1 Housing market trends and challenges

The chapter examines current trends and challenges in OECD housing markets, providing background for the subsequent policy analysis in the report. It covers trends in house prices and affordability, housing supply and demand dynamics, the role of housing in the economy, its equity implications and the impact of housing on the environment. The chapter also briefly discusses the longer-term trends that are likely to shape the future of housing.

1.1. Introduction

Housing plays a central role in our lives. Access to shelter is a basic human need and a key determinant of individual welfare (OECD, 2021[1]). Access to well-located, quality housing shapes people's social lives as well as their access to health care, education, job opportunities and recreational activities (OECD, 2021[1]). Housing also affects well-being on a daily basis as the home is the centre of family life and increasingly of professional life, with the widespread adoption of teleworking during the COVID-19 pandemic.

Housing combines the characteristics of both a consumption and an investment good. In OECD countries, housing is on average the single-largest expenditure item across all income groups and has accounted for an ever-larger share of total household expenditure in recent years (OECD, 2021[2]). For most households, housing also constitutes their largest lifetime investment, commonly financed with debt, and the majority of their wealth. Housing accounts for 50% of total household wealth on average across OECD countries; a figure that rises to more than 60% for middle-income households (see Chapter 2). The fact that housing combines the characteristics of both a consumption and an investment good has significant implications for public policy, in particular for its tax treatment (Mirrlees et al., 2011[3]).

Promoting homeownership has long been a goal of many OECD countries. Homeownership is an ambition for many households for various reasons, including wealth accumulation and a sense of financial security, which is why widespread homeownership has been an enduring objective of governments. Support for homeownership has also been justified by the positive socio-economic outcomes (e.g. better maintenance of the housing stock, greater civic participation) associated with homeownership (Glaeser and Shapiro, 2003[4]; DiPasquale and Glaeser, 1999[5]), though similar outcomes could potentially be achieved by other forms of tenure such as stable long term renting (Acolin, 2022[6]; OECD, 2021[1]). Widespread homeownership can also have some negative effects, including reduced residential mobility (Causa and Pichelmann, 2020[7]), incentives for homeowners to restrict the local housing supply (Glaeser and Shapiro, 2003[4]) and potential negative externalities such as increased energy consumption, land sealing and traffic congestion where homeownership is associated with specific property structures (e.g. detached houses) (Glaeser, 2011[8]).

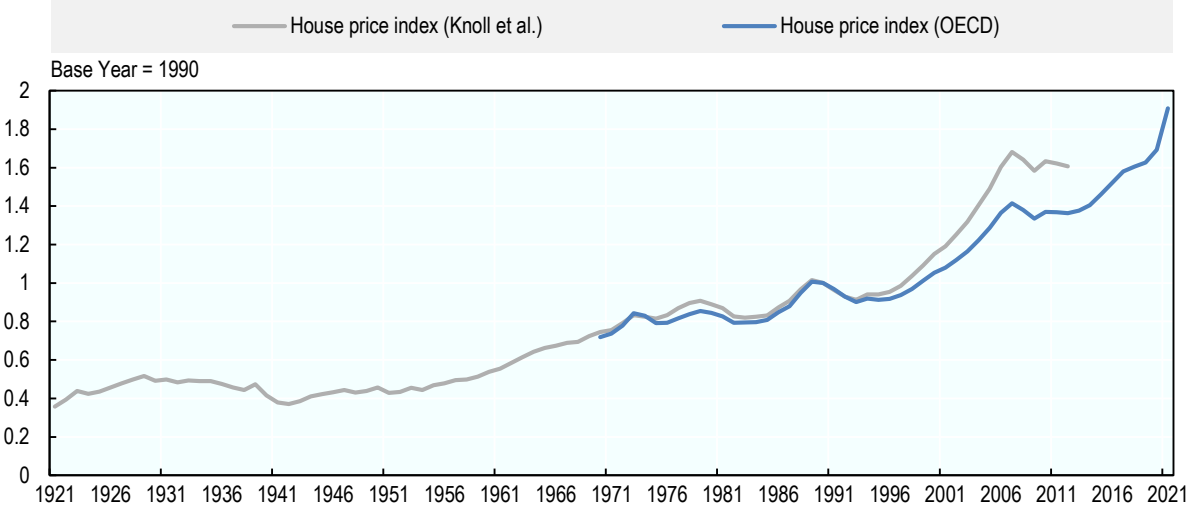
Housing has become one of the most pressing policy challenges of our time. The concentration of demand in supply-constrained areas has pushed up house prices and deteriorated housing affordability across many OECD countries. Unprecedented house price growth has been making it harder for younger generations to become homeowners and build up housing wealth. The current context of rising inflation and potentially tighter monetary policy could have mixed impacts on borrowers and prospective buyers. The functioning of housing markets also has wider social, economic and environmental implications, including for social cohesion, financial resilience, residential and intergenerational mobility and the transition to a low-carbon economy. The interconnected challenges of housing market inclusiveness, efficiency and environmental sustainability will require a range of policy reforms, which take into account complementarities and trade-offs between different policy tools and objectives.

This chapter outlines trends and challenges in housing markets, providing background to the policy analysis developed in the rest of the report. First, the chapter analyses house price developments and their impact on housing affordability in recent decades. Second, it examines supply and demand dynamics, including trends in housing finance. Third, it looks at the role of the housing sector in the economy, its impact on residential mobility as well as its wider equity implications. The chapter also examines the environmental footprint of the housing sector and its role in transitioning to a climate and environmentally friendly society, before discussing how longer-term trends, including for instance digitalisation and population ageing, may affect housing markets in the future.

1.2. Housing affordability has decreased significantly in both property and rental markets

Real house prices have experienced a sustained and significant increase over the past century, with a particularly strong growth since the mid-1990s. Figure 1.1 shows the average real house price index for 14 developed economies between 1921 and 2012 based on house price data by Knoll, Schularick and Steger (2017[9]) and from 1970 until 2021 based on the OECD Analytical House Price Database.[1] While there have been some fluctuations, the graph shows a strong and continuous growth in real house prices, with the index increasing six-fold over the past century. There has been a significant acceleration in house price growth from the mid-1990s onwards, only briefly interrupted by a temporary house price decline following the global financial crisis.

Figure 1.1. Real house price index, average 14 countries, 1921-2021



Note: Average of Australia, Belgium, Canada, Denmark, Finland, France, Germany, Japan, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, the United States. House prices are CPI-adjusted.
Source: Knoll, Schularick and Steger (2017[9]); OECD Analytical House Price database (2022[10])

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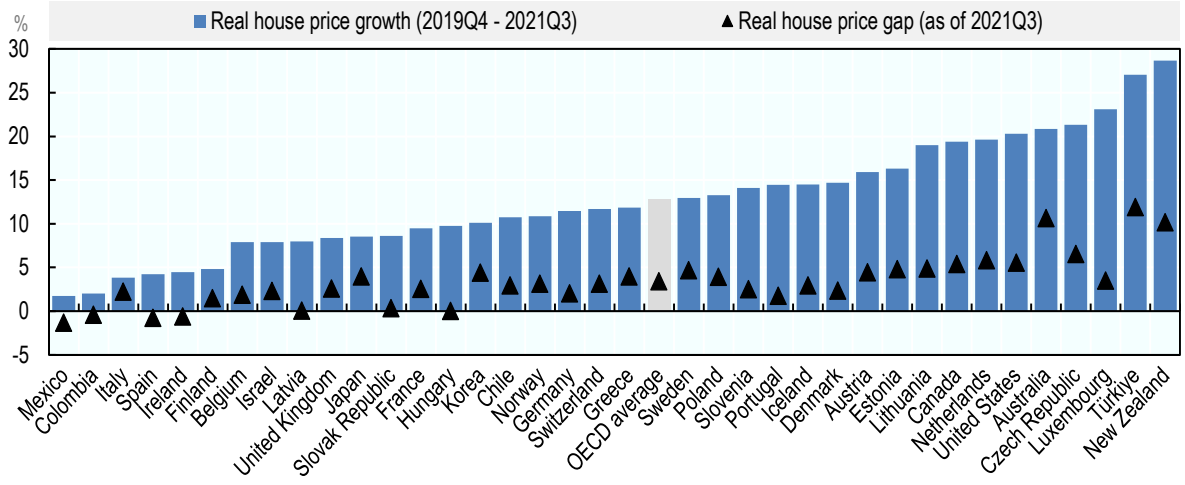
Strong house price growth during the COVID-19 pandemic has pushed up housing prices further. Real house prices experienced rapid growth during the pandemic, rising by 13% on average (unweighted) across OECD countries between late 2019 and late 2021 (Figure 1.2). House prices increased in every OECD country but with variation in the rate of growth; 11 countries saw increases of more than 15%, while six countries saw increases of less than 5%. House price growth was above the underlying pre-pandemic trend in nearly every country, which indicates that real house prices are now higher than they would likely have been had the pandemic not occurred. While house prices have historically increased much faster in urban areas, increased demand for living space and the rise of teleworking drove up prices in the peripheral areas around large cities (Ahrend et al., 2022[11]).

Figure 1.2. Real house price growth and real house price gap, 37 OECD countries

Real house price growth: Q4 2019 to Q3 2021; Real house price gap: Q3 2021



Note: The real house price gap reports the percent gap between the house prices observed in Q3 2021 and the country-specific trend estimated for each country by a house price filter. The latter is a proxy of the level house prices would have reached had the pandemic not happened. The real house price index is the ratio of the nominal house price index to the deflator of private consumption in each country. Data for Costa Rica were not available. The OECD average is the unweighted average of 37 OECD countries with available data.
Source: OECD Analytical House Price database; OECD Economic Outlook (OECD, 2022[12]).

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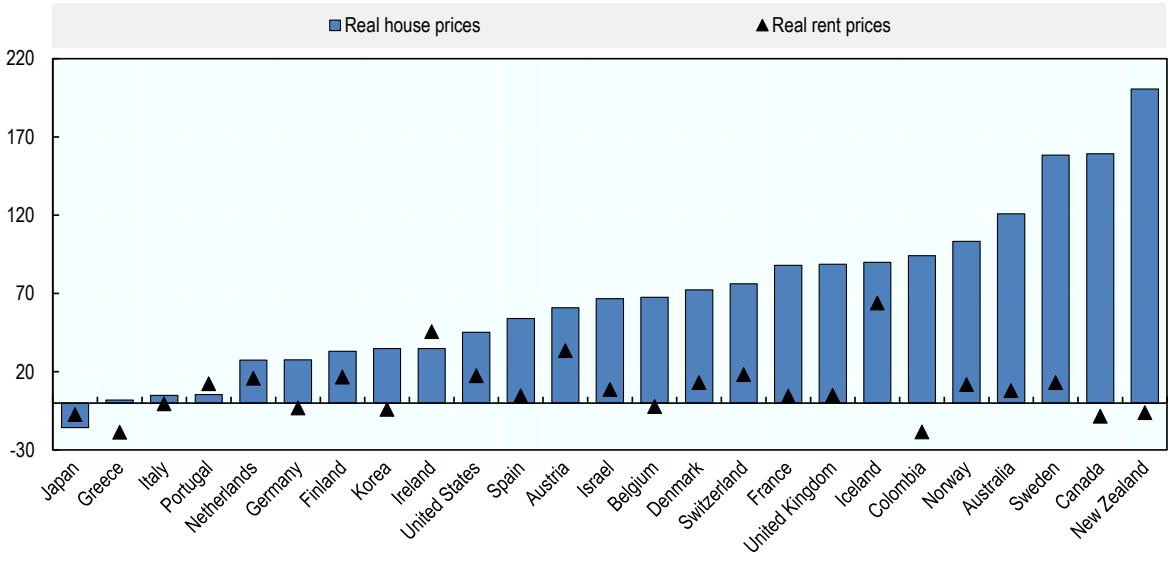
The increase in house prices and rents has made housing less affordable in many OECD countries. House and rent prices have grown faster than general inflation across many OECD countries over the last 20 years (Figure 1.3). Generally, trends in house prices and rents are expected to follow broadly similar patterns. However, recent increases in price-to-rent ratios may suggest overvaluations in the housing market (OECD, 2021[13]). Importantly, increases in real house prices and rents over the past two decades have varied considerably across countries. For instance, real house prices nearly tripled in New Zealand between 2000 and 2020, while Japan witnessed a decrease in real house prices over the same period (Figure 1.3). Real rent prices have increased more moderately over the last 20 years. The majority of countries have seen real rent price increases of less than 20%, but renters in Iceland have faced real rent increases in excess of 60%. In nine countries, real rent prices decreased over the observed period. It should be noted that house prices and rents have evolved differently within countries, with particularly strong house price and rent growth in urban areas, where demand pressure is high and housing supply is constrained (Bétin and Ziemann, 2019[14]).

Figure 1.3. Percentage changes in real house prices and rents, 2000-2020



Source: OECD Analytical House Price database (OECD, 2022[10])

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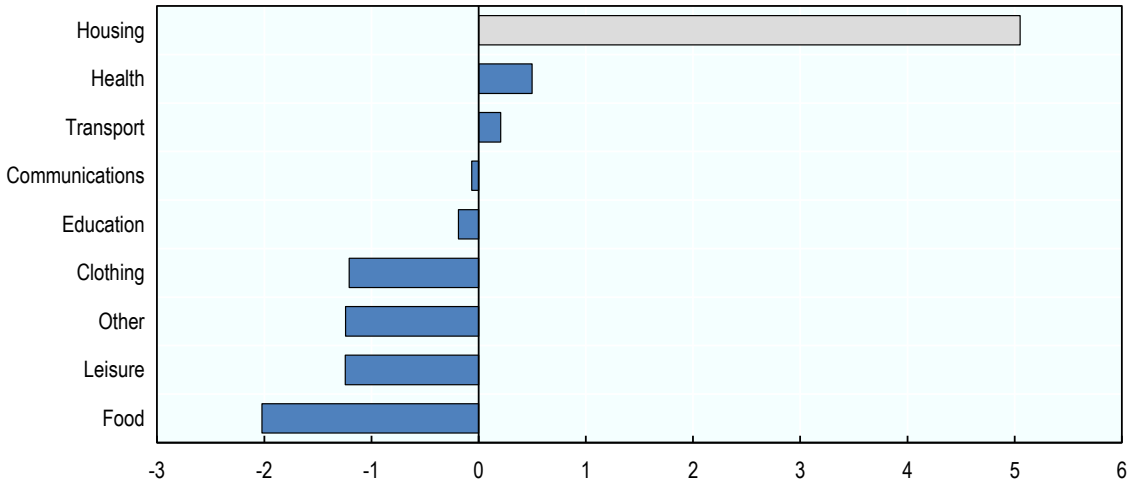
Income spent on housing has increased. Housing makes up the largest spending item within household budgets, absorbing more than a third of total household expenditure for households in the bottom quintile and a quarter of household budgets in the top quintile (OECD, 2021[2]). Between 2005 and 2015, the share of middle-income housing expenditure (i.e. expenditure by households earning between 75% and 200% of median incomes) within the total household budget increased on average by 5 percentage points across 23 OECD countries (Figure 1.4). The share of some other household spending items, including health care and transportation, also grew over the same period, though at a much lower rate. Housing costs in the form of rents and mortgage payments often represent a considerable financial burden for households, particularly at the lower end of the income distribution. In 2019, on average across OECD countries, the median mortgage burden including both repayment of the principal and interest payments faced by owner-occupiers (outright owners are not considered as they do not face mortgage costs) was 15% of their disposable income while the median rent burden was 22% (OECD, 2022[10]).

Figure 1.4. Changes in middle-income households' spending shares, 2005-15 average



Note: Housing-related expenditures include actual rentals for housing, imputed rentals for owner-occupied housing, maintenance and repair, water supply and miscellaneous services, electricity, gas and other fuels. 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, Türkiye, 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[15])

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1.3. Supply-side constraints have contributed to decreasing housing affordability

The level of house prices and rents results from the interplay between local housing demand and supply, with supply tending to be less responsive in the short run. Housing supply depends on new residential constructions, as well as the renovation and upgrading of the existing housing stock. Supply tends to adjust more slowly than demand as it takes time to plan and build new structures, which allows price pressures to build up. Slower supply responsiveness also results in more volatile prices and boom-and-bust periods.

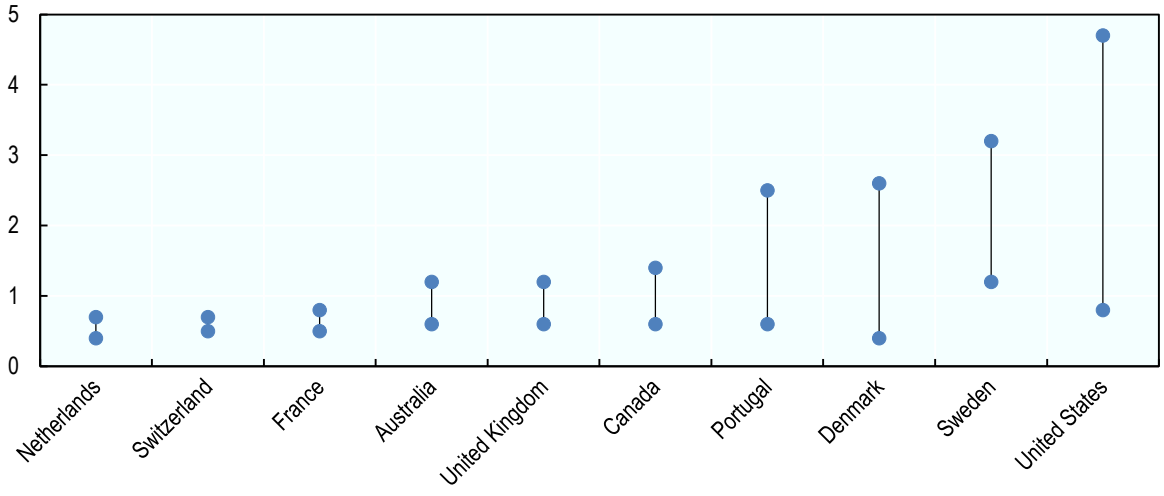
Natural and human-made obstacles to construction as well as housing policy choices have contributed to low supply responsiveness, exacerbating the price effects of rising housing demand. Natural geographical constraints as well as regulatory restrictions including those related to land-use and zoning provisions contribute to slowing the responsiveness of housing supply to growing demand (Bétin and Ziemann, 2019[14]). These constraints are particularly binding in already highly urbanised metropolitan areas, where population density is high and housing market regulations are more prevalent (OECD, 2021[1]).

Other supply-side factors contributing to growing house price pressures include higher construction costs and lower public investment in housing developments. Rising construction costs have contributed to declining housing affordability in many countries. Between 2000 and 2019, construction costs for new residential housing increased by more than 70% in the OECD-EU area (OECD, 2021[1]). Increasingly stringent energy efficiency and environmental regulations also contribute to construction cost increases. At the same time, governments have invested less in housing construction. Over the last two decades, governmental capital transfers (i.e. public transfers to organisations outside government) for

housing developments decreased by more than 50% on average across OECD countries to a level of 0.06% of GDP in 2018, while direct government investments in housing developments decreased by 80%, accounting for 0.01% of GDP in 2018 (OECD, 2021[1]). These trends are also reflected in the declining share of social housing in the total housing stock across OECD countries, which has contributed to lowering housing affordability in particular for low-income households (OECD, 2021[1]).

The responsiveness of supply to changes in housing demand varies considerably between and within countries. Several studies estimate national (Caldera Sánchez and Johansson, 2011[16]; Cavalleri, Cournède and Özsöğüt, 2019[17]) and regional (Bétin and Ziemann, 2019[14]) housing supply elasticities and analyse their underlying drivers. Across a subset of OECD countries, Bétin and Ziemann (2019[14]) find that housing supply in metropolitan areas is most elastic in the United States and Sweden with supply elasticities mostly above two, though there is wide within-country variation across metropolitan regions (Figure 1.5). Housing supply responsiveness is particularly low in the Netherlands, France and Switzerland, where elasticities range between 0.4 and 0.8. The within-country variation in housing supply elasticities is particularly high in some countries, ranging from 0.8 to 4.7 in the United States and from 0.4 to 2.6 in Denmark. This underscores the importance of spatially aligning supply with demand, meaning that construction should occur where the demand is highest. Mismatches can also relate to housing type with profitable high-end dwellings being abundantly supplied while more affordable and typically more urgently needed flats tend to be undersupplied.

Figure 1.5. Housing supply elasticities across metropolitan regions in a sample of OECD countries, 2019



Note: House price elasticities are calculated by regressing changes in real house prices on changes in residential construction using an instrumental variable approach to address potential endogeneity between construction and house prices. A supply elasticity of 1 (unity) indicates that any house price changes leads to a proportional change in housing construction. A larger supply elasticity means that, for a given change in house prices, homebuilding expands by a greater amount.
Source: Bétin and Ziemann, (2019[14])

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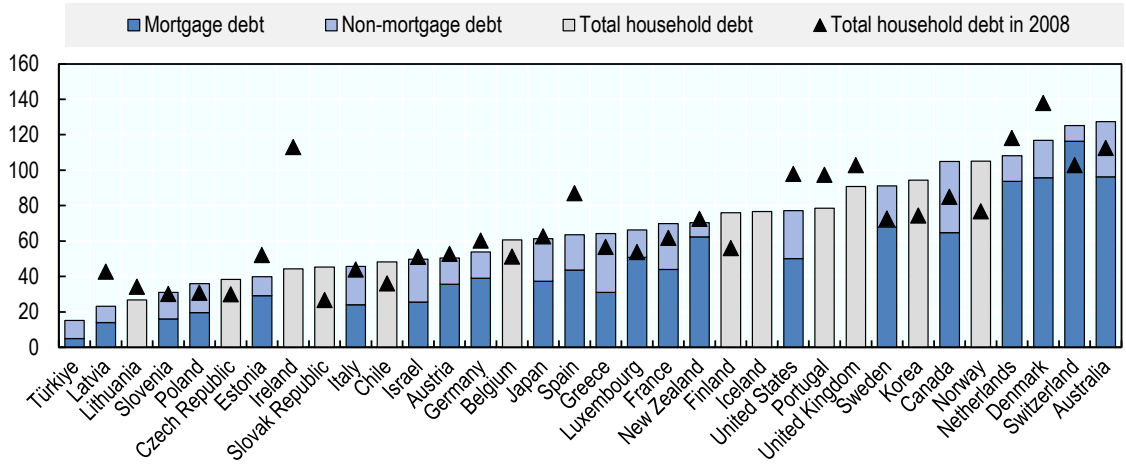
1.4. At the same time, housing demand has been pushed up by various structural, economic and political factors

Housing demand is affected by accessibility of homeownership as well as structural factors determining housing preferences. The underlying drivers of demand can fall under different categories: those that structurally change the characteristics and location of housing demand, including demographic shifts and urbanisation, and those that make housing more or less accessible to broader segments of the population, such as lower interest rates and the increased availability of housing finance.

Favourable macroeconomic conditions have made housing more accessible in recent decades. A key driver of stark house price increases in the past two decades has been the historical decline in real interest rates (OECD, 2021[18]), which has been reinforced by expansionary monetary policies in the aftermath of the global financial crisis (OECD, 2021[1]). Low interest rates have not only reduced housing debt financing costs for households, but they have also encouraged real estate investments by institutional investors and high-net-worth individuals in search of higher returns (OECD, 2021[18]). Besides, growth in household disposable income tends to push up housing demand and has been one of the main factors behind rising homeownership rates in some OECD countries, including Denmark, Finland, Spain and the United Kingdom (Andrews, Caldera Sánchez and Johansson, 2011[19]).

Developments in housing finance markets have made housing more accessible, though some of these innovations may undermine the resilience of the financial system. Financial deregulation including the relaxation of borrowing conditions and novel housing finance products have promoted the development of mortgage markets in many OECD countries over the past 50 years (OECD, 2021[1]). These trends have made housing finance more accessible for a wide set of credit-constrained households and have been associated with a significant increase in housing demand (Andrews, Caldera Sánchez and Johansson, 2011[19]). In the aftermath of the global financial crisis, the regulation of structured real estate finance products was tightened and the credit quality of these products has generally improved (OECD, 2021[18]). More recently, investors have promoted the growth of collective investment vehicles in real estate finance (e.g. Real Estate Investment Trusts (REITs)), while stricter supervision of traditional mortgage lending institutions has led to the rise of non-bank leverage institutions (e.g. non-bank mortgage originators), coinciding with booming real estate markets in some countries (OECD, 2021[18]). In this context, it should be noted that even though mortgage debt declined in several countries that experienced a severe downturn in their housing market after 2008, overall household debt as a share of GDP has increased in most OECD countries since 2008, sometimes from already high levels (Figure 1.6). This highlights the fact that while these innovations might promote liquidity in real estate markets, there is a risk of inflating house prices and reducing financial resilience (OECD, 2021[18]).

Figure 1.6. Household and mortgage debt to GDP across OECD countries in 2008 and 2018



Note: Household debt for Iceland and Türkiye in 2008 was not available
Source: Van Hoenselaar et al. (2021[20])

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Policy support for homeownership, while aimed at increasing housing market accessibility, has contributed to the increase in housing demand. In many countries, governments have offered sustained policy support for homeownership, for instance through mortgage interest deductibility (see Chapter 3). However, where housing supply is inelastic, these types of support measures have fuelled house price increases (Andrews, Caldera Sánchez and Johansson, 2011[19]; OECD, 2021[1]).

Urbanisation has affected the geography and concentration of housing demand and has put additional pressure on already supply-constrained areas. The transition from industrial to increasingly service-driven economies has led to a concentration of economic activity in urban areas, accompanied by an agglomeration of professional and educational opportunities (van Doorn, Arnold and Rapoport, 2019[21]). Globalisation contributes to the attractiveness of large metropolitan areas as their superior infrastructure network connects them with the rest of the world while the concentration of cultural, social and recreational activities has enhanced the appeal of urban lifestyles (van Doorn, Arnold and Rapoport, 2019[21]). House prices in large cities have also been inflated by the globalisation of housing investments, which has promoted the rise of institutional investors and high-net worth individuals investing in property abroad in search of high yield (Ahir and Loungani, 2019[22]; Katagiri and Raddatz, 2018[23]).

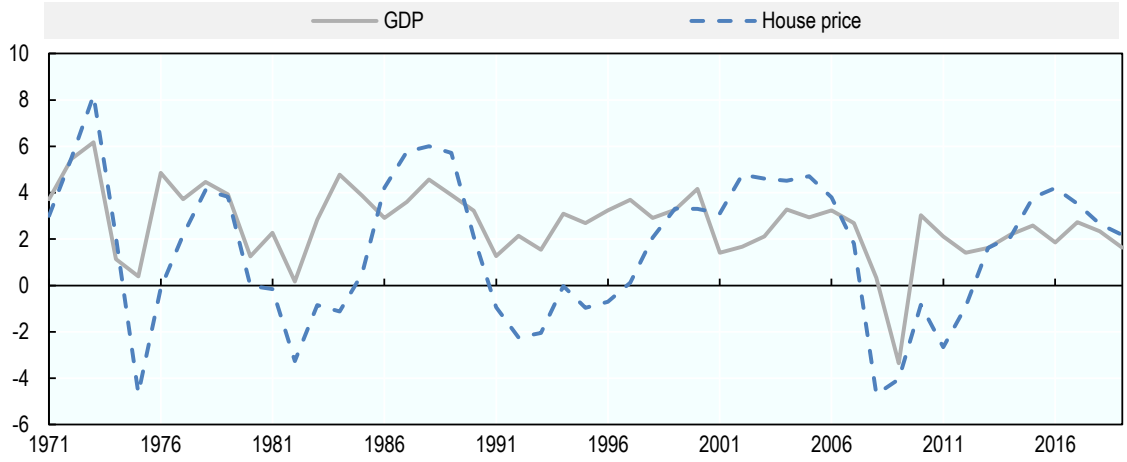
Demographic changes have both increased overall housing demand and structurally changed demand patterns in terms of property characteristics and geographical location. Demographic factors including migration and population ageing as well as changes in marriage and divorce rates have resulted in more numerous and smaller households (OECD, 2021[1]). This trend has been accompanied by an increase in the average floor space per person (OECD, 2021[1]), partly because fewer people share the same living space and the existing housing stock takes time to adjust.

1.5. Housing market developments have a significant impact on the economy

Housing plays a central role in the economy. Construction accounts on average for 6% of GDP across OECD countries, while housing investments make up around 20% of gross fixed capital accumulation (OECD, 2021[1]). Changes in the housing market affect the real economy through several channels. Housing market developments including changes in house prices, rents or mortgage interest rates, have

an impact on household income, wealth and living costs (Cournède, Sakha and Ziemann, 2019[24]). Fluctuations in the housing market can therefore influence aggregated demand, inflation and residential investment (Cournède, Sakha and Ziemann, 2019[24]). Evidence shows that the business cycle is tightly linked to fluctuations in housing-related activities and house prices. In fact, variations in house prices tend to occur before business cycle fluctuations (Figure 1.7), which makes them important indicators to forecast changes in economic activity (Cournède, Sakha and Ziemann, 2019[24]).

Figure 1.7. Annual percentage change in house prices and GDP, 1971-2019



Source: OECD Economic Outlook database and OECD Analytical House Price database (OECD, 2022[10])

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Access to housing finance also has wider impacts on the economy. Well-functioning mortgage markets play a key role in providing access to housing by allowing the smoothing of housing consumption over time. However, they can also confront households with serious financial problems when they run into repayment difficulties or negative home equity. High levels of mortgage debt can also increase economic volatility by aggravating downturns and hamper economic performance. Significant downward pressure on house prices often has substantial adverse effects on economic activity via wealth effects that decrease consumption (Caldera Sánchez and Johansson, 2011[16]). Depressed housing markets deteriorate bank balance sheets, with repercussions on lending activity. These effects are particularly detrimental when high amounts of debt are involved (Jordà, Schularick and Taylor, 2015[25]). Earlier OECD work has also shown that rapid growth in household debt is an early warning indicator of economic downturns (Hermansen and Röhn, 2017[26]).

The smooth functioning of housing markets is also key to labour market efficiency and an economy's ability to cope with structural changes. Residential mobility is crucial to the efficient allocation of human capital in the job-matching process. Particularly during periods of structural economic change that require a geographical or sectoral reallocation of resources (e.g. from industry to services), high residential mobility increases the speed of economic adjustments and thereby limits the adverse effects on overall economic performance (Caldera Sánchez and Johansson, 2011[16]). Empirical evidence shows that residential mobility is closely linked to dynamics in housing markets, including public policies affecting market conditions (Andrews, Caldera Sánchez and Johansson, 2011[19]). In particular, residential mobility is higher in countries with a more flexible housing supply, lower transaction costs, lower rent

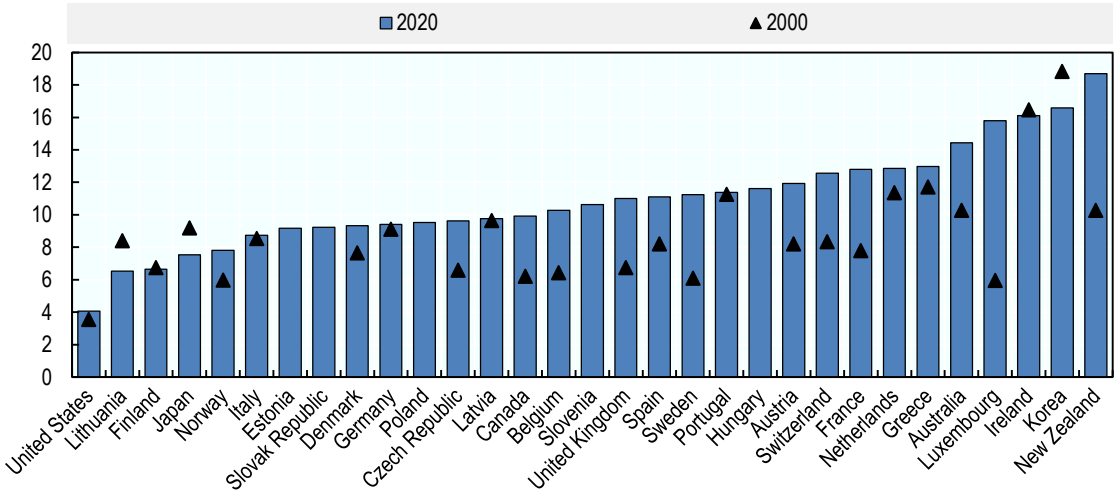
controls and less binding credit constraints (Caldera Sánchez and Andrews, 2011[27]; Causa and Pichelmann, 2020[7]).

1.6. Recent housing market developments risk reinforcing pre-existing inequalities

Declining housing affordability has led to economic and social challenges that disproportionately affect poorer and younger households. Real house and rental prices have risen faster than inflation (Figure 1.3) and incomes (Figure 1.8) in recent decades, and while the reduction in real interest rates has lowered mortgage repayment costs, this has only partly cushioned the impact of higher house prices. The mean share of housing-related expenditures in overall household expenditures has therefore increased across the OECD during this period (Figure 1.4). These developments have stronger effects on low-income and younger households, who, as discussed in Chapter 2, generally report low levels of homeownership and are thus more likely to bear the adverse impacts of rising house prices. Poorer households, in particular, are also more likely to live in low quality dwellings than their higher-income counterparts (OECD, 2021[2]), and rising housing costs make it more difficult for this population to afford necessary housing maintenance or move to better-quality housing. Empirically, low-quality housing has been associated with poor access to health care, education, digital infrastructure and labour market opportunities, all of which have long lasting effects on income and will further put low-income households at a socioeconomic disadvantage (OECD, 2021[1]).

Rising house prices contribute to a growing economic divide between households that own property and those that do not. Rising house prices present a major opportunity for wealth accumulation, as property owners benefit from significant investment returns on a major household asset category. Besides direct wealth effects, rising house prices also promote homeowners' access to credit as property may serve as a collateral, for which lending terms improve with rising property values (Andrews, Caldera Sánchez and Johansson, 2011[19]). Homeownership trends across the OECD suggest that these benefits will disproportionately accrue to older and higher-income households, who are more likely to own their residence (see Chapter 2). At the same time, rising property values pose a growing barrier to homeownership by leading to greater up-front buying costs and higher mortgage burdens for new market entrants. For instance, the number of years of disposable income that is equivalent to the price of a 100m^2 dwelling increased almost everywhere in the OECD, and almost doubled in some countries between 2000 and 2020 (Figure 1.8). Housing price inflation, pushing up rental prices, also reduces the disposable income of households renting on the private market, which decreases their economic wellbeing and makes it more difficult to save for homeownership. Households that do not presently own a home (which, as noted above, are more likely to be younger and poorer households) will thus find it increasingly difficult to get on the property ladder and reap the economic advantages of homeownership. In addition to these effects on income and inter-generational equity, housing price inflation may exacerbate intra-generational equity concerns among younger generations by further restricting homeownership to individuals who have received wealth transfers (e.g. gifts, inheritances – see Chapter 2).

Figure 1.8. Number of years over which cumulated average household disposable income equals the average price of a 100m2 dwelling, 2000 and 2020



Note: The choice of fixed-size (100m2) dwelling is made to ease cross-country comparisons. Data from 2000 are missing from Estonia, Hungary, Poland, and Slovak Republic
Source: Bricongne, Turrini and Pontuch (2019[28]) and OECD calculations

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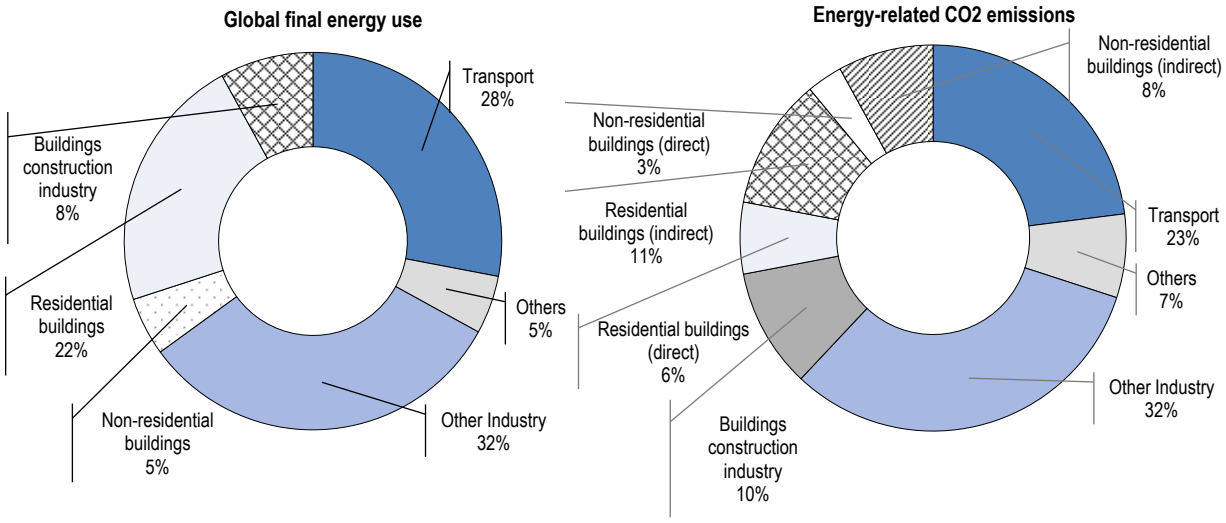
Housing price inflation can also contribute to spatial segregation, with important implications for household wellbeing, access to public services, and social mobility. House price growth and associated housing cost increases vary considerably across regions, with increasing regional differences in property values constraining the ability of lower-income individuals to live close to where they work, which can lead to long commutes and negatively affect their wellbeing. Rising housing costs may also affect households' ability to relocate to areas that offer better employment and training opportunities or access to higher quality public services, thereby reinforcing existing economic inequalities. In addition, strong geographic discrepancies in housing price inflation raise important concerns linked to the unequal concentration of capital gains on real estate. Households in high-demand areas, who may have already been relatively better off to begin with, will experience disproportional increases in capital gains on housing assets, further reinforcing levels of spatial segregation.

1.7. The housing sector has a sizeable impact on the environment

The housing sector has a sizeable carbon footprint. Overall, the buildings and construction sector accounted for 35% of final energy use and 38% of energy and process-related CO_2 emissions in 2019.). 28% of total global energy-related emissions alone arose from the operations of buildings (UNEP, 2020[29]). The residential sector accounted for around 22% of global final energy consumption and 17% of total energy-related CO_2 emissions in 2019 (Figure 1.9). The bulk of the energy consumption of the residential sector originates from heating, with local temperatures and dwelling sizes being key drivers of energy use (Global Alliance for Buildings and Construction, International Energy Agency and United Nations Environment Programme, 2019[30]). Construction is another major driver of emissions, accounting for 8% of total energy consumption and 10% of energy-related CO_2 emissions (Figure 1.9), mainly attributable to the manufacturing of building materials such as cement, steel and glass (Global Alliance for Buildings and Construction, International Energy Agency and United Nations Environment Programme, 2019[30]). While

energy-intensity per square metre has improved in recent decades, total energy-related CO_2 emissions from the building sector rose by 25% globally between 2000 and 2017 due to the increase in floor space (Global Alliance for Buildings and Construction, International Energy Agency and United Nations Environment Programme, 2019[30]).

Figure 1.9. Global share of buildings and construction final energy and emissions, 2019



Note: Buildings construction industry is the portion (estimated) of overall industry devoted to manufacturing building construction materials such as steel, cement and glass. Indirect emissions are emissions from power generation for electricity and commercial heat.
Source: United Nations Environment Programme, (2020)

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Reducing carbon emissions in the residential sector, particularly by encouraging energy-efficiency renovations of the existing housing stock, will be key to achieving climate goals. To comply with the climate goals of the Paris Agreement, average energy use per square metre in buildings would need to be reduced by 30% by 2030 (IEA, 2019[31]). Given the low level of annual construction relative to the existing building stock in OECD countries (for instance, annual constructions as a share of existing buildings amount to 1% in the EU), energy-efficient renovations to reduce carbon emissions from the existing building stock will be key (OECD, 2021[32]). To achieve higher levels of insulation and promote energy saving, the UN Environment and International Energy Agency predicts that the annual rate of energy renovations of the existing building stock has to increase from 1-2% to more than 2-3% by 2025 to comply with the Paris Agreement (UN Environment and International Energy Agency, 2017[33]). To reduce emissions in the construction phase, efforts will have to focus, among other things, on material efficiency, building practices to enhance the life span of buildings and material recycling (IEA, 2019[31]).

Housing is also a significant source of fine particulate matter (PM2.5). PM2.5 is the air pollutant that poses the greatest threat to health, and significant exposure to these particles considerably increases the risk of respiratory and cardiovascular diseases. On average, the residential sector accounts for 37% of PM2.5 emissions globally. PM2.5 emissions from the housing sector are particularly high in countries where reliance on solid fuels, notably wood and coal, remains significant for residential heating (e.g. Central and Eastern European countries) (Karagulian et al., 2015[34]). Exposure to PM2.5 concentration is also positively correlated with the density of urban areas (Borck and Schrauth, 2021[35]). Over the last 30 years, mean exposure to PM2.5 emissions has been decreasing in most OECD countries due to optimised combustion processes (in industry and 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 µg/m3 recommended by the World Health Organization (OECD, 2020[36]).

Housing has an impact on land use, biodiversity, water quality and transport, which may be exacerbated by urban sprawl. Urban sprawl is characterised by low-density, spread-out and discontinuous or scattered urban developments, and has been identified as a common challenge faced by cities in many OECD countries (OECD, 2018[37]). Urban sprawl can have significant environmental consequences through a number of channels, such as the loss of rural or natural land, reduced biodiversity following the fragmentation of natural habitats, and lower water quality due to increased run-off from impervious surfaces (e.g. roads). More spread-out urban developments have also been shown to increase car dependency, which leads to higher greenhouse gas emissions and declining air quality. It is important to note, however, that there can be some positive social and economic benefits associated with urban sprawl. These developments may cater to the preferences of specific households for neighbourhoods with lower levels of noise, congestion, and air pollution, among other factors. They may also contribute to the economic revival of certain rural areas, which find themselves better connected to key economic centres as urban peripheries grow in size. While these benefits should not be overlooked when assessing the desirability of future housing developments, it is important to ensure that residential construction is carried out in a way that limits unnecessary urban sprawl and its adverse environmental consequences.

1.8. Longer-term structural shifts are likely to have profound impacts on housing markets in the future

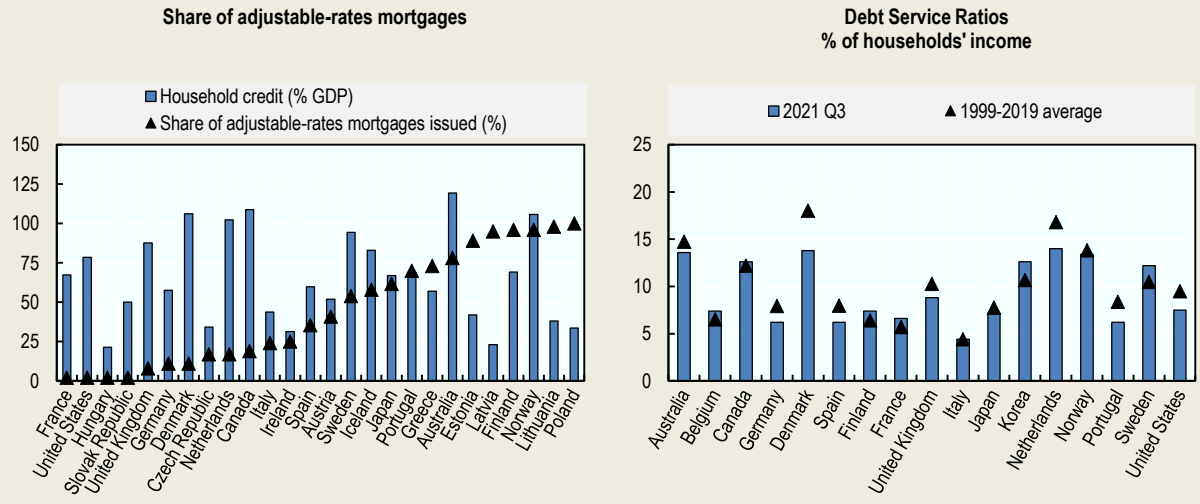
There are signs that the prolonged period of low inflation and low interest rates may be coming to an end, which will have implications for the housing market. Countries may begin normalising monetary policy in light of recent increases to inflation, raising the possibility that countries will transition out of the era of very low interest rates and inflation (OECD, 2022[12]). In the short term, this creates the risk of rising debt service burdens, although many households would likely be cushioned from interest rate rises by the substantial savings accumulated during 2020-21 and by the high share of fixed interest rate mortgages in many markets (see Box 1.1) (OECD, 2022[12]). Lower-income borrowers, who may have smaller financial reserves and higher debt service-to-income ratios, will be more vulnerable to higher costs of living and borrowing. Higher borrowing costs will also likely affect house prices. They may lead to house prices stabilising and even adjusting downwards, which could improve housing affordability. However, a significant and unexpected drop in house prices could have a significantly negative impact on some households and wider implications for the stability of the financial system.

Box 1.1. Vulnerabilities in the housing sector from rising mortgage rates

House prices, along with household debt, rose steadily throughout the pandemic, even in countries where these were already high. The strong rise in house prices in many countries was due in part to higher demand from exceptionally accommodative monetary conditions, a surge in household savings and unprecedented fiscal support, as well as restricted supply due to mobility restrictions and logistical bottlenecks. With monetary policy now beginning to normalise, mortgage rates are increasing in many OECD countries, raising solvency concerns. Vulnerabilities seem currently contained, due to households' relatively strong balance sheets and the limited use of adjustable-rate mortgages. Still, fragile borrowers could be at risk in economies where adjustable-rate mortgages dominate, debt-service ratios are high and monetary policy is likely to tighten substantially. Countries will need to monitor the situation closely to identify risks and consider any appropriate policy adjustments.

Low debt service ratios, high household savings, and the prevalence of fixed-rate mortgages may reduce vulnerabilities to changes in the monetary landscape. Average debt service ratios remain close to or below long-term norms and significantly below what would be considered a stressed debt service ratio. Average household savings also increased significantly during the pandemic, due in part to restricted consumption options and income support measures. Many households have fixed rates mortgages, which dominate in the largest mortgage markets and are associated with a lower probability of default on mortgages when interest rates rise (Gross et al., 2022[38]). These factors may allay some of the solvency concerns raised by tightening monetary policy.

Figure 1.10. Fixed-rate mortgages and moderate debt service ratios limit risks in housing markets



Note: The level of household credit is measured as of 2021 Q3, and the average share of ARM at issuance in 2019 and 2020 is used to proxy for the importance of each type of mortgage in each country
Source: OECD Economic Outlook (OECD, 2022[12]))

StatLink https://stat.link/uly372

However, these aggregate measures conceal important heterogeneity within and across countries. Many lower-income households were unable to build savings during the pandemic, in part due to higher

food and energy expenditures and job losses, and some borrowers already facing high debt service ratios are under additional pressures from the withdrawal of pandemic income support measures and higher inflation. In addition, adjustable-rate mortgages are prevalent in some mortgage markets, which raises additional concerns in countries where rising inflation pressures raise the possibility of sharp increases in interest rates.

Given uncertainty regarding future levels of inflation and monetary and fiscal policy responses, it is critical to monitor the situation closely. Monetary and fiscal policy will differ across countries and depend on country-specific factors such as inflation, wage growth and fiscal space. In this uncertain context, countries may need to react quickly to ensure the stability of the housing market and prevent sharp increases in the cost of living. In parallel, countries may consider a range of medium term policies to ease housing pressures, including investment in social housing and reforms to property taxation, rental regulation and land use policies (OECD, 2021[1]).

Source: OECD Economic Outlook (OECD, 2022[12])

Housing supply will also need adapt to structural shifts in housing demand. Buildings have long life spans, which increases the difficulty of adapting to structural shifts in housing markets. In OECD countries, nearly a fifth of the residential building stock was built before 1945, while about half was constructed before 1980 (OECD, 2021[32]). At the same time, digitalisation and technological change, population ageing, climate change, and most recently the COVID-19 pandemic are changing the needs and preferences of private households and businesses. These trends are expected to have significant, although in some cases uncertain, effects on housing markets (OECD, 2021[1]).

The COVID-19 pandemic has triggered changes in work practices and housing preferences with potentially longer lasting effects on the housing market. The widespread adoption of teleworking during the COVID-19 crisis may have lasting effects on demand for housing if remote work remains a common practice in the long run. In particular, it may contribute to an increase in the demand for housing in suburban and rural areas, a shift away from apartments to single-family homes and a reduction in the demand for office and retail spaces in large cities (OECD, 2021[1]). Ultimately, this could have the effect of alleviating some housing market pressures in large city centres in the future while demand pressures may build up elsewhere (OECD, 2021[1]), although it is still too soon to tell what the long-term effects on housing affordability might be.

Digital home sharing platforms are likely to continue shaping housing markets in the future, bringing about both opportunities and risks. Home-sharing platforms like Airbnb have grown significantly in the past decade, with a particularly strong presence in big cities and tourist destinations (Cournède, Ziemann and De Pace, 2020[39]). As a consequence, many long-term rental units have been converted into shorter-term rental housing while housing markets have increasingly opened up to demand internationally. In areas of low housing supply responsiveness, this shift has fuelled house price inflation (Cournède, Ziemann and De Pace, 2020[39]; Koster, van Ommeren and Volkhausen, 2021[40]; Shabrina, Arcaute and Batty, 2022[41]) with potentially negative equity consequences, particularly for local residents (Wachsmuth and Weisler, 2018[42]). On the other hand, digital real estate platforms used in the search for longer-term accommodations may enhance the matching of supply and demand, particularly where online content allows for more effective filtering and online viewings reduce costly in-person visits (OECD, 2021[1]).

E-commerce affects the demand for commercial property, though its effects on residential housing affordability are still uncertain. Online retail trade has grown significantly, with visible shifts away from brick-and-mortar retail to online channels (OECD, 2019[43]). Research shows that the rise in e-commerce is associated with a decline in the demand for commercial real estate (Worzala et al., 2002[44]; Zhang, Zhu and Ye, 2016[45]), accompanied by a stronger polarisation in demand between properties in prime locations and other less attractively located properties (Dixon and Marston, 2002[46]). Lockdown measures during

the COVID-19 crisis have accelerated this trend, pushing the share of e-commerce in total sales to an all-time high in 2020 of 16% in the United States, 31% in the United Kingdom and 25% in China (OECD, 2019[43]). Online shopping is likely to persist in the future as convenience is reported as one of the main drivers behind its adoption (OECD, 2020[47]). However, e-commerce trends also show that online and physical stores are considered complements rather than perfect substitutes, which is why physical stores are likely to continue to exist (Jones and Livingstone, 2015[48]; OECD, 2019[43]; Zhang, Zhu and Ye, 2016[45]). The increase in e-commerce also comes with an increasing demand for warehouses, which are located increasingly close to customers and within city boundaries to keep up with the promises of ever shorter delivery times. Besides the shift in commercial real estate demand, the effect of these trends on residential housing affordability will also depend on the flexibility with which commercial property can be converted into residential property (OECD, 2021[1]).

Rapid population ageing around the world will continue to alter household structures and preferences. An ageing population has been associated with decreasing household sizes and more numerous households. Nowadays, people live longer and more commonly on their own or in a two-person household, which is also driven by a significant decline in multigenerational households. These shifts in household composition have put pressure on housing markets, given the slow responsiveness of housing supply. The existing housing stock also has to be adapted to the needs of older tenants, to enhance accessibility for instance, and retrofitting existing properties is costly and may contribute to rising house prices and housing costs. Older households also need to live in close proximity to a range of essential services (OECD, 2021[1]), which could push up housing demand in already popular urban and sub-urban areas and require an adaption of urban infrastructure.

Climate change will increasingly affect housing demand while housing supply will need to adapt to changing weather conditions. Climate change will alter the desirability of different locations, with some regions standing to benefit from milder weather conditions while others will be increasingly at risk of natural disasters and capital depletion due to rising sea levels, desertification and extreme temperatures. These demand changes could alter house price evolutions across and within countries (Atreya and Czajkowski, 2019[49]; Beltrán, Maddison and Elliott, 2018[50]; Li, 2009[51]), though the short- and medium-term impacts on housing markets critically depend on individual beliefs and the risk assessments of both buyers and sellers (Bakkensen and Barrage, 2021[52]; Baldauf, Garlappi and Yannelis, 2020[53]). Housing insurance may also become increasingly costly in areas subject to more extreme weather conditions and climate risks, which could in turn lead to higher overall housing costs. At the same time, construction, including the use of materials and property retrofitting, will need to adapt to changing weather conditions (Global Alliance for Buildings and Construction, International Energy Agency and United Nations Environment Programme, 2019[30]).

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Notes

[1] The OECD House Price Database compiles residential property prices in OECD countries over time, with real house prices commonly referring to the price of newly-constructed and existing properties, adjusted for the consumer expenditure deflator.