copy the linklink copied!4. Boosting Housing Market Efficiency

Abstract

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.

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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).

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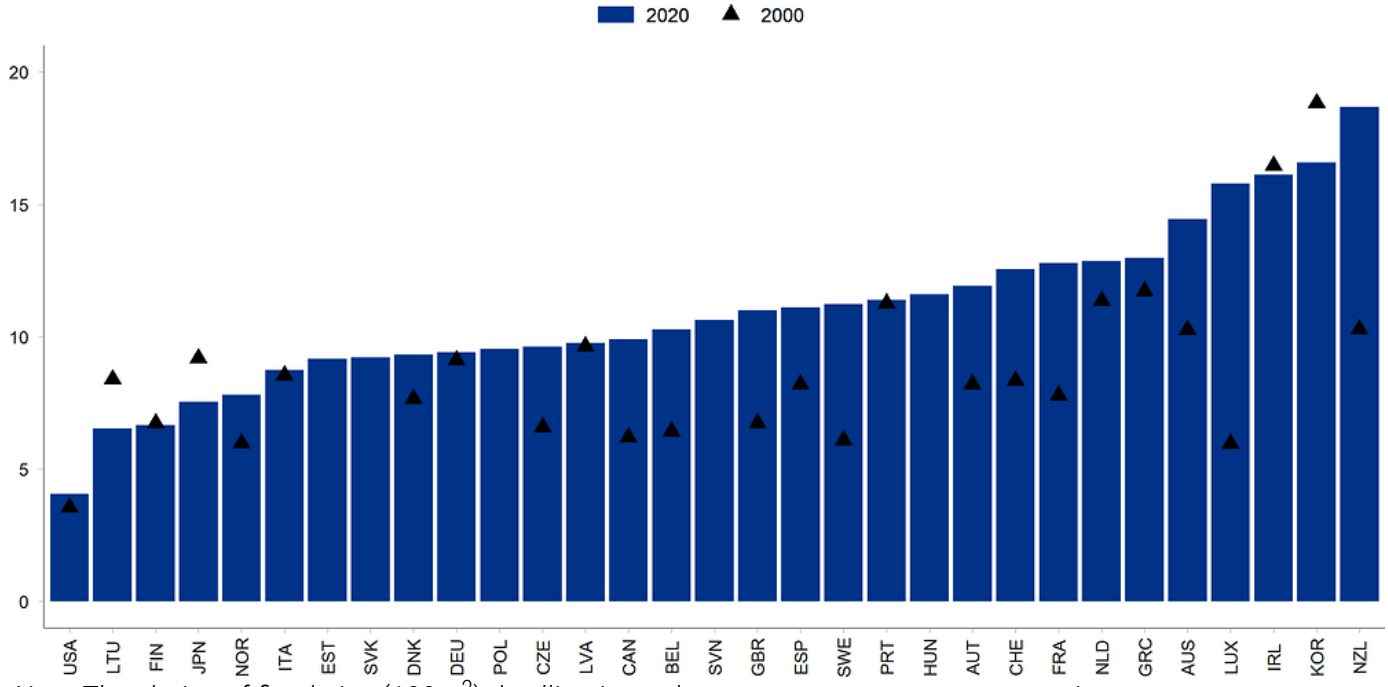
Figure 4.1. House price-to-income ratios have risen in most countries

Number of years over which cumulated average household disposable income equals the average price of a 100m^2 dwelling



Note: The choice of fixed-size (100m^2) dwelling is made to ease cross-country comparisons.

Source: Bricongne, Turrini and Pontuch (2019[1]) and OECD calculations.

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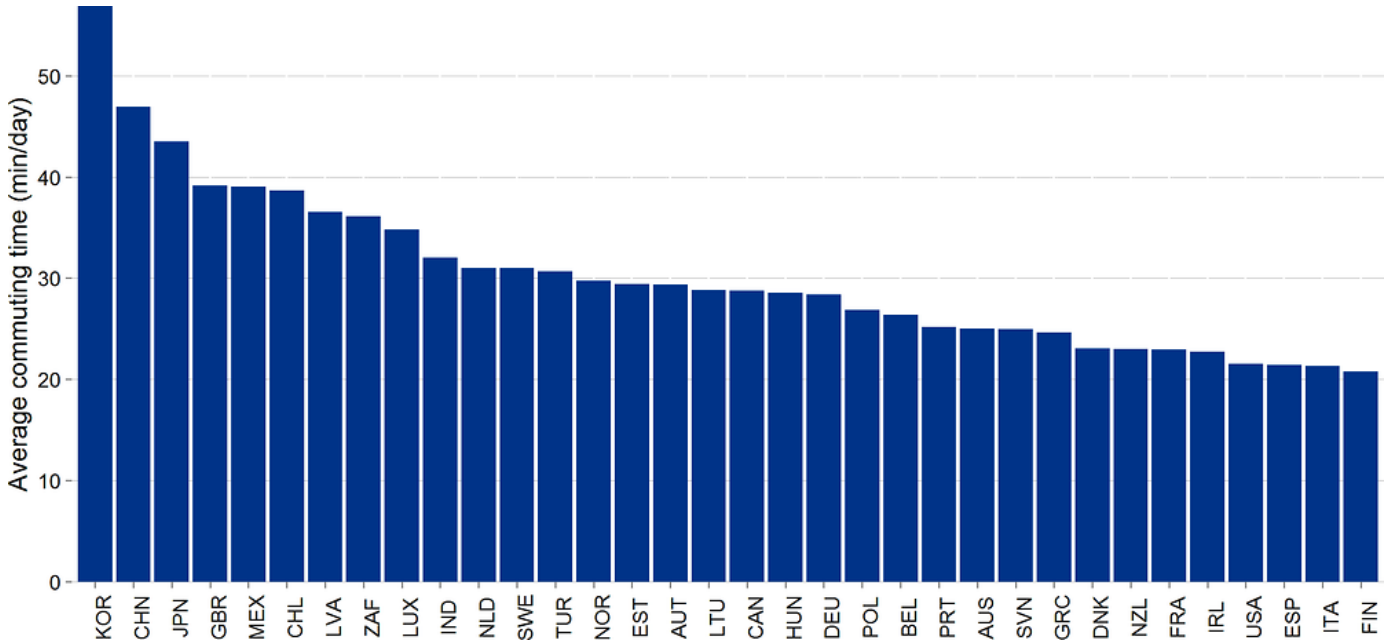
Average house prices can hide marked regional differences. Figure 1.6 highlights the scale of diverging house prices within countries. Recent research has pointed at several natural and man-made construction obstacles (Bétin and Ziemann, 2019[2]). In areas where housing demand is strong, these obstacles 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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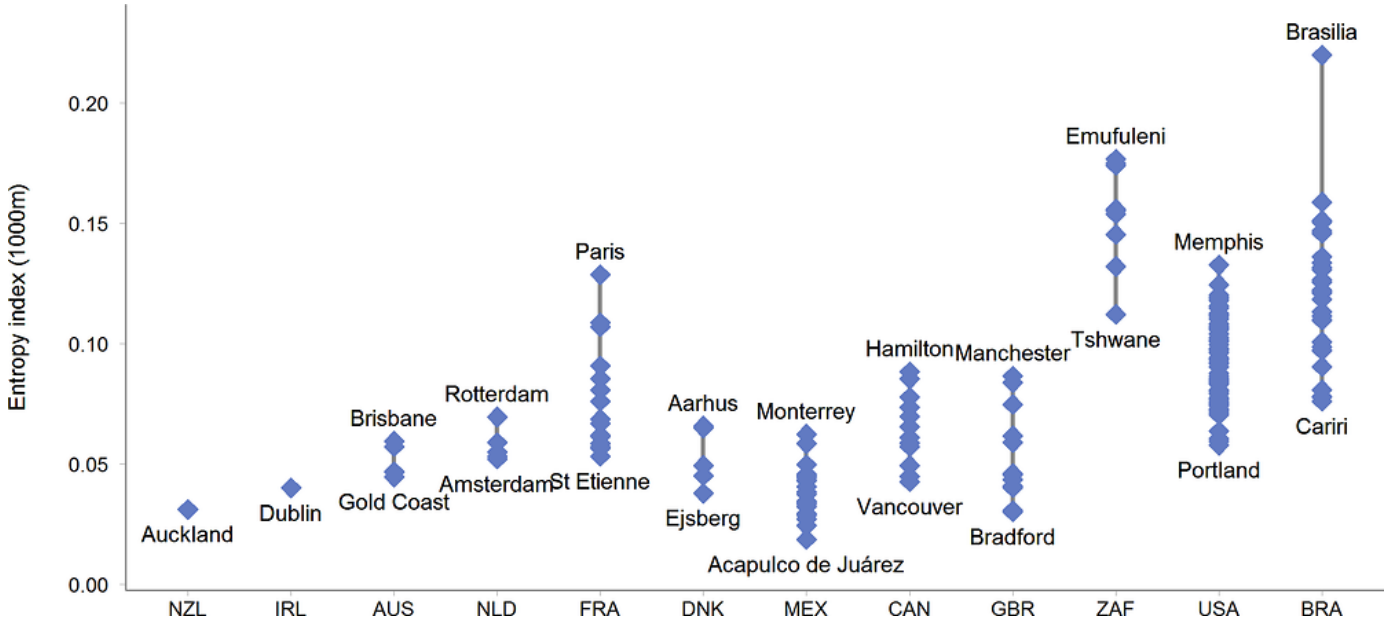
A more direct measure for segregation consists of assessing the concentration of income groups or, in other words, the sorting by income within urban areas. Based on highly disaggregated household income data for 12 countries, OECD research has developed entropy-based segregation indicators that measure 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])).

copy the linklink copied!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.

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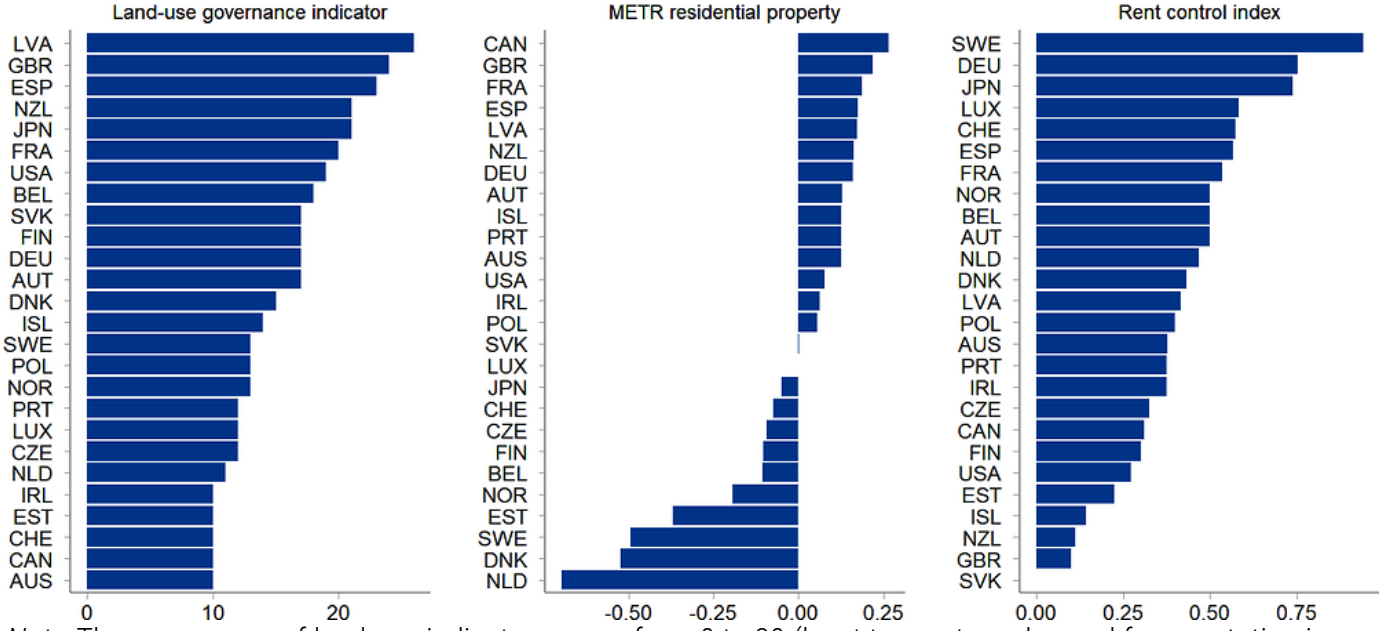
Figure 4.4. Selected housing policy indicators



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.

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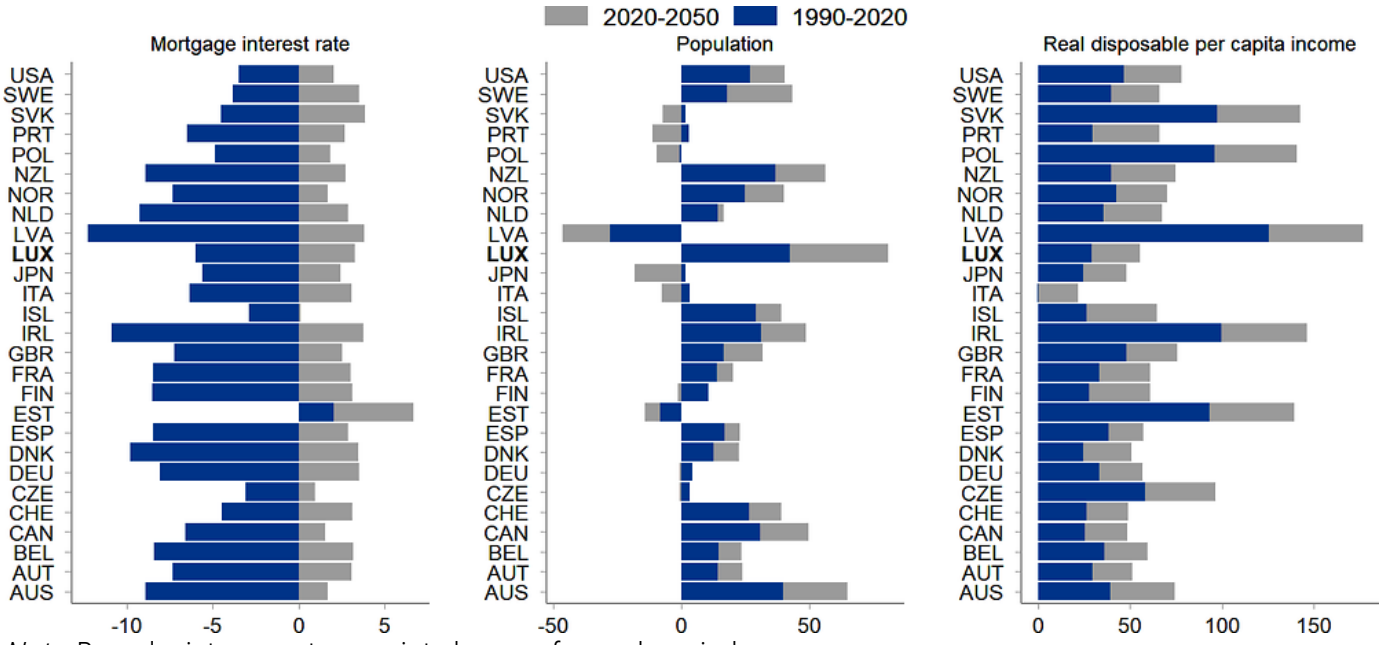
copy the linklink copied!Demand for housing will continue to increase substantially in most countries

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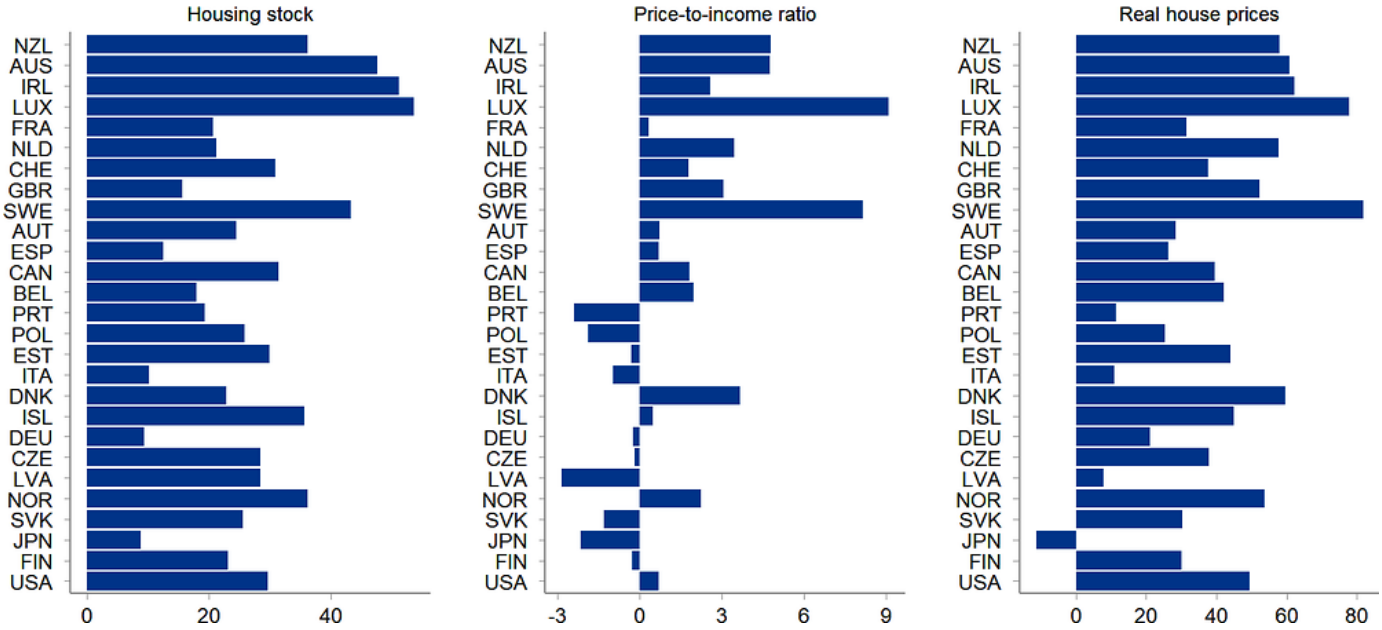
Figure 4.6. Baseline changes in the housing stock, house prices and price-to-income ratios

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 100m^2 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 $1/15^{th}$ of the average price of a 100m2 flat in 2050 is projected to

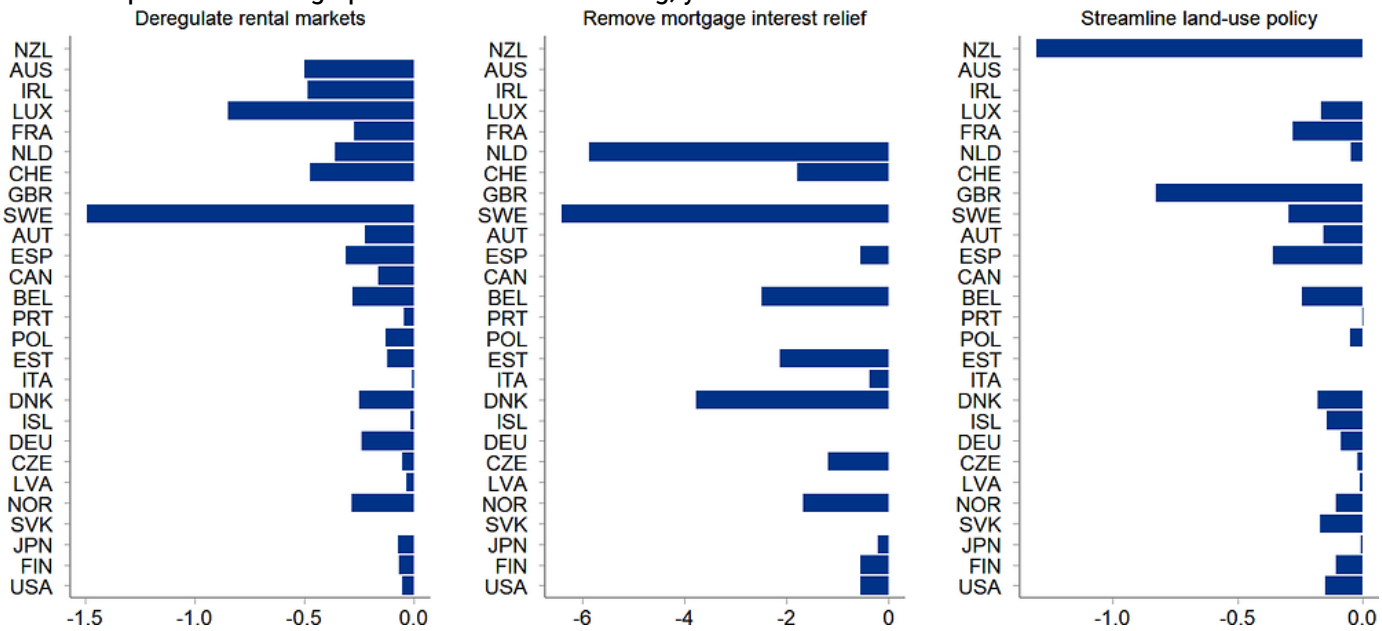
reach 55% following the removal of mortgage interest relief, against 20% in the no-policy-change scenario. In the short term, removing mortgage interest relief would make homeownership more difficult to afford for middle-class households through the direct effect on their budget. However, the mechanisms 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 100m^2 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.

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copy the linklink copied! Foster societal, technological and environmental transformations

copy the linklink copied!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.

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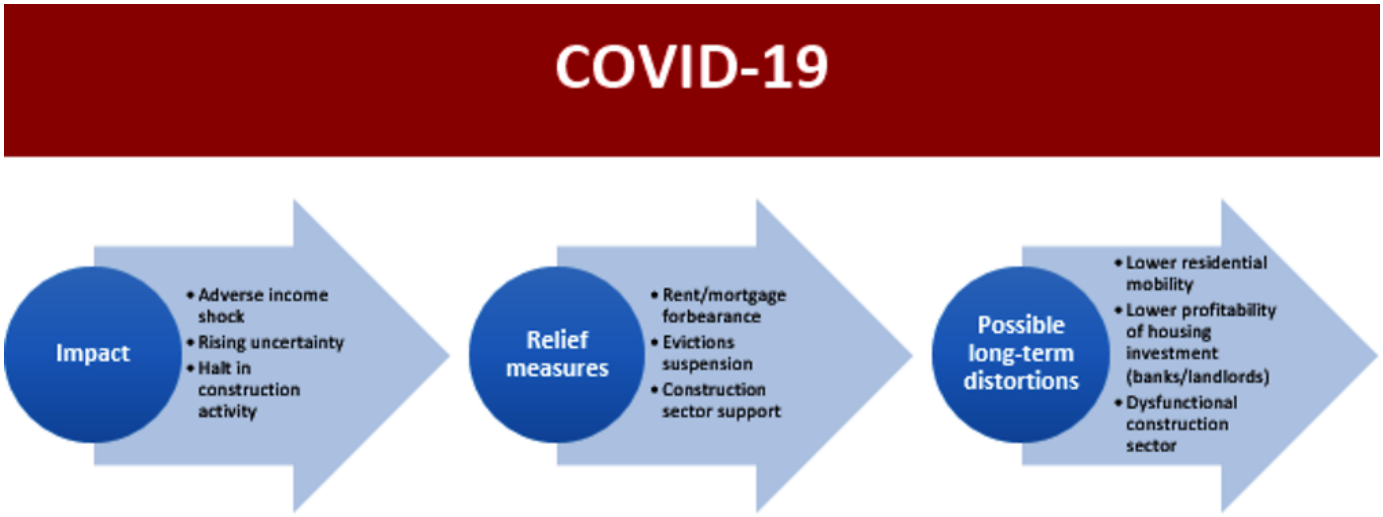
Figure 4.8. Relief measures during COVID-19



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

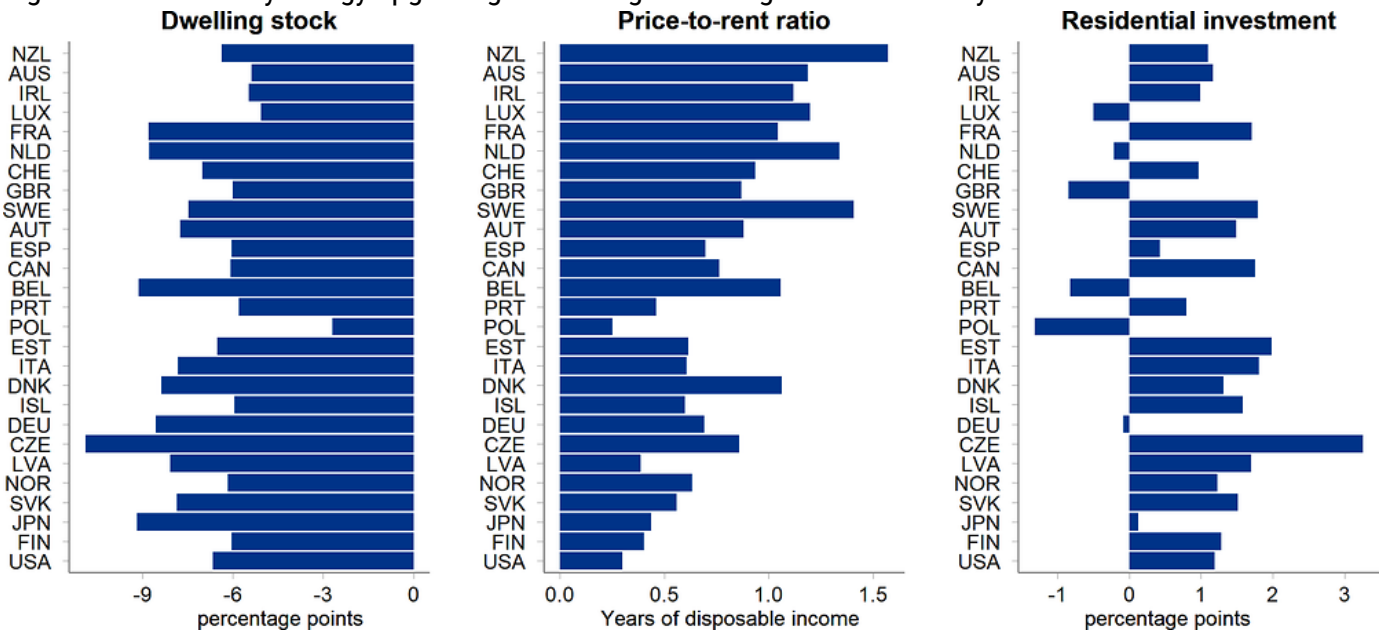
The profound changes in preferences caused by the COVID-19 crisis could herald deep transformations to commuting habits and urban structures. Aspirations towards less dense living environments and more public spaces for citizens together with the technological transformation of urban mobility could create 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.

StatLink https://stat.link/fplsaq

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).

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