, to families with children, disabled people, refugees, elderly, students, divorced people or people who need to move closer to their work.

Source: "Social housing: A key part of past and future housing policy", OECD Policy Briefs on Affordable Housing (OECD, 2020[2]).

Effective alignment of objectives across levels of government is essential in the area of land-use

Land-use planning is generally a responsibility of local governments and sometimes of regional governments (OECD, 2017[3]). In contrast, many of the policies that shape patterns of spatial development and the demand for land are decided at the national level. As a consequence, national policies would need to be evaluated concerning their impact on land-use at a local scale. They would also need to become more responsive to the objectives of local and regional governments concerning land-use. Currently, many countries lack the structures to achieve the required co-ordination across levels of government. One of the few organisations in place today that can provide such coordination is the Austrian Conference on Spatial

Planning that assembles representatives from all levels of government to discuss spatial policies (Box 8.2). Further, as it is located at the centre of government (within the office of the chancellor), it may also be able to carry out the necessary cross-sectoral policy co-ordination between different branches of the national government.

Box 8.2. The Austrian Conference on Spatial Planning

The Austrian Conference on Spatial Planning is an organisation dedicated to co-ordinating spatial planning policies between the three levels of government in Austria (the national level, the states and the municipalities). Its decision-making body is chaired by the Federal Chancellor and its members includes all federal ministers, the heads of all federated states and representatives of associations of local governments. Furthermore, business and labour organisations are represented on the body as consulting members. The work of the decision-making body is supported by a permanent secretariat with a staff of approximately 25-30.

One of the central tasks of the ÖROK is the preparation of the Austrian Spatial Development Concept, which covers a planning period of approximately 10 years and provides a vision and guidelines for spatial development that is shared by all levels of government. Beyond the preparation of the Spatial Development Concept, the ÖROK also monitors spatial development across Austria. It has developed an online tool that provides a mapping function of a variety of important indicators at the municipal and regional level and releases a report on the state of spatial development every three years.

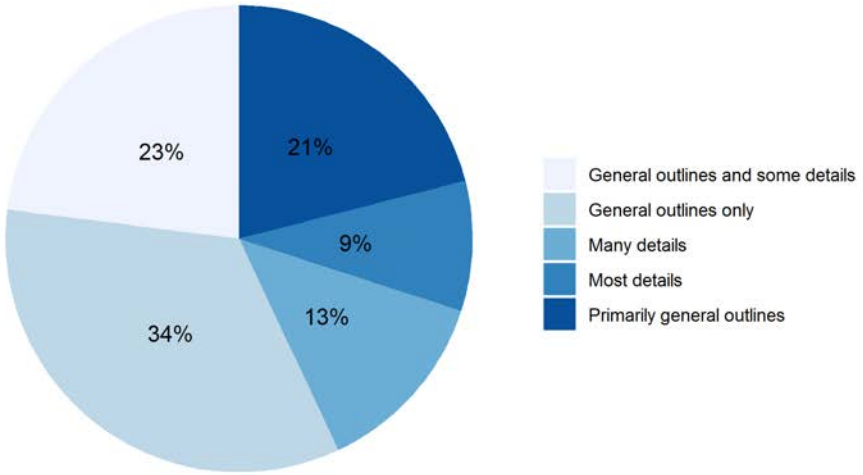
Source: (OECD, 2017[3])

Strategic spatial plans spanning functional territories are needed to introduce mechanisms for better inter-municipal collaboration

In countries where there has been a rescaling of the governance of land-use planning, spatial plans that transcend local government borders can establish new ways for localities to work with one another despite sometimes conflicting interests and different capacities. Furthermore, other land-use policy instruments, such as tradable/transferrable development rights, can become much more effective when these transfers occur within the same metropolitan area. Additionally, spatial planning objectives related to housing and the residential environment are expected to be better met when strategic spatial plans at the regional/metropolitan level provide more detail and are enforceable.

However, the majority of the regional plans only provide general guidelines (Figure 8.3). A study carried out by the OECD (2017b[4]) found that dedicated metropolitan and inter-municipal plans are rare in the OECD: only 11 types of such plans were identified at the time of the study. Some of the plans, such as the new Territorial Coherence Plans (TCPs) in France (Box 8.3) and the Metropolitan Area Plan in Korea are prepared for every metropolitan area of the country. However, many others are unique plans that are prepared only for a single metropolitan area. In this category falls the Finger Plan for Copenhagen. It was developed in 1947 and is one of the oldest examples of planning for transport oriented development. Other metropolitan plans for specific metropolitan areas include the Auckland Plan, the Budapest Priority Region Plan and the London Plan. Some of them are prepared and approved by the national government (Budapest, Copenhagen) and others (Auckland, London, Portland) by metropolitan authorities (2017b[4]).

Figure 8.3. The objectives of spatial planning vary among OECD countries



Source: OECD (2017a[5]), *Land-use Planning Systems in the OECD: Country Fact Sheets,* OECD Publishing, Paris.

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Box 8.3. France's Territorial Coherence Plans

France enacted the Territorial Coherence Plan (TCP) in 2000 as a key mechanism for intercommunal planning using a sustainable development framework. It covers the "local labour market" or "urban area" for parts of the country. Established by the Solidarity and Urban Renewal law, the Territorial Coherence Plan links housing, urban planning and transportation plans more effectively than they otherwise would be and supports cohesive development strategies for the entire area.

There is no compulsory requirement for communes or groups of communes to participate in a TCP, but there are incentives to do so. For example, according to national law, natural areas can be developed only if the area is covered by a TCP. Such incentives have been further strengthened by the requirement that developed areas that are not covered by a TCP cannot be expanded starting from 1 January 2017 onwards. To encourage the adoption of TCPs, the State has set up annual calls for proposals starting in 2010 to increase participation in rural territories with limited human and financial resources to draw up TCPs.

The plan establishes a reference framework for territorial planning over a time frame of 20 years. As such, it does not give granular detail on land-use development – that task falls to plans and planning decisions at the scale of the commune, but these must align with the principles or fundamental guidelines. Every municipality covered by the same TCP commits itself to integrated and joint development, which can help mediate and settle territorial issues for the whole area. In total, 448 TCPs have been approved or are presently in the process of being developed. This covers 25 137 communes (nearly 70% of the total), 50.5 million inhabitants (77% of the French population) and almost 60% of national territory (Government of France, 2015).

TCPs have become the reference strategic planning documents for urban planning and development in large residential zones or urban areas. They constitute plans that go beyond commune, inter-commune or across departmental administrative boundaries. The TCP must, for example, set statistical objectives regarding the consumption of agricultural, natural and woodland spaces. It must also create a link between development and other policies; for example, the TCPs specifies conditions that favour the development of urbanisation as a priority in areas already served by public transport, but it can also promote creating new public transport services in locations that require them to improve access. However, it should be noted that this policy is not always successfully implemented. Many city regions in France have not succeeded in setting up a TCP even though attempts have been made (Hoggart, 2016[6]).

National governments have a role to play in land-use governance

National policies can embed housing strategies within a broader vision for cities and regions by providing guidance about the long-term strategy and goals (Table 8.1). Together with local planning systems, a national strategy could specify the land-uses that should co-exist within cities, the service provision levels linked to new developments, the densification thresholds and the specific conditions for urban boundary expansion, links between public transport and economic and social activities (OECD, 2013[7]). National governments can also provide technical assistance to local governments to identify and catalogue underdeveloped land, and to create reliable and updated information systems.

Table 8.1. Governance of spatial or land-use plans

National governments prepare plans	National governments do not prepare plans
Austria*[1]	Australia*
Chile	Belgium*[3]
Czech Republic	Canada*
Denmark	France[4]
Estonia	Italy
Finland	New Zealand
Germany*	Spain*
Greene	Sweden
Hungary	United Kingdom[2]
Ireland	United States*
Israel	
Japan	
Korea	
Mexico*	
Netherlands	
Norway	
Poland	
Portugal	
Slovak Republic	
Slovenia	
Switzerland*	
Turkey	

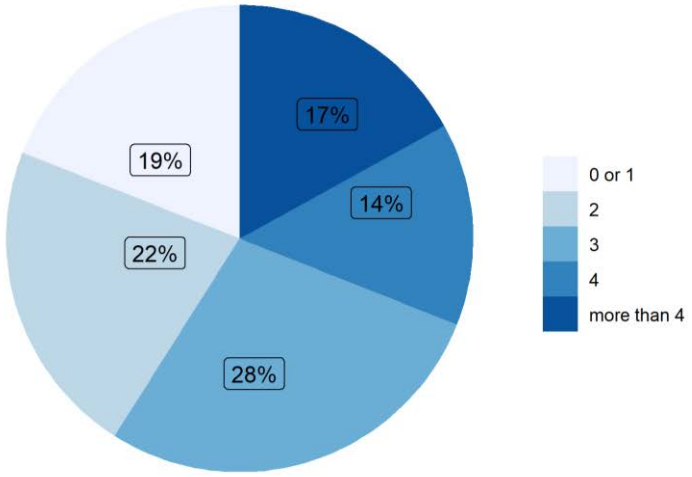
Note: * indicates federal or quasi-federal country.
1. All levels of government in Austria prepare a Spatial Development Concept jointly for the entire country.
2. The United Kingdom has a separate National Planning Policy framework for England and Scotland each, a Spatial Plan for Wales and a Regional Development Strategy for Northern Ireland.
3. The government of Belgium was responsible for the preparation of a zoning plan for the entire country. While this responsibility has been delegated to the regions, large parts of the plan that was originally prepared by the national government are still in place today.
4. While urban planning is delegated to communities in France, the national government nonetheless affects its rollout by defining general orientations, setting norms and delineating priorities.
Source: OECD (2016[8]), *Land-use Governance Survey 2016*.

National housing governance needs to overcome sectoral silos

Housing policymaking is distributed across ministries at the national level, with different aspects of housing policy assigned to different agencies. A few OECD countries have a dedicated housing ministry, but on average three ministries are directly involved in housing policymaking across OECD countries (Figure 8.4). For example, there is no lead housing ministry in Greece, and, in Australia, responsibility is shared across the national government, states and territories, and the local governments. Sweden shares housing

responsibilities across several national ministries, including the Ministry of Finance, the Ministry of Justice (most housing and real estate related legislation), and the Ministry of Health and Social Affairs (housing benefits, homelessness, housing for the elderly). Better integration and intergovernmental policy coordination are essential given the wide range of policy instruments used to influence housing outcomes.

Figure 8.4. In most countries, multiple ministries are involved in housing policymaking



Note: Number of ministries in charge of housing policies.
Source: Phillips (2020[1]) based on 2019 OECD QuASH Survey data.

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Promote flexible land-use planning

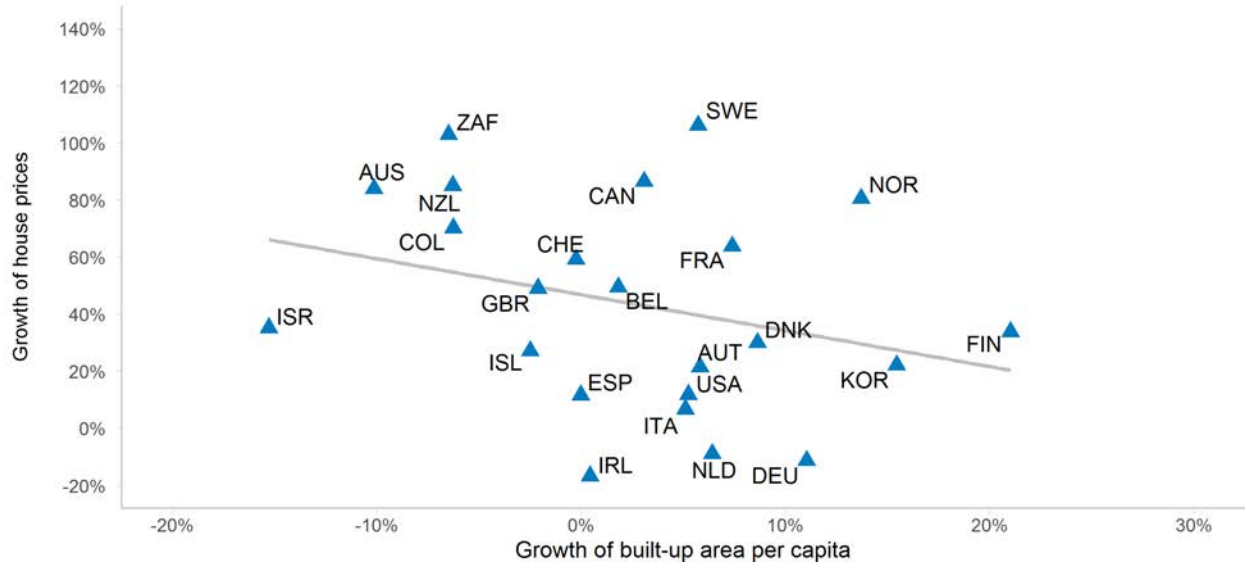
Land-use planning contributes to shaping cities and driving housing affordability

Land-use regulation is a key determinant of housing supply. It plays a central role in meeting housing demand by opening up new areas for development, transforming existing spaces and uses, and setting parameters that influence the shape and population density of cities. Land-use regulations are a leading factor behind increases in housing costs. Land-use regulations that restrict the conversion of undeveloped to developed land constrains the responsiveness of supply to changes in demand and therefore affect house prices (Chapter 4). Where land is already developed, regulations may limit the amount of floor space that can be built at a location, thus constraining supply responsiveness. There is a statistically significant negative relationship between the growth of built-up area per capita and the growth of house prices (Figure 8.5).

On the other hand, unregulated land-use fails to incorporate the hidden costs of additional developments, for example for the environment. Developers would ignore the negative externalities of new buildings (i.e. the undesirable effects on nearby residents), and the supply of public goods, such as open spaces or roads, would be insufficient. Furthermore, it would be difficult to provide public services and transport to entirely unplanned neighbourhoods. The environmental impact of unregulated land-use in the form of noise, pollution, and loss of historic character would also be severe, detracting from the liveability of neighbourhoods. A balance between the two extremes is therefore needed for optimal housing outcomes. In places where house prices are above construction costs – as is the case in many cities across the OECD – imposing too-stringent land-use regulation could undermine housing affordability (Cheshire and Sheppard, 2005[9]; Cheshire and Hilber, 2008[10]). By favouring the adjustment of housing supply to demand pressures, flexible land-use regulations can further play an important role in facilitating the efficient

reallocation of labour and capital towards more productive areas. Herkenhoff, Ohanian and Prescott (2018[11]), for example, estimate that easing land-use restrictions in California and New York would significantly raise the U.S. aggregate productivity and consumption. Policy reforms that remove obstacles to labour reallocation, such as making land supply more flexible, are particularly important in the wake of the huge shock generated by the COVID-19 crisis.

Figure 8.5. House prices are higher where built-up density is low



Note: Built-up statistics are calculated using Florczyk et al. (2019) 30m resolution multi-temporal built-up grid (GHSBUILTLDSMTGLOBER2018A385730V20), http://publications.jrc.ec.europa.eu/repository/handle/JRC117104; population used for per capita values is taken from UN World Population Prospects; "Built-up" is defined as the presence of buildings (roofed structures). This definition largely excludes other parts of urban environments and the human footprint such as paved surfaces (roads, parking lots), commercial and industrial sites (ports, landfills, quarries, runways) and urban green spaces (parks, gardens). Consequently, such built-up area may be different from other urban area data that use alternative definitions. The figure refers to 2000-14 time span.

Source: OECD House Price database, BIS (2018), *Residential Property Price* (database); UN World Population Prospects, Florczyk et al. (2019) and OECD calculations.

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Avoid restrictive zoning regulation and single-use zoning

Zoning should be sufficiently flexible to allow neighbourhoods to change over time according to evolving population patterns and changes in housing demand. Single-use zoning, (see Annex 8.A1 for definitions) except for specific purposes, such as hazardous industrial areas, has the disadvantage of rigidity while also increasing the use of personal vehicles. For example, zoning regulation can prevent the construction of a grocery store in a neighbourhood that is defined as residential even if most residents would benefit from being able to do their daily shopping nearby instead of driving further away.

Many of the shortcomings of zoning regulation can be avoided by using flexible regulations of permitted uses in different zones that focus on preventing the most important negative externalities and do not regulate land-use beyond what is required for this purpose (OECD, 2017b[4]). For example, such zoning rules do not prohibit mixed-use developments as long as they do not create nuisances. They generally would not include frequently used requirements, such as a prohibition of multi-family homes, mandatory design criteria that rule out entire classes of buildings or the prohibition of commercial activities that cause no nuisances. Furthermore, flexible zoning regulations do not set tight density restrictions or include provisions that allow for a gradual increase in the density of a neighbourhood in line with infrastructure capacity and population growth. An example of a flexible approach to zoning that focuses primarily on the prevention of negative externalities is the national zoning of Japan (Box 8.4).

Box 8.4. National zoning system in Japan

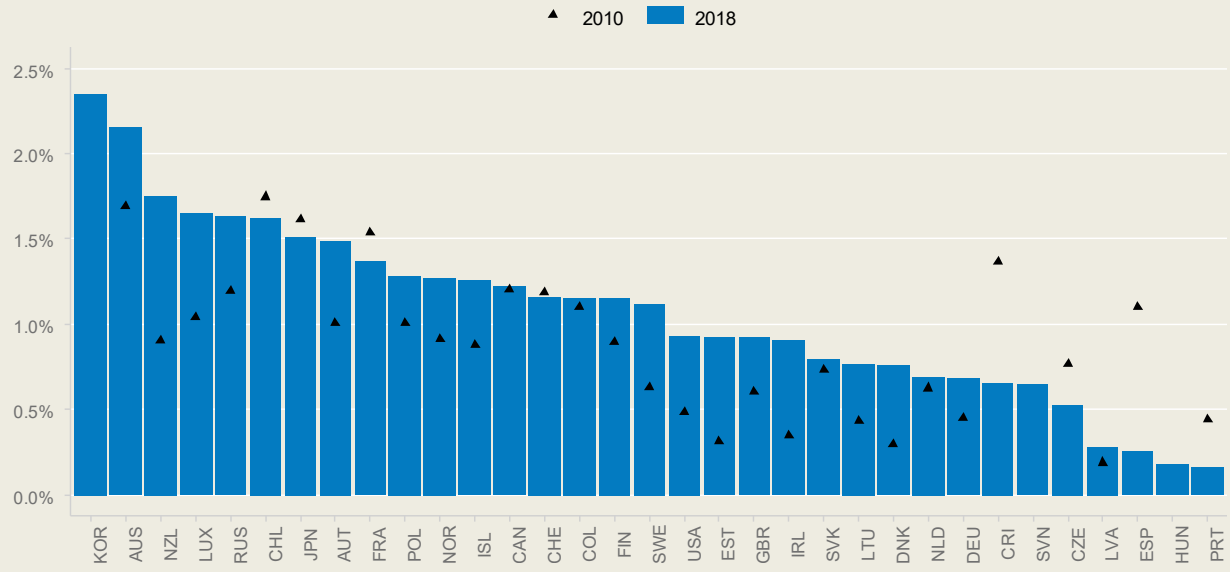
An example of a flexible approach to zoning is the national zoning strategy of Japan. The country has instituted a system of 12 standardised zones in urban areas. They range from low-rise residential zones to exclusively industrial zones that allow successively denser development and greater nuisance levels. Essentially, each zone specifies the maximum level of nuisances allowed in an area. Any development that causes fewer nuisances than the maximum allowed level may be constructed in the zone. For example, it is possible to build any type of residential building in a commercial zone, but many commercial activities are prohibited in a residential zone. The only exceptions are industrial zones that allow potentially dangerous activities. In these zones, residential and commercial buildings are restricted.

None of the zones in the Japanese system are strictly single-use. Even the most strictly regulated residential zones allow other small-scale functions adequate for residential areas, such as neighbourhood stores, small offices, and elementary schools. The main instruments to control densities in neighbourhoods are maximum floor to area ratios. Generally, no restrictions on whether buildings are single-family or multi-family homes are imposed.

Despite being affected by a generally challenging macro-economic environment, Japan has consistently had a higher rate of housing starts (Figure 8.6). At least to some degree, this is likely due to the flexible zoning system that allows cities to adapt to economic, cultural and technological change by changing the building stock.

Figure 8.6. Japan has high rates of housing starts

Total number of dwellings completed in the year, as a percentage of the total existing housing stock



Source: OECD (2020[12]). *OECD Affordable Housing Database.* OECD Publishing, Paris. Data for 2010 and 2018 refer to the responses as in the 2019 OECD Questionnaire on Affordable and Social Housing (QuASH), except for Korea, Czech Republic, Croatia, Slovenia, Slovak Republic, Hungary where they refer to responses as in the 2016 QuASH. Data for around 2000 refer to the responses as in the 2016 OECD Questionnaire on Affordable and Social Housing (QuASH).

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Regularly re-evaluate urban boundaries as needed

Flexible instruments, such as urban growth boundaries (UGBs), urban service boundaries (USBs) and greenbelts, set temporary limits on urban expansion (see Annex 8.A1 for definitions). They are effective at increasing infill development and limiting sprawl in certain circumstances. Receding these boundaries can better contain development in areas that face population decline, while expanding them can provide more room for housing development in areas with increased housing demand. As in the case of pro-densification policies, however, regulation that alters urban area boundaries need to take into consideration the environment and citizens' quality of life.

Increasing the flexibility of land-use allows housing construction to adapt to changing socio-economic and demographic trends

Flexible zoning plans allow developers and investors to put underused areas and office space to new uses, which can increase the density of development and improve environmental sustainability, while reducing burdens on transport infrastructure. Flexible zoning also ensures efficient patterns of spatial development, especially in low-density areas close to city centres and along public transport corridors. Relative to rigid zoning restrictions, transferable development rights can be used to compensate landholders when their development has been restricted by land-use regulations, such as downzoning or establishment of protected areas. However, increased flexibility may come at the price of uncertainty, and -requires local government capacity to monitor land-use and intervene when development falls short of policy objective. It also requires ongoing collaboration with higher levels of government and other actors of the spatial planning system.

Use of recurrent taxes on immovable property can promote efficient land-use, yet interactions with land-use regulation may limit their ability to increase density

Recurrent taxes on immovable property play a role in attaining an efficient allocation of resources, a less unequal distribution of income and stable house prices. As a result of value-based property taxes' relative inelasticity – taxpayers usually only modestly react to changes in tax policy because their tax base is immovable – they are relatively efficient and among the taxes that are least detrimental to economic growth (Brys et al., 2016[13]; Cournède, Fournier and Hoeller, 2018[14]). In the case of residential property taxation, there is also a close link between taxes paid and public services received, which follows from the benefit principle of taxation in public finance, with expenditure often having a high degree of progressivity. Finally, they can be used as a policy instrument for property price stabilisation since they tend to reduce the volatility of house prices.

These taxes are also seen as an effective tool for containing urban sprawl and promoting compact and environmentally-friendly land-use (Chapter 7). Nevertheless, in the context of land-use regulation, recurrent taxes on immovable property are best employed as a complementary tool. While taxing vacant or under-used land can have strongly positive effects on densification in the use of newly developing areas, with building height restrictions in an already built-up area, for instance, the use of property taxes as a tool to affect land-use can be limited. In this situation, the tax burden may translate into higher property prices rather than affect land-use decisions. Thus, although pure land taxes and split-rate taxation can be used to foster denser development under certain conditions, their success depends on their interaction with other land-use policies and the stage of development of the targeted region (OECD, 2021[15]).

Annex 8.A1. Definitions

Urban growth boundary (UGB): A dividing line drawn around an urban area to separate it from surrounding rural areas. Areas outside the boundary are zoned for rural uses where urban development is restricted, and inside for urban use where urban development is promoted.

Urban service boundary (USB): A dividing line restricting where public services, such as water supply and sewers, can be administered. These regulations make it illegal for utility companies or local authorities to provide services outside of these boundaries.

Greenbelts: Areas of open space surrounding urban areas that act as physical boundaries against city expansion.

Single-use zoning: Sometimes also called Euclidean zoning, single-use zoning operates according to the principle that only one specified land-use is permitted in a zone. For example, a zone defined as commercial may only contain commercial buildings such as offices.

Social housing: Social (subsidised) housing is defined by the OECD broadly as residential rental accommodation at sub-market prices that is allocated according to specific rules.

Tradable/Transferable Development Rights (TDR): A market-based incentive programme generally structured so that landowners forfeit development rights in areas targeted for preservation and then sell those development rights to buyers who want to increase the density of development in areas designated as growth areas by local authorities.

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9 Upgrading the Evidence Base

Housing is a multifaceted policy area, where evidence-based policy reform requires a range of indicators on both outcomes and instruments. Data gaps are particularly relevant in three areas: house prices, vulnerability in access to housing, and local land-use regulations. Filling these data gaps would bring large benefits by helping to better inform housing policy choices.

Main lessons and areas for future progress

International statistical standards have been developed over the last decade or so for the compilation of house price *indices.* All OECD countries now release internationally comparable statistics to monitor house price developments at the national level. Nevertheless, nine OECD countries still do not provide any statistics to monitor house price developments at the regional or city level.

Rigorous, internationally comparable measurement of house price *levels* is much less advanced. Doing so would help to assess barriers to labour mobility, understand the financial challenges faced by households living in different areas, and design economic policies at regional level. This area would benefit from pilot projects in some countries, which could then be used as a basis for the development of international statistical guidelines. A statistical agenda for progress could include:

- Compile house price indices at subnational level in line with international statistical standards.
- Extend the coverage of house price indices as much as possible to cover all dwelling types and vintages.
- For the compilation of house price statistics in urban areas, rely on the concept of Functional Urban Area.
- Start developing statistics on house price levels, at both national and subnational levels.

Monitoring housing outcomes among vulnerable households, particularly in view of the heightened economic vulnerability brought on by the COVID-19 pandemic, is another critical undertaking. While the OECD Affordable Housing Database provides data on housing and affordable housing outcomes, as well as evictions and homelessness, considerable gaps remain, due in part to definitional and methodological challenges. A statistical agenda for progress could include:

- Improve the monitoring of evictions.
- Incorporate questions relating to evictions in regular national and international housing surveys.
- Collect homelessness data on a regular basis while extending geographic coverage.
- Integrate different data sources on homelessness (e.g. administrative and/or survey data; health and homelessness data).

Land-use planning is important to make cities attractive, sustainable and productive. Yet, land-use regulations can restrict housing supply and contribute to higher housing costs especially in the most expensive cities. Little systematic data exists on land-use regulations, partly because of their complexity and also because they are predominantly the responsibility of local governments. The OECD aims at developing internationally comparable measures of land-use regulations by collecting data from local governments on:

- Regulations on the type of use of land.
- Regulations on building densities (building footprint, floor space, height, etc.).
- Information on the permitting process.

Collect more data on house price trends and levels across countries

House price indices measure developments over time taking account of quality changes

One of the lessons from the Global Financial Crisis is the need to identify gaps in areas, including housing markets, where better, more internationally comparable data could help to identify the build-up of imbalances at an earlier stage. Indeed, in 2009 the G20 Finance Ministers and Central Bank Governors endorsed 20 recommendations to address data gaps revealed by the global financial crisis. This G20 Data Gaps Initiative led to the development of international statistical standards for the compilation of house price indices (ILO et al., 2013[1]). Currently all G20 countries except Argentina release at least one official index compiled according to these guidelines and representative for house price developments in their country. The OECD collects this information at quarterly frequency and makes it freely available online through its OECD.Stat service.

House price indices are index numbers measuring the rate at which the prices of residential properties purchased by households change over time. These indices adjust for any quality difference between dwellings sold in the current period, relative to the reference period. In other words, they aim at measuring pure price changes. They cover both new and existing dwellings whenever possible, independently of their final use (to live in or for rent). These prices include the price of the land on which residential buildings are located.

Coverage is extensive at the national level

At least one house price index compiled according to international statistical standards and covering the country as a whole is available for each of the 37 OECD member countries (Table 9.1). Nevertheless, only 32 OECD countries compile national-level indices that are representative for all dwelling types and vintages at the same time. The five countries for which some dwelling types or vintages are not covered by the overall national index are Canada, Greece, Korea, Switzerland and United States. For the United States, for example, the most representative index at the national level only covers single-family and existing dwellings, which might be problematic to capture house price developments in urban areas where multi-family dwellings are predominant.

Table 9.1. Availability of house price indices for the 37 OECD member countries

	Any dwelling vintage	All dwelling vintages together	New dwellings	Existing dwellings
National level				
Any dwelling type	37			
All dwelling types together		32	25	26
Single-family		9	5	9
Multi-family		9	4	9
Subnational level (regions and/or cities)				
Any dwelling type	28			
All dwelling types together		16	8	12
Single-family		10	4	6
Multi-family		10	3	7

Note: For each cell, the above table indicates the number of OECD countries for which the corresponding house price indices are available. In this Table, we only consider subnational house price indices that are available for unsegmented geographical areas. For example, we do not include indices covering cities located in different parts of a country and aiming at capturing house price developments in urban areas.
Source: OECD database on national and regional house price indices.

Coverage has expanded but remains more limited at the regional level

In addition, 28 OECD countries compile at least one house price index at the subnational level, and 16 of them provide subnational indices covering all dwelling types and vintages together (Table 9.1). Nevertheless, some time series are very short. For example, regional indices for Israel only start in 2018. Among the nine countries that do not provide house price indices for individual regions or cities (Belgium, Czech Republic, Estonia, Germany[1], Latvia, Luxembourg, New Zealand, Portugal and Slovak Republic), there are some large countries for which, based on the evidence observed in other OECD countries, such indices would likely reveal heterogeneity in house price developments (OECD, 2020[2]).

There is considerable scope for improving the international comparability of regional house price statistics. The available statistics follow the definition of administrative regions within countries and usually allows for a straightforward mapping with internationally agreed regional classifications such as Eurostat's NUTS classification and the OECD TL classification, as well as the mapping with other available regional statistics. Nevertheless, the delineation of cities for the compilation of specific house price indices is less straightforward, and country practices are not standardised. Tracking house price developments within Functional Urban Areas (FUAs), ideally with a distinction between the city (*i.e.* 'core') and the commuting zone, would ensure comparability across countries and be most useful for economic analyses. Dijkstra *et al.* (2019[3]) define FUAs and introduce the joint methodology of the European Union and the OECD to delineate these areas. The 2020 UN Statistical Commission recently endorsed FUAs as a delineation method for international comparisons. So far, even though proxies may be available, no official statistical agency explicitly relies on the FUA concept to define the geographical area underlying house price indices, but this practice should be encouraged.

House price levels are a key area for future work

While house price *indices* are designed to measure house price developments over time in a given geographical area, they do not allow for comparing house price *levels* across geographical areas. Similarly, Consumer Price Indices (CPIs) allow for measuring inflation (*i.e.* how consumer prices develop over time), but only Purchasing Power Parities (PPPs) allow for comparing price levels across space.

Statistics that would be similar to PPPs and allow comparing house price levels across space are typically not available from official statistical agencies.[2] Nevertheless, this information would be key to assess barriers to labour mobility and financial challenges faced by households living in different areas, as well as for the development of regional economic policies. The 2019 OECD Regional Outlook (OECD, 2019[4]) emphasises that the geographical patterns of public discontent are closely related to the degree of regional inequalities and that policies to address public discontent need to have a place-based dimension. House price level differentials across regions precisely contribute to regional inequalities and statistics on this issue could contribute to the design of regional economic policies.

Ideally, statistics on house price levels need to reflect the specific nature of dwellings in the housing stock of each geographical area (*e.g.* the fact that detached houses with a garden are more common in rural areas than in urban areas). Even though elementary house prices could be collected from observed transactions or valuations, as for the compilation of house price indices, the weighting scheme would depend on the characteristics of the dwelling stock in the region, and the underlying information on the dwelling stock would come from the Census or other types of administrative registers. Even though such stock-based weights can also be used for the compilation of house price indices, they are less common than transaction-based weights in that case.

Future development of official statistics on house price levels include:

- Compiling, and regularly updating, statistics on the characteristics (quality, size, age) of the dwelling stock.

- The choice of the level at which weights should be introduced given the heterogeneity of house prices in a given area. Note that the use of weights only makes a difference if the characteristics and the price of houses in a given area are sufficiently heterogeneous. If they were all the same, there would be no difference between transaction-weighted, stock-weighted and unweighted house price statistics.
- The analysis of possible discrepancies between the evolutions of house price levels and indices. They can be related to the level at which weights are introduced, the use of different weighting schemes (transaction- or stock-based), or the use of different compilation methodologies (e.g. stratification vs. hedonic methods).
- The granularity of house price levels that can be compiled given the observed number of transactions.
- The possibility to use asking prices collected from real-estate agency websites for the compilation of house price statistics.
- A concrete way of prompting progress would be to explore these research questions in pilot countries. The lessons learnt could be used for the subsequent development of international statistical guidelines.

A measurement agenda for house price statistics is emerging

The above described state of play suggests the following measurement agenda in the area of house price statistics:

- Compile house price indices at the subnational level in line with international statistical standards, giving priority to geographical areas in which house price developments are suspected to be the most different from the national average. Provide the longest possible time series in order to facilitate economic analysis.
- Extend the coverage of house price indices as much as possible to cover all dwelling types (single- and multi-family dwellings) and vintages (new and existing dwellings). Even though separate indices may be compiled for different dwelling types and vintages, some indices should also cover all of them at the same time.
- For the compilation of house price statistics in urban areas, rely on the concept of Functional Urban Area and distinguish the city and the commuting zone whenever possible.
- Start developing statistics on house price levels, at both national and subnational levels. This information would be key to assess barriers to labour mobility and financial challenges faced by households living in different areas, as well as for the development of regional economic policies.

Better assess housing vulnerability among households

Develop more robust data on evictions

Data on evictions – defined as the involuntary removal of people from their homes involving a judicial process in courts or other litigating bodies – is piecemeal in OECD countries (OECD, 2020[5]). This section refers exclusively to evictions among tenant households, although, as discussed below, evictions may also occur among owner-occupied households. To begin with, the formal evictions process is complex and can vary across and even within countries. It generally involves three phases: phase 1) the landlord initiates the formal eviction process by filing an application to evict a tenant (which may lead to the litigating bodies summoning both parties to court); phase 2) the litigating body formally orders possession of the rental dwelling and issues an eviction notice, or declines the initial eviction request; and phase 3) the tenant

household is physically evicted from the dwelling through the execution of the court order (either with or without executive force).

Not all households who receive a notice to quit or a repossession letter are ultimately evicted; for example, households may be able to pay their rent arrears in order to avoid eviction. On the other hand, some tenants may not be aware that eviction orders or notices do not necessarily need to result in formal evictions, leading them to leave their dwelling prematurely. In Finland for example, for about 39% of all scheduled physical repossessions, bailiffs find a dwelling already vacated by the household (Valtakunnanvoudinvirasto, 2020[6]). In addition, only data on formal, legal evictions are typically available; data on informal or evictions (without judicial proceedings) are much rarer (Kenna et al., 2016[7]).

A number of challenges hamper the collection, analysis and cross-country comparison of these data:

- There are important differences in how evictions are reported across countries. Jurisdictions may provide data at three different stages of evictions proceedings. Overall, information on initiated eviction processes (phase 1) is more prevalent than information on eviction orders (phase 2) or instances of actual physical eviction (phase 3). Moreover, each phase has a different magnitude – that is, not all started proceedings lead to eviction notices, and not all notices lead to actual evictions, further complicating international comparison.
- Data are hard to acquire. Evictions data are not always public, given their sensitivity as well as concerns over the end-use of the data (e.g. when they may be used during the letting process by landlords to screen potentially high-risk tenants). Sources vary within and across countries (e.g. court records and bailiff statistics, figures from (public) housing providers, surveys conducted by academic or community groups, or one-off reports), rendering data collection challenging and comparison difficult. Data may also be available only at local or regional levels (as in the United States, for instance) and are not always available in electronic form. Court records from different jurisdictions provide varying levels of detail and are not readily comparable (Eviction Lab, 2018[8]).
- Data are often incomplete. Evictions data may only cover a subsector of the housing market, as in the Netherlands and New Zealand, where they only cover evictions from social rental dwellings or in Germany, where they also include commercial rentals. In France, actual physical evictions are only reported if they involve police enforcement, which is likely to underestimate the actual number of evictions significantly. In Portugal, data are only available for special eviction proceedings under the National Rental Board (*Balcão Nacional do Arrendamento*), covering an estimated one-third of all eviction processes, most of which are handled in civil courts.
- In some cases, such as for Austria, it is not possible to differentiate between tenant evictions and repossessions of mortgages (see below), which complicates comparison across countries. Further, very little information is provided on the characteristics of households involved in the eviction process, making it difficult to analyse potential drivers of evictions, and whether they are more prevalent among some groups relative to others.

The OECD Affordable Housing Database provides comparative data on evictions among tenant households for many OECD countries (Indicator HC3.3 in OECD (2020[5])).Homeowners can also face eviction following default on their mortgage payments. Mortgage foreclosures are typically initiated by the banks that issued the loan. The data collection on the mortgage foreclosure process faces similar caveats as evictions from rental dwellings.

Homelessness is challenging to measure and compare across countries

Homelessness data are hard to come by and difficult to compare across countries. The first major challenge is that there is no internationally agreed upon definition of homelessness, and countries do not define or count the homeless population in the same way. For instance, in 13 OECD countries, the definition of homelessness is restricted to people living on the streets or in public spaces (i.e. “sleeping

rough"), and/or living in shelters or in other emergency accommodation. Meanwhile, 10 OECD countries apply a broader definition that also includes people who are living in hotels and are doubled up with friends and family (OECD, 2020[9]). Nevertheless, there have been efforts at standardisation through a common typology at European level (ETHOS light) (Table 9.2).

Table 9.2. A harmonised typology of homelessness: ETHOS Light

	Operational category	Living situation
1	People living rough	Public spaces / external spaces
2	People in emergency accommodation	Overnight shelters
3	People living in accommodation for the homeless	Homeless hostels
		Temporary accommodation
		Transitional supported accommodation. Women's shelters or refugee accommodation
4	People living in institutions	Health care institutions
		Penal institutions
5	People living in nonconventional dwellings due to lack of housing	Mobile homes
		Non-conventional buildings
		Temporary structures
6	Homeless people living temporarily with family and friends	Conventional housing, but not the person's usual place of residence

Note: ETHOS Light is a streamlined version of the European Typology of Homelessness and Housing Exclusion (ETHOS).
Source: Adapted from European Commission (2007[10]).

Beyond definitional differences, countries' data collection efforts differ in their method, scope and frequency. Homelessness is by its very nature a difficult circumstance to assess, as an individual's experience of homelessness may be more or less visible to public authorities and support institutions, and thus hard to capture in official statistics. Data collection methods vary, most commonly relying on point-in-time estimates (such as annual street counts like the city of Paris' *Nuit de la solidarité*, conducted on a given day of each year), administrative data (such as registries from shelters and local authorities), or a combination of both. Each method provides only a partial picture of homelessness, and fails to effectively capture the "hidden homeless" who do not appear in official statistics, because they do not seek formal support, or they seek temporary shelter with family or friends, or live in their car. Such hidden homelessness is likely to be more prevalent among women, youth and vulnerable groups outside the scope of homelessness surveys (OECD, 2020[9]).

Incomplete geographic coverage and limited frequency and consistency of data collection represent additional methodological challenges. For instance, some national data only cover the largest municipalities or the biggest region or city; jurisdictions may collect data on a monthly, quarterly, annual, bi-annual basis – or without any regularity at all (OECD, 2020[5]).

The OECD, through its Questionnaire on Affordable and Social Housing (QuASH), regularly collects homelessness data in OECD, Key Partner and European Union countries, in line with each country's national statistical definition. National statistics are reported in the OECD Affordable Housing Database (Indicator HC3.1), along with an indication of the definition and categorisation for each country.

In light of the increasing homelessness rate in around one-third of OECD countries prior to COVID-19, as well as potentially heightened vulnerability of many households due to the pandemic improving data collection on homelessness should be a priority (OECD, 2020[9]). Depending on the country, this could imply more regular data collection, the integration of different homelessness data sources, as well as efforts to expand the methodological toolbox to collect data. Innovative approaches to link administrative and survey data can provide a more comprehensive understanding of the challenges and needs of different

homeless populations. For instance, researchers in Scotland (United Kingdom) linked homelessness and health datasets to find that at least 8% of the Scottish population in mid-2015 had experienced homelessness at some point in their lives – a much larger share than expected (Waugh et al., 2018[11]). More widespread use of the ETHOS Light typology could also facilitate cross-national comparison of homelessness estimates and trends.

A measurement agenda is called for to improve the evidence base on eviction and homelessness

Progress along the following objectives would help better assess and monitor housing vulnerability:

- Improve the monitoring of evictions, including, where feasible, introducing a national system to monitor evictions. Data should include information on the different stages of the evictions process as well as household and dwelling characteristics.
- Incorporate questions relating to evictions in regular national and supra-national housing surveys.
- Collect homelessness data on a regular basis, extending geographic coverage as much as possible in order to capture trends across cities, regions as well as more rural areas. As feasible, report homelessness statistics along the lines of the ETHOS Light categorisation in order to facilitate comparison across jurisdictions.
- Expand the methodological toolbox to integrate different data sources (e.g. administrative and/or survey data; health and homelessness data) to better understand the needs and challenges of the homeless population.

Measure local land-use regulations

Land-use regulations are used to address a wide range of policy objectives. They aim at protecting residents from hazards and nuisances, ensuring adequate infrastructure capacity and public transport provision, creating attractive neighbourhoods and reducing segregation as well as preserving the environment and the built heritage. Yet, by imposing restrictions on how land can be developed, land-use regulations can make housing supply less responsive to housing demand, thereby increasing house prices (Chapter 4).

Land-use regulations are complex documents that are not often suited for statistical processing and no official statistics are collected on them. In the absence of official data, researchers have attempted to fill the information gap by launching surveys on local governments (Gyourko, Saiz and Sumers, 2008[12]) or by using proxy measures (Ganong and Shoag, 2017[13]). Yet, these alternative methods have important limitations: current survey-based measures are often limited in their geographical extent, while proxy-based measures are of unknown accuracy and do not provide any details on how land-use regulations restrict residential development.[3] Moreover, the available data is generally not comparable across countries.

The lack of internationally comparable data on local land-use regulations holds back our understanding of their impact on housing outcomes. In particular, it makes it difficult to develop insights on how to reform planning systems to encourage housing construction without creating detrimental effects on other important objectives of the planning system, such as preventing sprawl. To improve the evidence base, the OECD has started to collect internationally comparable data on land-use regulations from local governments.

Measuring land-use regulations poses significant challenges

Land-use regulations are complex sets of rules. They generally include qualitative and quantitative rules as well as map-based regulations, whose importance differs across countries. Moreover, they frequently leave substantial scope for discretionary decisions by local planning officials. Their complexity and discretionary nature poses substantial challenges in their quantification.

- *Land-use regulations can vary considerably across local jurisdictions within a country*. Throughout the OECD, land-use planning is predominantly the responsibility of subnational governments and in particular of local governments. While many countries impose national frameworks that guide the application of land-use regulations, local governments nevertheless have high discretion in deciding if and how they use the instruments at their disposal. As a consequence, any accurate measure of land-use regulations needs to reflect their geographical diversity.
- *Land-use regulations are often ambiguous*. Regulations that prevent housing construction on undeveloped land, such as agricultural land and forests, are often nuanced and difficult to quantify: for example, they can sometimes allow infill development in the proximity of existing buildings, but not leapfrogging development away from built-up areas. Additionally, many countries use mixed-use zoning that imposes restrictions on residential development, complicating the measurement of these regulations: for example, mixed-use zoning can impose upper/lower limits on the share of residential floor space or permit residential development only in certain locations (e.g. facing away from large roads).
- *Additional data is needed to quantify building density restrictions and it is often difficult to access*. Land-use regulations to control building density, such as height limits, floor-area-ratios, or minimum lot sizes, are tightly linked to the density of the existing building stock. If existing buildings are built up to the permitted limits, no further densification is possible. In contrast, if they remain well below permitted limits, additional housing units can be created through densification. Yet, the cadastre data that is required to measure the existing building stock is difficult to access and often not available in fully digitised form. This makes it impossible to compare permitted densities to the actual building stock in a large number of cities. Moreover, regulations on building density contain context-specific elements in many countries, such as regulations that prevent buildings from visually dominating or shading adjacent properties. Whether a new development meets such criteria is decided in case-by-case evaluations of planning officials.
- *Planning policies can impose a wide range of requirements as a prerequisite for obtaining a permit to develop housing, and need to be considered in the quantification of land-use regulation*. Typical examples are requirements that specify the building type, such as single-family housing, row housing and perimeter block housing. Architectural requirements are also common and often include specifications on façade design and roofing. Heritage protections limit the scope to demolish or alter existing buildings in historic parts of cities. Building code regulations aimed at the safety of buildings can reduce the usable floor space of buildings and increase construction costs. Some countries impose even more requirements. For example, some local governments stipulate minimum and/or maximum internal size requirements for individual dwelling units or require that housing is reserved for specific populations, such as elderly or disabled people.
- *Land-use regulations often include clauses applied infrequently on a case-by-case basis*. For example, in several countries, land-use regulation features the provision of rental housing at below-market prices. The infrequency and specificity of these clauses make it hard to collect representative data.
- *The frequency with which land-use plans are updated should also be considered part of land-use regulations*. All else equal, a higher frequency of updates usually indicates less restrictive land-use regulations. If a plan contains strict regulations, but is often updated or replaced at the initiative of developers to permit additional development, it is much less restrictive in practice than a similar

plan that remains in place for a long time without modifications. Thus, an accurate measure of land-use regulations also needs to take into account how plans are revised. In particular, in countries where plans are frequently revised, the revision process can be more significant in determining the restrictiveness of planning regulations than the content of the plan at a single point in time.

Towards internationally comparable data on local land-use planning policies

The OECD aims at collecting data from local governments to provide the first internationally comparable measure of land-use regulation. The first step of this initiative is taking place in the Czech Republic, where the OECD in cooperation with the Ministry for Regional Development surveyed almost 2 000 municipalities. All municipalities within functional urban areas of more than 50 000 inhabitants have been covered by the survey as well as a set of additional municipalities that the Ministry for Regional Development considers of particular importance for the Czech housing market.

The survey collects information on local land-use regulations as well as other relevant aspects of local housing policies. It focuses primarily on regulations contained within local master plans (e.g. density and use regulations) and covers the content of more detailed regulatory plans (e.g. architectural requirements) to a lesser degree. It covers three main elements of land-use planning policies:

- Zoning by land-use;
- Building density regulations;
- The permitting process.

To put the data on land-use regulations into context, further information is collected on the existing housing stock, housing prices, municipally-owned housing, and housing construction. The survey aims at collecting data that is internationally comparable while still capturing all important aspects of local land-use policies. Thus, it contains sections that are designed to be applicable across countries as well as sections that are targeted specifically to the Czech context.

Two main constraints limit the amount of information that can be collected by the survey. First, to limit the administrative work of the responding local governments, the questionnaire has been restricted to the most important land-use planning regulations. Second, local governments that respond to the questionnaire face many of the conceptual challenges discussed above. For example, local governments are unlikely to have an exact assessment of the degree to which their density regulations leave scope for additional residential development.

Despite these challenges, the survey is likely to provide a range of new insights into local land-use and housing policies. For many countries, it will provide the first systematic measure of local land-use policies. Even in countries where such measures exist already, the data collected by the survey is likely to be the first measure derived from official sources. Moreover, as the survey is rolled out across different countries, it will provide the first robust basis for statistical comparisons of land-use regulations across different countries. It will allow developing insights on how to reform planning systems to encourage housing construction without creating detrimental effects on other important objectives of the planning system. As the OECD plans to increase the number of countries covered by the survey, it is seeking to continue to work with interested governments.

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Notes

[1] Germany (Destatis) provides house price indices for four separate subnational groupings: cities not attached to a district, urban districts, densely populated rural districts, and sparsely populated rural districts. Even though these groupings are very relevant to assess the existence of an urban/rural divide in house price developments, they do not relate to unsegmented geographical areas, which is why we do not consider them as "regions".

[2] Note that PPPs cover all types of goods and services that are consumed, invested or exported in an economy. Therefore, specific PPPs are compiled for dwellings and other investment goods. Nevertheless, only new dwellings, and only a handful of dwelling types with very precise characteristics to allow for international price comparisons, are taken into account for the compilation of PPPs. Moreover, even though Costa et al. (2019[205]) is a recent attempt in the literature to compile regional PPPs for a few countries, most statistical agencies only compile PPPs at national level. For these reasons, the available PPPs do not allow comparing house prices across regions within the same country, nor taking into account the specific nature of dwellings in the housing stock of each region. For a description of how PPPs for construction goods are compiled in the Eurostat-OECD area, see Chapter 11 in Eurostat, OECD (2012[204]). For a recent attempt in the literature to estimate national house price levels for 40 countries, see Bricongne, Turrini and Pontuch (2019[49]).

[3] See Lewis and Marantz (2019[212]) for an overview of attempts to measure local land-use regulations in California.

Brick by Brick

BUILDING BETTER HOUSING POLICIES

The report brings together evidence, international experience and policy insights for the design of housing policies. Emphasis is placed on three broad aspects: inclusiveness, efficiency and sustainability. Inclusive access to housing has become increasingly challenging in many OECD countries due to a large extent to rising housing costs, which reflects the failure of housing supply to meet demand, particularly in jobs-rich urban areas. Geographical constraints play a role, but in many cities regulations, including on land-use and zoning provisions, also constrain supply. At the same time, some regulations on tenant-landlord relations can discourage the development of rental markets, pushing up rents. Moreover, the transition to a low-carbon economy poses challenges for a sector that accounts for 17% of CO_2 emissions and 37% of fine particulate matter emissions globally. Almost two-thirds of countries worldwide still lack mandatory building energy codes. Frontloading efforts is critical as dwellings have a very long lifespan. The report lays out evidence-based options for concerted policy action to address these challenges, while recognising complementarities and trade-offs amond the different objectives of housing policies. The report is part of the OECD Housing Tookit, which includes an interactive online dashboard of housing indicators and country snapshots.

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