



OECD Economics Department Working Papers No. 1711

**Making Norway's housing
more affordable
and sustainable**

**Ben Conigrave,
Philip Hemmings**

<https://dx.doi.org/10.1787/c740833e-en>

ECONOMICS DEPARTMENT

MAKING NORWAY'S HOUSING MORE AFFORDABLE AND SUSTAINABLE

ECONOMICS DEPARTMENT WORKING PAPERS No. 1711

By Ben Conigrave and Philip Hemmings

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Authorised for publication by Isabell Koske, Deputy Director, Country Studies Branch, Economics Department.

All Economics Department Working Papers are available at www.oecd.org/eco/workingpapers.

JT03493318

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Working Papers describe preliminary results or research in progress by the author(s) and are published to stimulate discussion on a broad range of issues on which the OECD works.

Comments on Working Papers are welcomed, and may be sent to OECD Economics Department, 2 rue André Pascal, 75775 Paris Cedex 16, France, or by e-mail to eco.contact@oecd.org.

All Economics Department Working Papers are available at www.oecd.org/eco/workingpapers.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

© OECD (2022)

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for commercial use and translation rights should be submitted to PubRights@oecd.org

ABSTRACT**Making Norway's housing more affordable and sustainable**

Norway, like a number of other countries, saw steep growth in house prices during the pandemic. This added to past years of strong price increases and has brought renewed concern for housing affordability. Tax advantages to buying homes inflate house prices, contribute to wealth inequality and divert resources from more productive investments. An underdeveloped rental market is an additional consequence of Norway's pro-homeownership policies. Beyond tax reform and targeted support for low-income households, including renters, lasting improvements in affordability will require measures to enhance the responsiveness of residential construction to increased demand. However, creating room for new housing supply can involve difficult trade-offs with environmental and other policy objectives.

This Working Paper relates to the 2022 *OECD Economic Survey of Norway* <https://www.oecd.org/economy/norway-economic-snapshot/>

JEL codes: R21, R31, R38, H20, H24, Q58

Keywords: Norway, house prices, housing affordability, housing market, personal income tax, land-use regulations, social housing, sustainable housing

RÉSUMÉ**Pour un logement plus accessible et plus durable en Norvège**

La Norvège, comme plusieurs autres pays, a enregistré pendant la pandémie une très forte augmentation des prix de l'immobilier résidentiel, qui fait suite à des années de hausse sensible et qui a ravivé les préoccupations concernant l'accessibilité financière du logement. Les avantages fiscaux attachés à l'accession à la propriété tirent les prix des logements vers le haut, alimentent les inégalités de patrimoine et détournent des ressources au détriment d'investissement plus productifs. Les politiques favorables à l'accession à la propriété mises en place en Norvège entraînent en outre le sous-développement du marché locatif. Au-delà d'une réforme fiscale et de la mise en place d'aides ciblées sur les ménages modestes, y compris les locataires, une amélioration durable de l'accessibilité nécessitera des mesures permettant d'améliorer la réactivité de la construction résidentielle face à l'augmentation de la demande. Cependant, créer les conditions propres à étoffer l'offre de logements neufs peut entraîner des arbitrages délicats entre les objectifs environnementaux et d'autres objectifs de l'action publique.

JEL classification: R21, R31, R38, H20, H24, Q58

Mots de Clés: Norvège, Prix des logements, Accessibilité financière du logement, Marché du logement, Impôt sur le revenu des personnes physiques, Règles d'occupation des sols, Logement social, Logement durable

Table of contents

Making Norway's housing more affordable and sustainable

6

Tables

Table 1. International comparison of the tax treatment of owner-occupied housing	12
Table 2. Net-wealth tax valuation discount rates by asset type	14
Table 3. Value of debt interest deductions by income quintile	15
Table 4. Examples of phased implementation periods for major housing-tax reforms	22
Table 5. Minimum lease durations for rental housing	24
Table 6. Managing trade-offs in housing-related policy interventions	46
Table 7. Policy recommendations from this working paper	47

Figures

Figure 1. House prices have risen significantly	6
Figure 2. Mortgage burdens for low-income households are relatively low	7
Figure 3. Deposits and household debt have increased	8
Figure 4. Homeownership rates have fallen among low-income households	9
Figure 5. The private rental market is underdeveloped and rent burdens are significant	10
Figure 6. Housing supply lags demand in some Norwegian cities	11
Figure 7. The tax system favours owner-occupation of housing	16
Figure 8. Removing mortgage interest deductibility would improve homeownership accessibility	18
Figure 9. Recurrent taxes on immovable property are underutilised	20
Figure 10. Housing-related tax expenditures are significant	21
Figure 11. Subsidised loans are a key tool of Norwegian housing policy	26
Figure 12. Homeownership rates are falling among lower-income households	27
Figure 13. Housing-allowance cut-offs leave many households exposed to high rent burdens	28
Figure 14. Pressure on the social housing stock will grow	30
Figure 15. Loans for rental housing for the disadvantaged have declined	31
Figure 16. More mid-sized buildings are being constructed, but few small apartments	35
Figure 17. Labour and material costs account for only part of past house-price increases	38
Figure 18. Average planning application review times are typically below the statutory limit	39
Figure 19. Illustrative timeline for a typical apartment project in an urban area	40
Figure 20. Residential energy use is similar to other cold countries but CO ₂ emissions are low	43
Box 1. Historical perspective on pro-homeownership policies in Norway	9
Box 2. The relationship between taxes, homeownership and affordability	13
Box 3. Mortgage deductions and Norway's dual income tax	14
Box 4. Machine-learning methods for enhancing holiday-home valuations	17
Box 5. Illustrative affordability impact of phasing out mortgage interest relief	18
Box 6. Housing tax reform in other countries: phase-out of mortgage interest relief in the Netherlands	22
Box 7. Main instruments of Norwegian Social Housing Policy	27
Box 8. Broader approaches to social housing: the experiences of the Netherlands and Austria	29
Box 9. Measuring disadvantage for social housing purposes	32

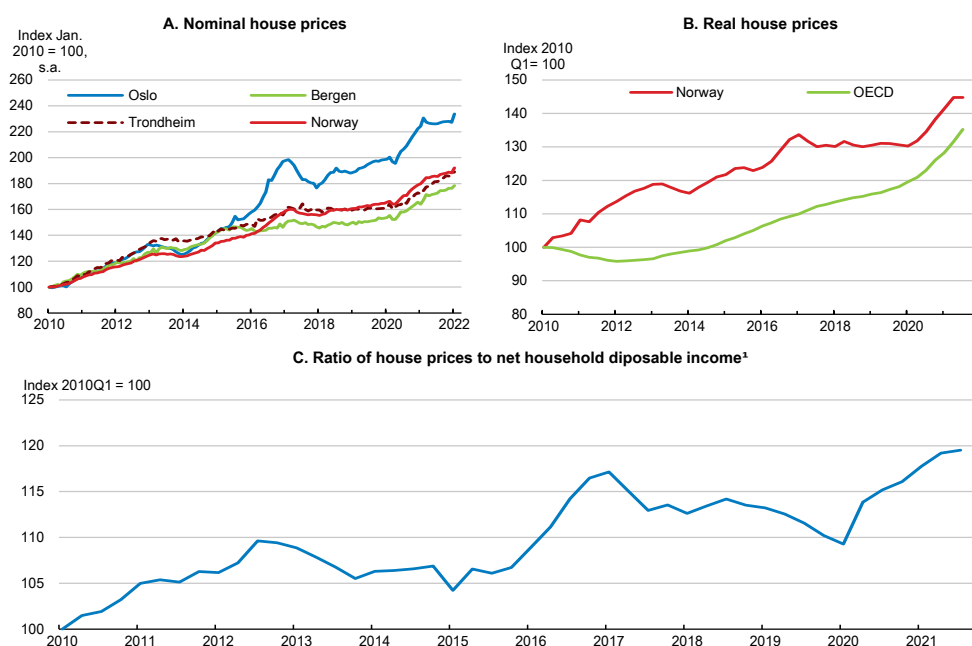
Box 10. Institutional framework for Norwegian housing policy	33
Box 11. Relaxing land-use rules: the cases of New Zealand and California	36
Box 12. Planning milestones in residential development projects	40
Box 13. Main policy instruments for lifting energy efficiency in Norwegian homes	44
Box 14. Greener public procurement and social housing	45

Making Norway's housing more affordable and sustainable

By Ben Conigrave and Philip Hemmings¹

Norway is among several countries to have experienced steep house price rises during the pandemic, particularly in urban areas (Figure 1 Panel A and B). This working paper examines the growing challenge of housing affordability. Measures to improve targeted support to low-income households are examined in addition to broader reforms to temper demand for home buying and enhance the responsiveness of housing supply. Housing objectives must be balanced against other policy aims, not least the range of considerations involved in land-use planning, from biodiversity to public infrastructure capacity. A key task for policymakers is to manage trade-offs between housing affordability and environmental objectives.

Figure 1. House prices have risen significantly



1. Nominal house prices divided by nominal disposable income per person. Population data are from the OECD National Accounts database. Source: Real Estate Norway (Eiendom Norge); and OECD (2021), Analytical house prices database.

¹ Ben Conigrave and Philip Hemmings are the Economist and Senior Economist on the Norway desk of the OECD Economics Department. The authors would like to thank Isabelle Jourmard for guidance throughout the preparation of this paper. The paper benefited from helpful comments on earlier drafts from numerous OECD colleagues, particularly Álvaro Pereira, Isabell Koske, Patrick Lenain, Boris Cournède, Volker Ziemann, Willem Adema, Marissa Plouin and Bert Brys. The paper also benefited from helpful comments by members of the OECD Economic and Development Review Committee, the Norwegian Ministry of Finance and the Ministry of Local Government and Regional Development. The authors are grateful to Béatrice Guérard for statistical assistance and Heloise Wickramanayake and Michelle Ortiz for editorial assistance.

Recent developments in housing affordability in Norway

Strong housing demand during the first year of the COVID-19 crisis saw housing prices grow at rates well in excess of consumer price increases. Norway was not alone in this regard. Interest rate cuts, reduced non-housing spending opportunities and an initially sluggish residential construction response combined, in varying degrees, to drive up housing prices in many other OECD countries as well.

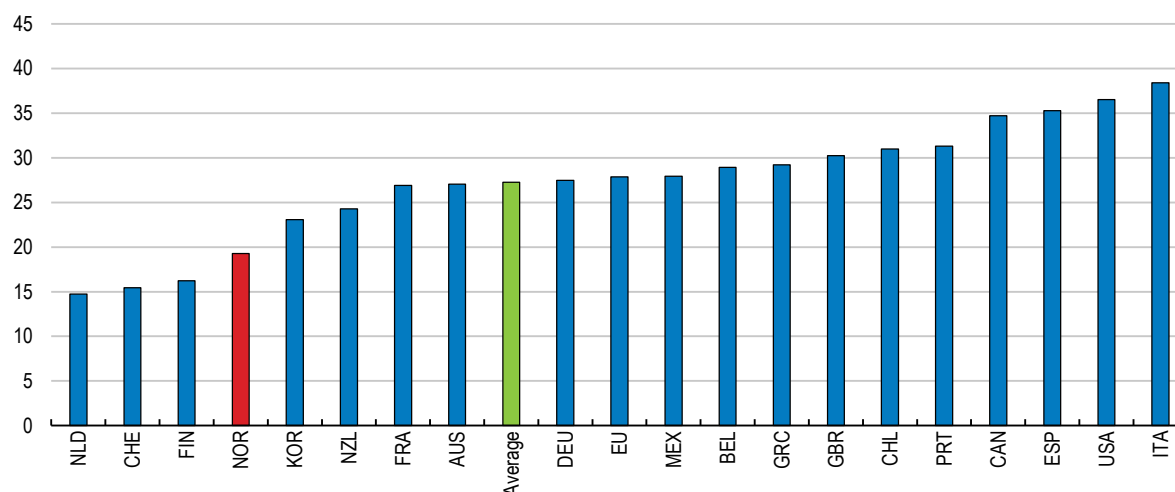
In Norway's case, the recent increase in housing market activity ended a period of relatively moderate house price growth from 2017 to early 2020. A trend rise in the house price-to-income ratio resumed following the onset of the pandemic (Figure 1 Panel C). Strong price growth affected many regions and multiple dwelling types. This recent acceleration brought renewed debate about what to do about high prices and rents in many parts of the country, and the related issue of housing affordability for low-income households (Housing Lab, 2021^[1]).

Homeownership has become less accessible despite low borrowing costs

Cheap credit continued to play a key role in stimulating housing demand in recent years even as other demand drivers, including population growth, waned (Norges Bank, 2021^[2]). Interest rate cuts in early 2020 in response to the pandemic reduced mortgage burdens for households already paying off variable-rate loans (representing more than 90% of mortgages in Norway (IMF, 2020^[3])). Rate cuts had more mixed effects on housing affordability for first-time buyers. On the one hand, lower borrowing costs eased ongoing mortgage expenses (Figure 2). On the other hand, higher house prices – in part a consequence of interest-rate reductions – increased down payments for mortgages and principal amounts to be repaid, often over longer loan durations.

Figure 2. Mortgage burdens for low-income households are relatively low

Median mortgage burden (principal repayment and interest payments) of low-income households, % of disposable income, 2019 or latest year



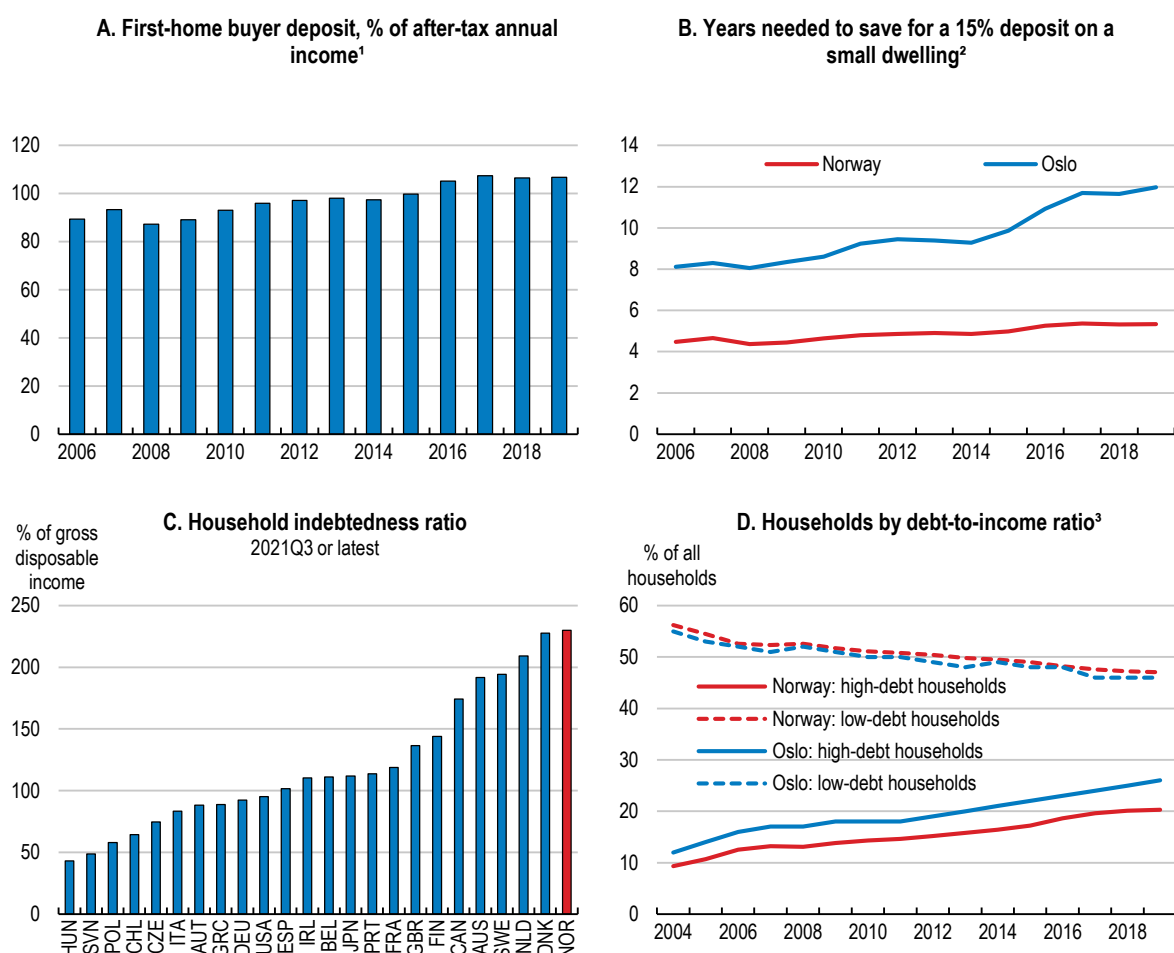
Note: Low-income households are households in the bottom quintile of the income distribution. In Chile, Mexico, Korea and the United States, gross income instead of disposable income is used due to data limitations.

Source: OECD Affordable Housing database.

Saving for a deposit can be an important obstacle to homeownership for low-income households. Rising house prices in more populous cities (in particular in Oslo) have increased the deposits would-be homebuyers must accumulate before purchasing dwellings (Figure 3, Panel A and B). A large share of young buyers (in recent years, roughly half those in their 20s) are reliant on financial support from parents

(Dokka, 2018^[4]). Those able to buy first homes without help from family often take on large debts, risking financial difficulty in the event of house price corrections or loss of labour income (Figure 3, Panel C and D). Both factors – larger deposits and elevated risk – can help to explain recent declines in rates of homeownership, especially among lower-income households (Figure 4) and the young. The share of young people that own homes (61% of those in their 20s in 2020) remains high relative to other European countries but has declined since the 2000s (Revold, 2019^[5]).

Figure 3. Deposits and household debt have increased



1. Calculated based on a 15% deposit on a 100 m² dwelling of average price per square metre as a share of the average after-tax income for a single person 30-44.

2. Years needed to save a 15% deposit on a 100 m² dwelling of average price per square metre for a single person 30-44 saving 20% of average after-tax income.

3. High-debt households are those whose debt is greater than or equal to 3 times their annual income. Low-debt households are those for whom debt is worth no more than the value of their income.

Source: OECD calculations based on Statistics Norway data; OECD dashboard of household statistics.

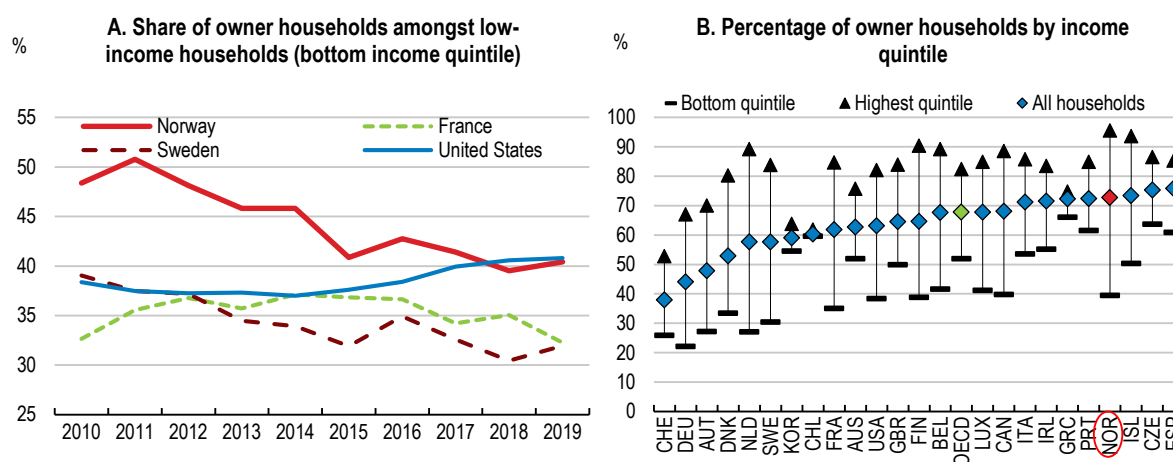
In the wake of the pandemic, changes in how and where Norwegians work could take some pressure off metropolitan housing markets. Oslo witnessed a small exodus of typically older households to areas with greater space, further from the centre of town (Lindquist et al., 2021^[6]). Similar trends played out in other countries, enabled by increased teleworking opportunities at a time when the appeal of city living was diminished. The coming years will reveal the extent to which shifts in patterns of work and housing demand are reversed following vaccine rollouts and economic re-opening. If lasting changes turn out to be sizeable, this could influence employment opportunities and environmental impacts related to commuting and urban

sprawl, as well as housing affordability. The geography of housing demand will also be affected by international migration flows. Border restrictions thinned flows of temporary foreign workers and other migrants during the crisis. This again had a marked effect on population change in Oslo, which is home to a large share of Norway's foreign-born residents.

Box 1. Historical perspective on pro-homeownership policies in Norway

Norwegian housing policies since the late 1940s pursued a goal of mass homeownership. An important objective in doing this was to ensure affordable housing for low-income households in retirement (Sandlie and Gulbrandsen, 2017^[7]). Still-high aggregate homeownership rates (76% of households owned homes in 2020) are a legacy of enduring tax advantages for homebuyers but also large-scale publicly-subsidised homebuilding after the Second World War (Figure 4, Panel B). Large supply-side interventions wound down with subsequent deregulation of housing and financial markets in the 1980s (Sandlie and Gulbrandsen, 2017^[7]). Reflecting in part tighter mortgage lending controls, the gap in homeownership rates between high and low-income households has since widened and housing is contributing to wealth inequality (Eggum and Røed Larsen, 2021^[8]). This has occurred even amid continued first homebuyer policy support from tax incentives (for young households) and subsidised mortgages (for low-income families). The small size of Norway's rental markets has also emerged as a vulnerability, with shortages of affordable rental properties eroding options for many geographically mobile households.

Figure 4. Homeownership rates have fallen among low-income households



Note: Panel B: In Chile, Mexico, Korea and the United States gross income is used due to data limitations. OECD aggregate is an unweighted average excluding Colombia, Costa Rica, Israel, Japan, New Zealand and Turkey.

Source: OECD Affordable Housing database.

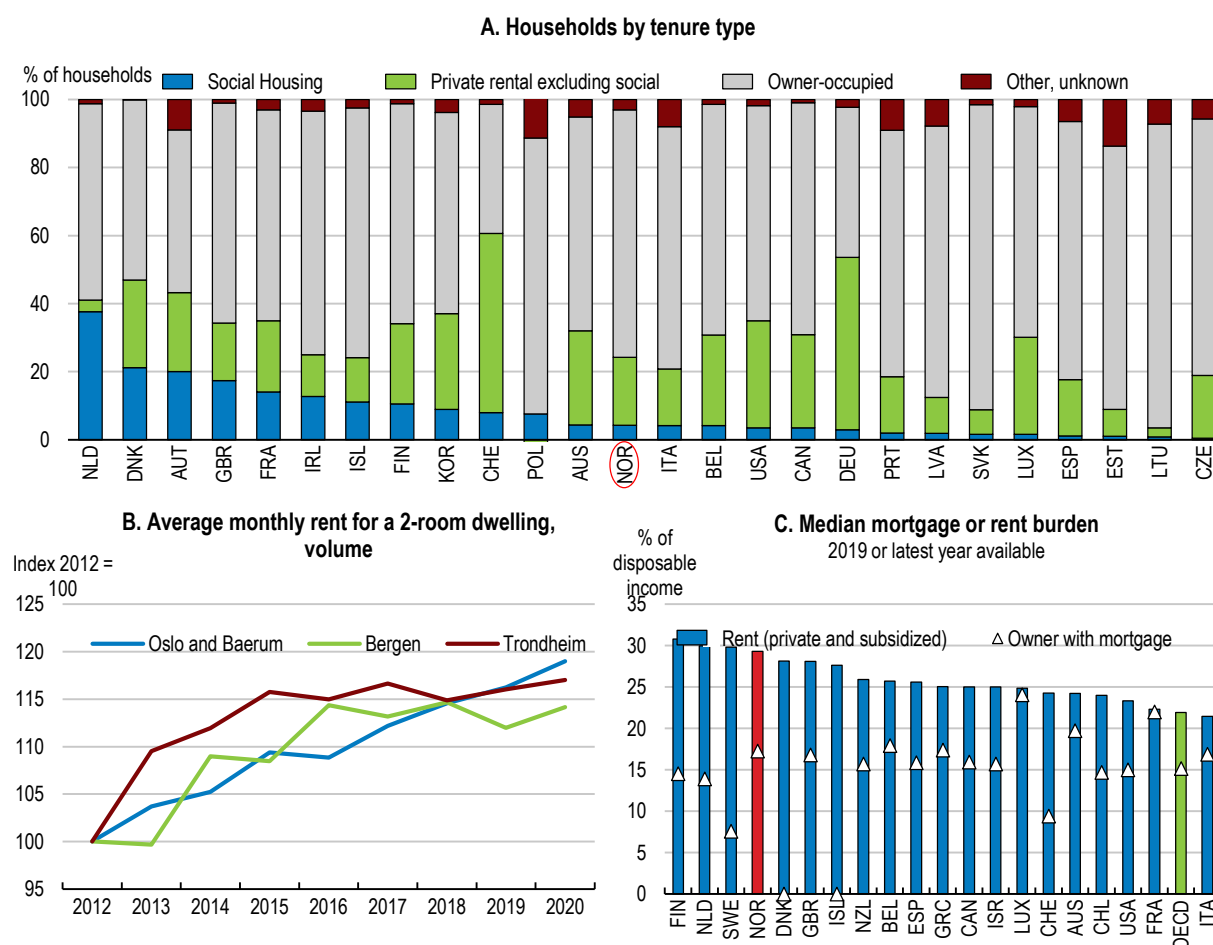
Housing cost burdens are heavy for low-income renters

Recent years have brought increased focus on the performance of rental markets (KMD, 2021^[9]) in a country that has historically pursued the goal of mass homeownership (Box 1; Figure 5, Panel A). Outside its larger cities, private rental markets in Norway tend to be small. A significant share of private tenancy arrangements are undocumented by formal leases, with many tenants living in homes owned by friends or family. Social housing is targeted at a small group of low-income households.

Rent increases over the past decade have been moderate next to growth in house prices. This reflects the influence of low interest rates on demand for buying homes. Some cities have, however, seen rents grow

at faster rates than aggregate consumer prices through extended periods (Figure 5, Panel B). Renters tend to be younger and have lower incomes, on average, than homeowners. A large share of renters face acute ongoing housing expenses (Figure 5, Panel C), with reduced capacity for non-housing consumption. High housing costs can present lower-income households with difficult choices. Those opting to live in cheaper housing further from sought-after urban areas may face longer commutes (with implications for well-being and the environment) or a narrower range of job options closer to home (possibly with lower pay). Elevated housing expenses can, in this way, erode equality of opportunity. By reducing worker flows to urban areas, shortages of affordable rental housing can also reduce aggregate labour productivity.

Figure 5. The private rental market is underdeveloped and rent burdens are significant



Notes: Panel A: For the United States, the social housing stock includes public housing, subsidised units developed through programmes targeting the elderly and disabled people, as well as income-restricted units created through the Low-Income Housing Tax Credit programme. For Canada, social housing excludes units managed by the Société d'habitation du Québec. For Spain, the social housing data may also contain other types of reduced rent housing, e.g. employer-provided dwellings. For the Czech Republic, Italy, Luxembourg, Portugal, the Slovak Republic and Switzerland, no social housing data are available for 2018; data for 2010 were used instead. Panel B: Nominal rents are from an annual price level survey. Differences in the sample composition can affect price changes between years. Rents are deflated by the consumer price index. Panel C: Mortgage burden includes principal and interest payments. Rent burden includes private market and subsidised rents.

Source: OECD Affordable Housing database and OECD calculations based on Statistics Norway data.

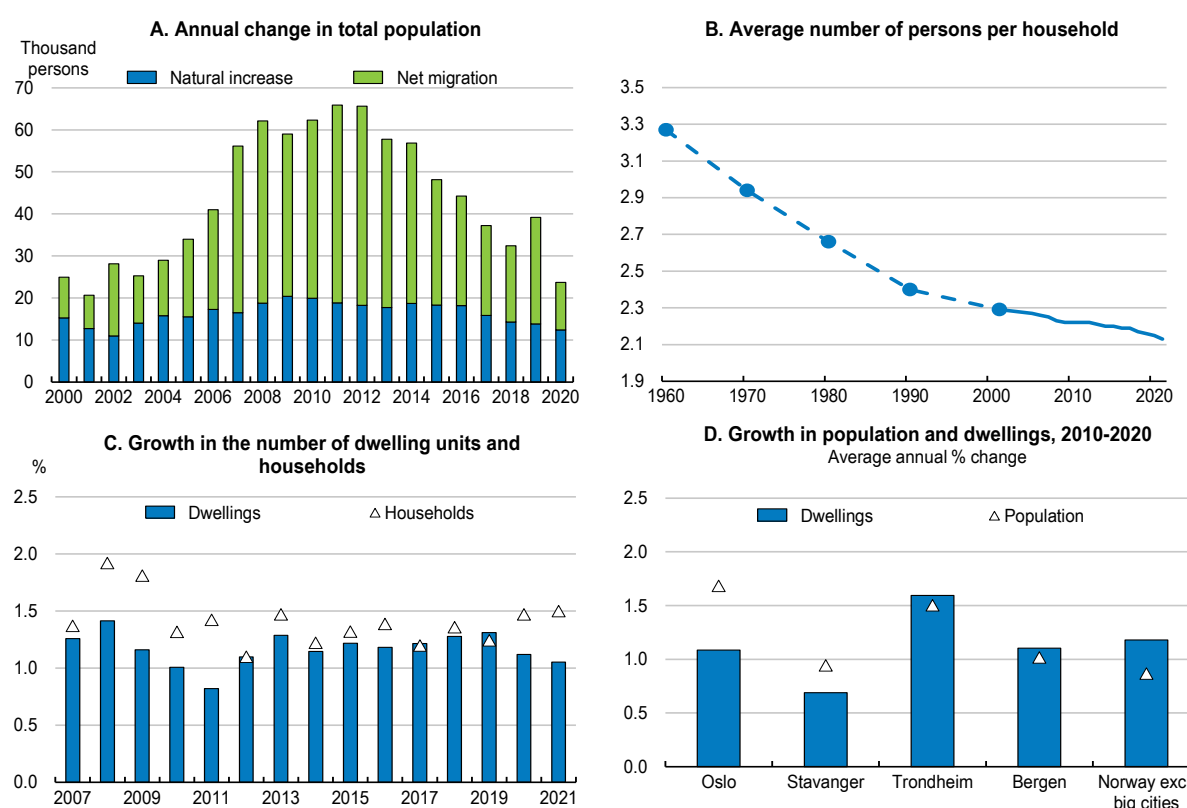
Sluggish supply responses have driven up house prices and rents

Rising real house prices partly reflect a slow response of residential construction to increased demand for housing services. At the national level, declining household sizes have offset the effect of slower population growth on household formation (Figure 6 Panel A, B and C). Still, outside Norway's four most populous

cities, supply of new housing units over the past decade tended to keep up reasonably well with demand pressures. There was, however, significant variation in experience at city-level (Figure 6 Panel D). In Oslo, in particular – which has historically received larger net flows of migration than other parts of Norway – population gains over 2010 to 2020 were not matched with equivalent expansion in the housing stock. (Housing demand has also been propped up by low after-tax borrowing costs and growth in disposable incomes.) In addition to new construction, increased demand has been partly met by falls in the number of vacant dwellings. This is reflected in a smaller gap between the total number of dwellings and households in Norway; the gap shrunk by 12% from 2010 to 2020. There is also evidence in recent years of subdivisions of existing dwellings and conversions of commercial property helping to meet demand for housing. In 2019, for example, net additions to the stock of dwellings exceeded the number of new dwellings built by 9%. This is consistent with a proportion of new supply coming from sources other than homebuilding. Historically, however, such supply contributions have only partially offset housing-cost increases associated with the slow response of construction to new demand.

Housing supply cannot adjust immediately to increases in demand. Absent extreme events or shocks, new buildings represent a small share of all dwellings in a country. Whereas demand can increase quickly – for instance, with interest rate cuts or increased migration – expanding the size of the housing stock (and thus the total flow of housing services) is not instantaneous. The bigger and more rapid the supply response, the smaller the increase in real housing prices and rents. Governments can improve housing affordability through structural reforms to temper demand for buying homes, in particular through tax reform, and with policies to improve the responsiveness of housing supply.

Figure 6. Housing supply lags demand in some Norwegian cities



Note: Panel A: People that move to Norway are counted as residents when they have lived in Norway for at least 6 months, even if the stay is temporary. Panel B: Data exclude people living in institutions, such as nursing homes and other aged-care facilities, and people without a fixed abode. Panel D: Calculations for cities are based on municipal-level data for Norway's four most populous urban municipalities.

Source: Statistics Norway.

Reforms to relieve pressure on demand for homebuying

Interest rate rises and lower population growth are set to take pressure off housing prices in the coming years. A build-up in financial imbalances was one of the factors considered in Norges Bank's decision to start raising the policy interest rate from September 2021. Additional projected rate rises are contributing to reduce housing demand and slow price growth. Scope for a moderation in housing prices is further signalled in empirical estimates that house prices are above levels implied by underlying supply and demand drivers. Researchers at Norway's Housing Lab assessed that house prices were overvalued by 13% as of the second quarter of 2021, before Norges Bank's first post-crisis interest rate rise (Housing Lab, 2021^[10]). The 2022 Economic Survey of Norway (OECD, 2022^[11]) argues that projected additional rate rises are appropriate and that existing prudential tools – including loan-to-value limits – are adequate to the task of reducing financial vulnerabilities. However, as past *Surveys* have argued, there is scope for demand-side policies to temper future house price growth, and improve the accessibility of homeownership, through reform of the taxation of housing.

Tax settings support strong demand for owner-occupied housing

Favourable tax treatment of housing lowers the after-tax cost of owning compared with renting and contributes to strong housing demand and higher prices. Tax settings that promote homeownership are common to many OECD countries (OECD, 2021^[12]). However, few countries have tax systems as favourable to owner-occupiers as Norway (Table 1). Concessional tax treatment of owner-occupied housing is often rationalised based on the benefits of homebuying for wealth accumulation (including through the discipline of paying off mortgages). Some also point to (more mixed) evidence on the social benefits of increased community attachment from homeownership (see, for example, Glaeser (2011^[13]) and Goodman and Mayer (2018^[14])) or the private benefits of a stable living situation. But by lifting house prices, the tax-favoured status of housing can actually make it harder for lower-income households to buy homes (Box 2). This can in turn generate inequality and put pressure on governments to improve housing affordability through inefficient means. At the same time, well-off households over-invest in housing (and under-invest in other assets). Reform of Norway's biased tax treatment of housing can thus support multiple policy goals at once, improving affordability and making the tax system fairer and more efficient (Bø, 2019^[15]).

Table 1. International comparison of the tax treatment of owner-occupied housing

Taxation treatment of owner-occupied homes in Norway and selected other OECD countries

	Tax relief for mortgage payments	Imputed rent tax	Capital gains tax
Australia	No	No	No
Canada	No	No	No
Germany	No	No	No
Iceland	Yes	Yes	Yes (limited)
Netherlands	Yes	Yes	No
Norway	Yes	No	No
Sweden	Yes	No	Yes
United Kingdom	No	No	No
United States	Yes (limited)	No	Yes (limited)

Note: Entries in red indicate policies that push up demand for homebuying and housing prices; those in green have the opposite effect. Local property taxes are not included. These can operate in a similar way to a tax on actual and imputed rents, but may be better viewed as a user charge for local public services.

Source: OECD Affordable Housing Database, Thomas (2021^[16]).

Bias in the treatment of owner-occupied housing is strong in income taxation. Norway's flat-rate tax on capital income does not apply to the implicit value of housing services from primary residences and holiday homes ("imputed rents"). Yet, as in the case of investments in other assets – the returns to which are taxed – the value of interest paid on debt is still deducted from a homebuyer's taxable "ordinary income" (subject to Norway's flat-rate tax of 22%). This sets up an asymmetry in the tax treatment of different assets, encouraging debt-financed purchases of owner-occupied housing over other investments. This tax treatment is unusually generous compared with many OECD countries. A small number of countries tax imputed rents (albeit often at concessionary rates) while offering mortgage-interest relief – going at least part way towards a symmetrical tax treatment of owner-occupiers and landlords. Many other countries instead exclude imputed rent from the income tax base without offering mortgage interest relief to owner occupiers (or limiting the value of mortgage interest deductibility).

Box 2. The relationship between taxes, homeownership and affordability

Norway and many other OECD countries tax housing at lower rates than other assets, often as a deliberate policy to encourage homeownership. In Norway, the tax advantages of owner-occupation include unlimited debt interest deductibility (without a corresponding tax on imputed rents), non-taxation of capital gains on home sales, and generous wealth-tax discounts. Under such settings, households with the means to do it are typically better off buying homes than renting dwellings and investing their savings in other assets.

However, the relationship between homeownership and housing-related taxes is not clear-cut. Mortgage interest deductibility reduces the ongoing costs of debt-financed home purchases. But this is reflected in elevated home values. High housing prices in turn increase deposit requirements for new buyers and shut some lower-income households out of the market. Economic theory suggests that by reducing down payment requirements, eliminating such benefits could in fact lift homeownership rates among credit-constrained lower-income households (Sommer and Sullivan, 2018^[17]).

Tax advantages to buying homes also affect the amount of housing people "consume". There are around 440 000 holiday homes in Norway, or 1 for every 6 households. Roughly one in ten households owns a "secondary dwelling" (excluding holiday homes), a share that has been stable since 2010. Indicators of dwelling size also signal a degree of excess capacity in the housing stock, and high levels of housing consumption among owners. Statistics Norway data show that 45% of people aged over 44 live in "very spacious" dwellings (meaning there are at least three more rooms than occupants). EU statistics on living conditions similarly show that 60% of people in owner-occupied dwellings in Norway were living in "under-occupied" homes in 2019 (again defined by comparing numbers of rooms and occupants). Among tenants, the share was lower (14%). International comparisons can be affected by differences in the size of countries' urban populations. Looking only at cities, however, Norway stands out next to other northern European countries. A reported 37% of the urban population live in under-occupied homes, more than in Sweden (27%), Denmark (27%), Germany (22%) and the EU (30%).

Increased taxation of housing would push some middle and high-income homeowners to consume less housing services, shifting housing consumption to lower-income households. In the near term, given transaction costs involved in moving, some owners could be expected to lease out some of their housing assets (Sommer and Sullivan, 2018^[17]). This would increase the units available for rent, benefiting tenants (Sommer and Sullivan (2018^[17]), Alpanda and Zubairy (2016^[18]), Floetotto, Kirker and Stroebel (2016^[19])). Over time, some owners could be expected to downsize (or subdivide large houses), while lower prices should translate to a smaller overall housing stock (in terms of the number and size of homes). For households that continue to rent, the reform's net effect could be broadly neutral (Sommer and Sullivan, 2018^[17]). This would depend on the relative strength of upward pressure on rents from a smaller housing stock, and downward pressures from more intensive use of existing dwellings (bringing additional rental homes onto the market) and, in some market segments, fewer lower-income renters. Extra tax revenue would, however, give governments significant new resources, which might be used to reduce other distortive taxes, in particular labour income taxes.

The tax advantages of homeownership in Norway are expanded by wealth tax concessions. Generous discount rates reduce the taxable value of primary dwellings for the purpose of calculating net wealth tax liability (Table 2). Owner-occupiers pay net wealth tax, levied in 2021 at the rate of 0.85% (above a tax-free threshold), only on a quarter of the estimated market value of their primary residences (i.e. the discount factor is 75%). Considerably more wealth tax is paid on other assets. For shares and commercial property, for example, the discount is 45%, while the taxable value of secondary dwellings (excluding holiday homes) is (in 2021) reduced by just 10%. Holiday homes are also treated favourably. Their taxable value is calculated not based on the property's estimated market value but on its original cost of construction, with infrequent upward adjustments (the last of which took place in 2014; another is slated for 2022).

Table 2. Net-wealth tax valuation discount rates by asset type

Discount factors applied to calculate the taxable value of assets for Norway's net wealth tax, 2021

	Wealth-tax discount rate
Primary residence	75% (most favourable)
Secondary dwelling (not including holiday homes)	10% (least favourable)
Commercial property	45%
Other real property	20%
Shares	45%
Holiday homes	NA (taxable value is based on construction cost)

Source: Norwegian Tax Administration.

Capital gains tax exemptions further encourage investment in primary dwellings and holiday homes. Homeowners do not pay tax on gains realised upon the sale of their primary dwelling provided they have lived in it for one of the two years preceding the sale. Holiday-home owners – typically well-off households – are exempt from Norway's 22% capital gains tax provided they use the property in 5 of the 8 years before sale.

Box 3. Mortgage deductions and Norway's dual income tax

Norway has a dual income tax regime. Personal income – salary income and pensions – is taxed according to a progressive schedule of marginal tax rates ("bracket tax"). Ordinary income, in comparison, also includes capital income (such as dividends, interest, and rent) and is generally taxed at a flat rate of 22% (adjustments are made to the taxable value of dividends and gains from sales of shares, including to discourage income shifting).

Interest paid on debt, including mortgages, is deductible from ordinary income but not personal income. This helps equalise the value of mortgage interest relief for high and lower-income earners, since all are subject to the same flat rate tax of 22%. Other countries do things differently. The United States, for example, instead allows (capped) mortgage interest deductions from progressive personal income tax. Under such settings, tax relief on mortgage interest is worth more to higher-income taxpayers facing higher rates of tax on their personal income (Poterba, 1992^[20]).

Norway's tax system is, in this respect, more equitable. High and lower-income earners all face the same flat rate of tax on ordinary income, from which debt interest is deductible. It is still true, however, that tax relief on debt interest is worth more to those with larger taxable incomes and bigger mortgages

(on more expensive homes). Bø (2019^[15]) shows that in practice debt interest deductibility in Norway's tax system does benefit higher-income earners more than other taxpayers – both in total value and as a share of disposable income (Table 3). This can be explained by higher shares of capital income in the disposable incomes of well-off households as well as slightly higher loan-to-value ratios. Norway's dual income tax regime thus only partly reduces the regressivity of tax relief on debt interest.

Table 3. Value of debt interest deductions by income quintile

Income quintile	Homeowner share	Debt interest deductions
	% of households	% of disposable income
1	40	0.8
2	73	1.9
3	82	2.5
4	90	2.7
5	95	2.5

Note: Homeowners include households that own housing outright or with a mortgage. Estimated value of debt interest deductions are from Bø (2019^[15]) and include non-mortgage debt interest deductions.

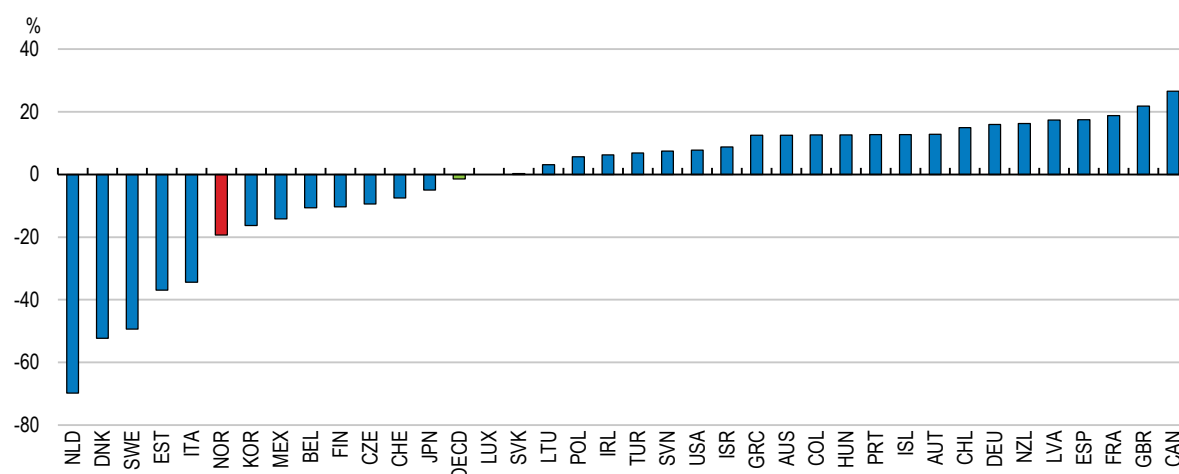
Source: OECD Affordable Housing Database, Bø (2019^[15]).

Tax concessions on housing assets are inefficient and unfair

Low effective tax rates on housing can divert resources from more productive investments. Exemptions for imputed rent and capital gains, and heavy wealth tax discounts, together produce low marginal effective tax rates (METRs) on debt-financed owner-occupied housing investments. METRs for this asset class are estimated to be negative (Figure 7) – lower than effective tax rates on other assets as well as equivalent METRs in many other OECD countries. This disparity encourages overinvestment in owner-occupied dwellings. Taxing returns to land and residential structures at relatively low rates also increases Norway's reliance on less efficient taxation of more mobile tax bases, including corporate and labour income. Tax revenues from immovable property (including municipal property tax but excluding capital gains tax) account for 3.3% of tax revenues in Norway, below the OECD average of 5.5% in 2018 (Norwegian Ministry of Finance, 2020^[21]). Favourable tax treatment of housing also creates inequities. This is because homeownership rates are highest among high-income earners and large gains on housing assets disproportionately benefit well-off households OECD (2021^[22]), Eggum and Røed Larsen (2021^[8]). In encouraging overinvestment in housing, tax biases may also have environmental impacts. These can arise, for instance, by encouraging construction of larger primary dwellings and more holiday homes, with greater overall energy needs and increased greenhouse gas emissions embodied in larger quantities of building materials.

Figure 7. The tax system favours owner-occupation of housing

Marginal effective tax rate for debt-financed investment in owner-occupied housing, 2016



Note: Unweighted OECD average excluding Costa Rica.

Source: Millar-Powell et al. (2022^[23]).**Reducing distortive income-tax concessions on owner-occupied housing**

Priority should be given to reducing the income-tax concessions on owner-occupied dwellings. One reform option is to bring imputed rents to owner-occupied dwellings and holiday homes under ordinary income tax. This would go a considerable way to neutralising the tax system's treatment of primary dwellings and other assets.

Norway is better placed than many other countries to introduce a tax on imputed rents. First, it has a comprehensive and effective welfare system. This can help limit financial hardship to vulnerable low-income homeowners faced with higher tax liability. A second advantage is that Norway already has a model for estimating residential property values (Tackle and City, 2019^[24]). This model, which is maintained by Statistics Norway, is currently used for estimating net wealth tax liability on real-estate assets. It could be a useful input for estimating implied rental returns. The model should, however, be enhanced. Using data on dwelling prices for smaller local housing-market areas would help reduce disparities between model estimates and market valuations. Machine learning methods, with greater use of geodata, as currently proposed to improve value estimates for holiday homes (for net wealth tax assessments) could also be tested (Box 4). Rents might be imputed to owner-occupied homes using a long-run average ratio of rents to home values for private rental properties, together with model-estimated home values. A related approach imputes values of housing services to owner-occupied homes based on market rents for properties of similar size and quality in a given location (see, for example, Eurostat (2017^[25])). Such methods may be hard to implement in places where rental markets are thin or rental properties differ in important ways from owner-occupied homes. This is likely the case in many parts of Norway, suggesting alternative methods may be more appropriate.

Box 4. Machine-learning methods for enhancing holiday-home valuations

The taxable value of holiday homes under Norway's wealth tax is based on historical construction costs. While these estimates are periodically adjusted upwards, such adjustments have tended to be smaller than actual holiday-home price increases. The use of national benchmarks also means that estimates are insensitive to regional variation in price growth. The system thus particularly benefits owners of older holiday homes, and homes that have appreciated substantially in value.

A new model developed on behalf of the Ministry of Finance aims to improve holiday-home valuations. Using machine learning, the new model exploits information in relationships between numerous variables important to determining holiday-home values. This includes, for example, not only a property's size, construction year and location but also local-area data on topography (such as a property's altitude and slope) and a dwelling's distance to roads, towns, the shoreline or ski resorts. Initial testing suggests the model significantly improves the accuracy of valuation estimates. Roughly half are found to fall within 20% of actual market values. In contrast, current valuation rules achieve an equivalent degree of precision for only one in five holiday homes.

In addition to better accuracy, the model has been developed to ensure stability and predictability in valuations from year to year. Another important criterion is that model results should be relatively easy to explain. Success in all three dimensions would make a strong case for rolling out the methodology more broadly to improve valuations of other types of homes. It will likely still be important, however, that owners can reject official estimates and opt to self-report valuations (subject to audit). This is a useful mechanism, reducing the risk of over-taxation of individual homeowners and enhancing public acceptance of wealth taxes.

Source: Norwegian Ministry of Finance (2021^[26])

While attractive in principle, bringing in an effective tax on imputed rents could prove politically challenging. International experience suggests that compromises in the design of such taxes can reduce their efficiency. In the Netherlands, for example, low valuation of imputed rents (assumed to equal just 0.5% of a dwelling's estimated market value) leaves implied returns to housing assets taxed at lower rates than returns to other investments (OECD, 2021^[27]).

If it is not possible to introduce an efficient tax on imputed rents in Norway, mortgage interest deductibility should instead be phased out. This would improve housing affordability for new buyers and enhance tax-system efficiency. But the reform would have uneven effects on existing owners depending on whether they have mortgages or own homes outright (23% of households in 2019). House price falls prompted by removing debt interest deductibility would make all current owners worse off. But middle-income owner-occupiers – and especially recent homebuyers – could be particularly adversely affected (Floetotto, Kirker and Stroebe, 2016^[19]). This reinforces the need to phase in such reform gradually – as has been the approach, for example, in France, the United Kingdom and the Netherlands (Box 6). In addition to reducing distortions from the tax treatment of housing, removing mortgage interest relief could have a meaningful impact on house prices (and thus also deposit requirements). OECD estimates suggest it would reduce the house price-to-income ratio, lowering an important hurdle to market entry for new buyers (Box 5, Figure 8). By limiting debt run-ups in periods of accommodative monetary policy, the same reform would also support financial stability.

For reasons of equity, and to support accessibility of homeownership for first-time buyers, some countries offer a limited form of mortgage interest tax deductibility. If debt interest deductibility were phased out entirely, it would significantly increase mortgage servicing costs for households dependent on taking loans to buy homes, including lower-income first-time buyers. Well-off households, in contrast, could choose to

finance a larger share of their home purchases from savings or sales of other assets, and thus be less affected (this might, of course, require some to purchase less expensive homes). Capping the maximum value of deductible interest expenses (as done in the United States) could reduce distortions while mitigating potential regressive effects.

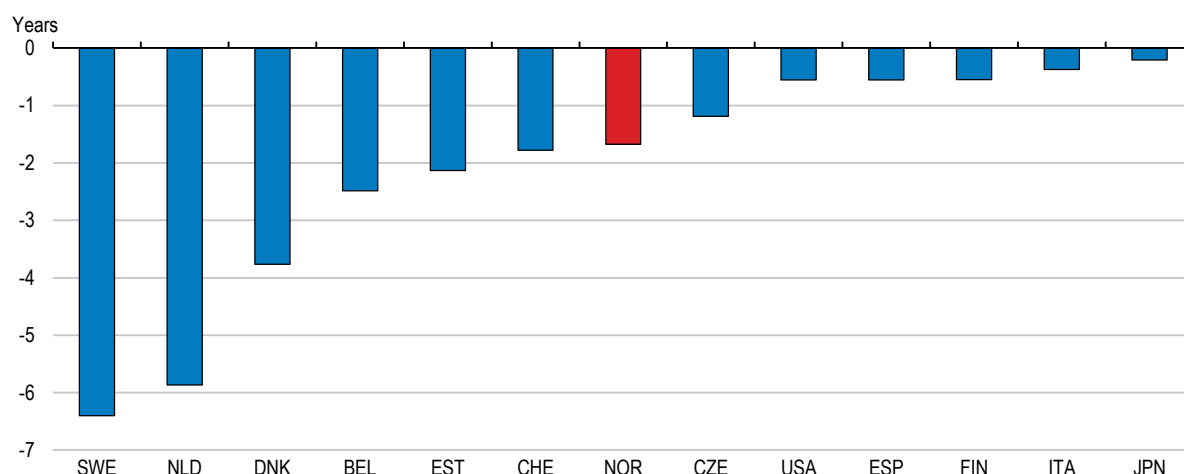
Box 5. Illustrative affordability impact of phasing out mortgage interest relief

An immediate withdrawal of mortgage interest relief would reduce the disposable incomes of households with mortgages, adding to housing cost burdens and disrupting households' long-term financial plans. Such negative effects could be mitigated by phasing-out mortgage interest deductibility gradually, starting with a cap on the maximum value of income-tax deductions.

Over time, eliminating mortgage interest relief would help make homeownership accessible to a larger group of households by slowing growth in house prices relative to income gains. Recent OECD estimates suggest that phasing out mortgage interest relief could have a significant positive effect on homeownership accessibility in Norway. From a baseline estimate of a 100m² dwelling costing the equivalent of 10 years of average disposable income in 2050, removing mortgage interest relief would reduce the total by 2 years (OECD, 2021^[12]). Comprehensive reform to eliminate the tax advantages of investing in owner-occupied housing would have larger impacts. Bø (2019^[15]) estimates that making the required adjustments to the taxation of capital income and wealth associated with owner-occupied homes would lower house prices by a fifth.

Figure 8. Removing mortgage interest deductibility would improve homeownership accessibility

Simulated impact of eliminating mortgage interest tax relief on price-to-income ratios by 2050, in years



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

Source: OECD (2021^[12]).

Introducing capital gains tax and reducing wealth tax concessions on primary dwellings

Objectives of tax neutrality and equity also weigh in favour of taxing gains on the sale of primary dwellings more like gains realised on other assets. To avoid possible lock-in effects, however, a limited form of capital gains tax on primary dwellings could better balance aims of improved geographic mobility and tax neutrality (mobility considerations are, however, less relevant for holiday-home owners). Taxing gains above a minimum threshold, or rate, could avoid large transaction-based costs in most house sales, costs that might otherwise discourage homeowners from moving for work, or in order to downsize, or for other reasons (Caldera Sánchez and Andrews, 2011^[28]). Such approaches are used in the United States and Israel, for example (Thomas, 2021^[16]). Designed well, a tax on large gains from primary-dwelling sales would ensure that well-off households, in particular, pay tax on large housing-asset returns, improving wealth equality.

Separate reforms should move towards equalising wealth-tax discount rates across assets. Reforms from 2017 to 2019 narrowed differentials in discount rates on primary residences and other assets. The wealth-tax discount rates on shares and commercial property, for example, were 10% and 20% before recent adjustments (both were raised to 45% in 2021, before being lowered again to 25% in 2022). The valuation discount for primary dwellings worth more than NOK 10 million (roughly EUR 1 million) has also been reduced (from 75% to 50%), while holiday-home valuations were increased by 25% from 2021 to 2022. This will help narrow gaps in discount rates between assets. Further adjustments to equalise wealth-tax discount rates would reduce disincentives to non-housing investments.

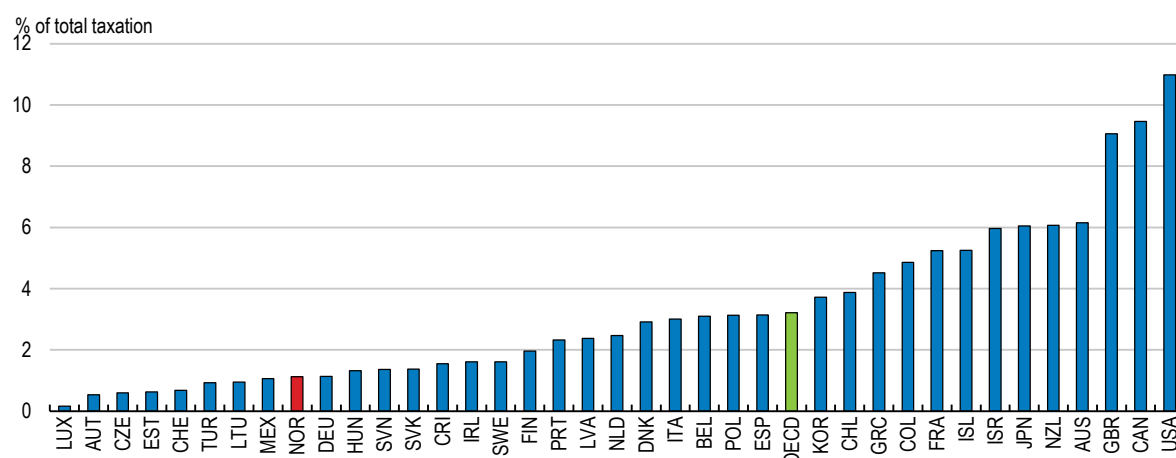
Ceilings on municipal property tax should be raised

Central government-imposed maximum rates of municipal property tax on owner-occupied dwellings and holiday homes have been lowered over time. Some municipalities also set value thresholds below which a residential property's value is exempt from property tax. Though aimed at reducing tax pressure on lower-income homeowners, both of these policies contribute to Norway's underutilisation of recurrent taxes on property (Figure 9). The most recent change by the former central government in 2021 lowered maximum tax rates on residential property to 0.4% (from 0.5% in 2020 and 0.7% in 2019). In municipalities levying property tax at the top rate, this contributes to decrease the annual cost of owning residential property, absent changes in valuations and allowances. The effect is to further distort decisions between buying and renting, while investors can exploit tax-free thresholds by purchasing multiple small, low-value dwellings.

The central government should stop lowering ceilings on municipal property tax, and reverse recent reductions. Lowering property-tax ceilings risks depriving municipalities of a relatively efficient means of raising revenue to pay for local services. In taxing a portion of the value of rented and owner-occupied homes, property tax can, if levied at sufficiently high rates, approximate the characteristics of a neutral tax on capital income from actual and imputed rents. A gradual return to the old ceilings would restore lost revenue capacity without significant market corrections. This would also increase the tax paid by relatively well-off homeowners. Eliminating tax-free thresholds, or ensuring that allowances apply to the aggregate value of a taxpayer's housing assets (as opposed to individual dwellings), would also make municipal property tax more efficient and equitable. These aims would be further supported by curtailing property-tax concessions for holiday homes.

Figure 9. Recurrent taxes on immovable property are underutilised

Recurrent taxes on immovable property, % of total taxation, 2020 or latest available year



Source: OECD Revenue Statistics (database).

Reducing document tax to support geographic mobility

Past *Surveys* have argued for scaling back document tax (stamp duty) levied on transactions involving residential property (OECD, 2012^[29]). Norway's document tax is levied at the rate of 2.5% of a residential property's sale value. Stamp duties are sometimes justified as helping temper volatility in housing markets and house prices by slowing turnover. However, empirical evidence of such effects is mixed. In contrast, stamp duty's negative effects on geographic mobility are well established (OECD, 2021^[12]). Such effects are likely to be more pronounced in countries with higher stamp duty rates than Norway. (In the United Kingdom, for instance, stamp duty is as high as 12% of the sale price for expensive properties.) Still, there is scope to reduce stamp duty in Norway and this could improve geographic mobility. Several states in the United States, for example, have residential transfer taxes in the range of 0.5 to 1% (many do not levy such taxes at all). Lowering Norway's document tax rate to within such ranges might be done without risking increased housing-market volatility and would improve the way the economy responds to shocks. This could also help offset transaction costs related to increased taxation of capital gains.

Complementary reforms should reduce tax on labour income

The tax revenues raised by reducing tax relief on owner-occupied dwellings could be substantial (Figure 10). Estimated tax expenditure associated with lower income taxation of owner-occupied dwellings and holiday homes was NOK 25.3 billion in 2021 (2.4% of total tax receipts) (Norwegian Ministry of Finance, 2020^[21]). Tax expenditures due to wealth tax discounts for residential property were estimated at NOK 26.4 billion (2.5% of tax receipts). Bø (2019^[15]) estimates that taxing housing like other assets would increase personal income tax receipts by 11% (and improve the progressivity of the tax system).

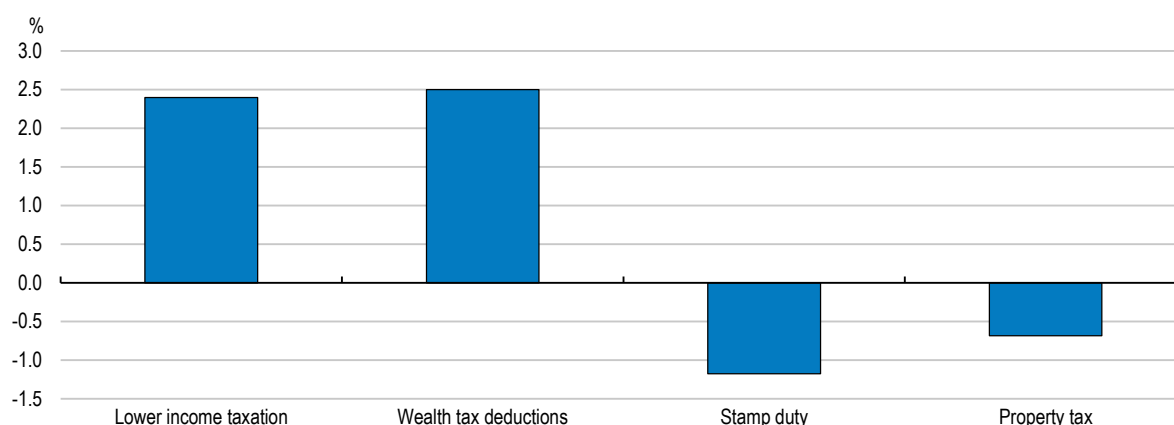
Revenue raised from curtailing preferential tax treatment of dwellings could enable complementary reforms to reduce reliance on other more distortive taxes. Lowering tax on labour income would directly enhance households' purchasing power. This might be done in a targeted way to benefit lower-income households. Such reform could encourage higher rates of employment while limiting the need to expand eligibility for housing benefits or the generosity of existing support. It would also reduce the risk that benefits are capitalised in higher rents and prices in cities with rigid housing supply. Alternatively, reforms might aim at smaller tax cuts benefiting households at all income levels – for instance by adjusting bracket-tax rates.

Such an approach would leave to Norway's welfare system the task of easing cost-of-living pressures on vulnerable households. A key benefit would be to shrink the tax system's drag on economic activity.

Reducing taxation of labour income could also help overcome political challenges involved in reforming the taxation of housing. Norwegian governments have in the past resisted calls to reform housing taxation. This reflects political considerations, common to countries with high homeownership rates, that make it challenging to raise tax from owner-occupied homes. Like past *Surveys*, Norwegian tax system reviews (NOU (2003^[30]), NOU (2014^[31])) have called for greater taxation of owner-occupied housing. More recently, the *Norway towards 2025* Commission argued for filling in holes in the housing tax base (NOU, 2021^[32]). A new tax-system review is now underway with an appointed committee due to report recommendations in November 2022. The committee's mandate requires it to consider how capital taxation can be adjusted to reduce distortions and improve investment incentives. The government should ensure the committee's work includes a review of housing taxation. A package of reforms involving greater taxation of housing and lower taxes on earnings could lift efficiency and affordability without raising total tax receipts.

Figure 10. Housing-related tax expenditures are significant

Tax expenditures for dwellings and holiday homes, % of total tax receipts, 2021



Note: The benchmark used to calculate tax expenditures is the tax treatment of bank deposits. Interest on bank deposits is fully included in taxable ordinary income and bank deposits are valued at 100 per cent in calculating wealth tax liability. Compared with bank deposits, dwellings and holiday homes are undertaxed in both income and wealth taxation. In contrast, stamp duty and property tax in isolation increase the tax payable on dwellings and holiday homes relative to bank deposits. They are thus considered to be negative tax expenditures.

Source: Ministry of Finance.

Tax reform should start now and be phased in gradually

To limit risks of housing-market instability, and to avoid hardship to vulnerable homeowners, major reform should be gradual. The impact of imputed rent taxation, for example, could fall heavily on high-wealth, low-income older households (Bø, 2019^[15]). To mitigate such risks, tax on imputed rent owed by vulnerable older households could be deferred until properties are sold or until title is transferred by their estates (Mirrlees et al., 2011^[33]). More generally, phased increases in the taxation of imputed rents should be spread over a number of years. A more gradual timeframe could be warranted if increases in recurrent taxes on housing were pursued through multiple bases at once (for instance, personal income tax, municipal property tax, and net wealth taxes). This would help limit hardship to low and middle-income households. A gradual timeframe for phasing out mortgage interest relief (an alternative to taxing imputed rents) would similarly limit financial costs to recent homebuyers. Grandfathering provisions might separately shield pre-reform house-price appreciation from an increase in capital gains tax. At the same time, the effect of incremental cuts to wealth-tax discount rates on owner-occupied properties might be offset by reductions in wealth-tax rates. Phased implementation has been a common feature of major housing tax reforms in other countries and states (Table 4). It helps avoid penalising the investment decisions of households that bought properties before important rule changes. It can also avoid sharp corrections in house prices ahead of major reforms.

Table 4. Examples of phased implementation periods for major housing-tax reforms

Phase-in periods on significant housing-taxation reforms: selected countries and states

	Reform	Phase-in duration
Finland	Reduction in the maximum mortgage relief rate from 65% to 10%	6 years
Netherlands	Reduction in the maximum mortgage relief rate from 49% to 37%	4 years
Australian Capital Territory	Increase in the rate of land tax; recent annual rate increases of 7 to 11% per year	20 years
Ontario	Increase in the rate of land tax up to 0.25%	6 years
Israel	Introduction of capital gains tax on residential property	Gains earned before the reform are untaxed

Source: Australian Capital Territory Treasury, Finnish Tax Administration, Ontario Ministry of Finance, OECD (2021^[12]), Thomas (2021^[16]).

Box 6. Housing tax reform in other countries: phase-out of mortgage interest relief in the Netherlands

The phase-out of mortgage interest tax relief in the Netherlands started in 2013. The concession was first restricted such that mortgage interest could be deducted over a maximum period of 30 years, and only for loans requiring payment of both interest and principal amounts. This change was implemented, along with other reforms, to reduce housing market-related debt. The Dutch government subsequently decided in 2014 to progressively reduce the maximum mortgage tax relief rate. The intention was to lower the rate from its then current level of 52% by 0.5 percentage points each year to 2040. This would “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 government decided to accelerate the phase-out of mortgage interest relief. This will see the rate lowered by 12 percentage points from 49% in 2020 to 37% in 2023.

Source: OECD (2021^[12])

Improving the functioning of rental markets

High rates of homeownership in many parts of Norway coincide with small rental markets, potentially limiting employment options for otherwise geographically mobile renters. Norwegian rental markets are relatively thin in international comparison, reflecting strong incentives to purchase homes. Even in Oslo and Trondheim – the two cities with the most renters – tenants comprise a relatively small share of all households (under a third) next to European cities with thicker rental markets (more than half of households rent in Vienna, Berlin, inner London and Brussels). There is also evidence that a large share of tenancies are informal (see, for example, Oslo Economics (2021^[34])). Data from the *Survey of Living Conditions*, for example, show that in 2018 up to a quarter of renters lived in dwellings owned by friends or family. A similar proportion of rent-paying tenants indicate that they pay below-market rent (Oslo Economics, 2021^[34]). There is active debate about how well Norwegian rental markets function. Improving their performance was identified as a priority of the 2020 housing strategy (KMD, 2021^[9]).

Reducing tax concessions on homeownership would improve incentives to lease out dwellings. This could benefit tenants seeking housing in job-rich cities. Deep, well-functioning rental markets would also help to enhance labour mobility and reduce unemployment following economic shocks with disparate regional impacts (ElFayoumi et al., 2021^[35]). Additional tax changes could build on recent efforts to address reported problems with informal short-term leases. Income tax rules were tightened in 2018 to remove concessions enabling tax-free rental income from short-term leases (up to 30 days) of parts of a landlord's own home. This was a welcome adjustment and will help balance incentives between letting units to tourists or permanent residents. Further tax-system changes could also help. Income from longer-term rentals of up to half a landlord's primary residence remain exempt from income tax. Owner-occupier landlords are thus treated more favourably than landlords leasing out independent rental units, for which rents are taxed like other forms of capital income. Other provisions benefit well-off families owning multiple homes. Parents can, for example, put their daughter up in a second home, where she can earn tax-free income letting half the property to friends or other tenants as if she herself were the owner. Introducing a tax on imputed rents to owner-occupied homes would correct these asymmetries (in particular if owner-occupier landlords benefited from deductions for expenses including maintenance). In the absence of such reform, tax concessions favouring owner-occupier landlords should be removed. This would help reduce distortions favouring purchases of big primary dwellings and second homes at the expense of a larger stock of independent rental units.

Shorter minimum lease durations could also support rental-market development. Norway's current minimum fixed-term lease duration of 3 years is long compared with equivalent rules in other OECD countries (Table 5). Longer lease terms tend to increase risks borne by landlords, particularly when the ability to renegotiate rents is restricted. This is the case in Norway. Landlords and tenants are free to negotiate rents at the outset of a tenancy agreement. But increases thereafter are tied to growth in the consumer price index for the following three years, the minimum duration of a fixed-term lease (except when the landlord and tenant live in the same house, where a one-year minimum applies). When market rents increase faster than consumer price inflation – as has occurred in some cities in recent years – landlords have an incentive to terminate leases early. At an aggregate level, such policies tend to reduce the supply of rental dwellings, leaving tenants with fewer affordable housing options. Proposals have in the past been floated to further increase minimum lease terms, ostensibly to give tenants more stability in living arrangements (KMD, 2021^[9]). If enforced, longer minimum lease durations could have unintended consequences, further stunting the development of Norway's rental markets. Tenants and landlords would be better served with shorter minimum lease terms and more clearly defined termination rights. In practice almost half of all fixed-term leases in Norway end within a year already (Oslo Economics, 2021^[34]): the Tenancy Act gives tenants, as well as landlords, some flexibility to terminate leases early and many young, mobile renters appear to exercise this option (Ogbamichael, 2017^[36]). Reducing minimum lease durations to match rules in Switzerland (12 months) or the United Kingdom (6 months), while still allowing parties to

negotiate longer leases, would align the Tenancy Act with real-world practice. It would also better allow landlords and tenants to negotiate agreements on terms that suit them.

Clarifying early-termination rules on fixed-term leases could, in turn, improve stability for tenants. The Tenancy Act allows landlords to terminate early when they or a member of their household plan to use the dwelling, or for “objective grounds”. Landlord-tenant regulations might be amended to clarify the grounds on which landlords can terminate leases early. This need not materially affect risks borne by landlords, in particular if paired with reform to reduce minimum lease durations. Such changes could encourage the development of thicker rental markets with more stable options for households that do not wish or cannot afford to buy.

Table 5. Minimum lease durations for rental housing

International comparison of minimum lease durations: Norway and selected other OECD countries

	Duration of rental contracts negotiable?	Typical minimum duration
Australia	Yes	No minimum
Canada	Yes	No minimum
Czech Republic	Yes	12 months
Finland	Yes	12 months
France	No	3 years
Greece	Yes	3 years
Ireland	Yes	6 months
Israel	Yes	6 months
Japan	Yes	No minimum
New Zealand	Yes	No minimum
Norway	No	3 years
Portugal	No	12 months
Switzerland	Yes	12 months
United Kingdom	Yes	6 months
United States	Yes	12 months

Note: For Norway, the minimum duration for fixed-term leases is shown. Landlords and tenants are able to enter into leases of unfixed duration.
Source: OECD Affordable Housing database

Ensuring adequate affordable housing for low-income households

Private markets will not supply enough affordable housing on their own

Without government support, private markets typically supply relatively little housing at prices accessible to low-income households; building low-cost dwellings tends to be less profitable than constructing higher-quality homes (Quigley and Raphael, 2004^[37]). Only a small proportion of homes for sale in Oslo are affordable to lower-income buyers: by one often-quoted estimate, a single nurse could afford just one in a hundred dwellings on the market in 2021 (Eiendom Norge and Eiendomsverdi, 2021^[38]). Renters have similarly seen housing costs rise to absorb a large share of their disposable income, with lower-income households most vulnerable to shortages of affordable dwellings, existing or new.

Norwegian social housing policy assists persons unable to find and retain adequate housing (Box 7). Norway puts a stronger emphasis than other countries on helping low-income households to purchase their own home. Low interest-rate “Start-up loans” help low-income families buy homes when they are unable to get a loan from a private bank. Government funds allocated to low interest-rate mortgages are larger than in most other OECD countries (0.3% of GDP in 2020). National government spending on housing allowances is, in contrast, highly targeted and not large in international comparison (0.1% of GDP; lower than in other northern European countries). Means-tested allowances are the main instrument used to support poor tenants living either in private rental accommodation (65% of allowance recipients in 2020) or municipal rental housing.

Norway uses social rental housing in a more limited way than many other European countries. In Denmark and the Netherlands, for instance, social housing is an important means of supporting low but also middle-income households. Stocks of social housing in those countries comprised respectively 21% and 34% of dwellings in 2020; in Norway, 4% of homes are social-rental dwellings. In the coming years, population growth alone will require increased funding for social housing in Norway. A rough calculation suggests an additional 500 to 900 housing units per year may be needed from 2020 to 2030, depending on trends in household size and income distribution.

Norway is successful in providing shelter and support services for the homeless

Norwegian housing policy has been highly effective in delivering shelter and associated services to those with the most acute housing needs. Under 0.1% of the population is homeless, below rates reported in other rich countries. Recent survey data reveal that already low homeless numbers fell from 2016 to 2019 (Husbanken, 2021^[39]). Other indicators show that, broadly speaking, infrastructure and services are working well to assist those in urgent need of shelter. The number of residents in temporary accommodation decreased from 2015 to 2020. So did the share of those in temporary dwellings longer than 3 months (a fifth of the total in 2020, down from a quarter five years earlier). In addition to finding permanent lodgings for homeless people, municipalities provide a comprehensive range of associated health and social services.

Homebuyer support should be re-targeted over time

Helping low-income households buy homes remains a primary aim of housing policy. Tax-subsidised “Home saving for young people” accounts (*Boligsparing for ungdom* or “BSU accounts”) help first-time buyers under the age of 34 save for a deposit. Young people are able to accumulate up to NOK 27 500 per year in BSU accounts (the annual cap increased in 2021 from a previous limit of NOK 25 000) and deduct up to NOK 5 500 from income tax. The maximum amount that can be accumulated is NOK 300 000 (around 12% of the average price of a 40m² dwelling in Oslo in 2021) plus interest.

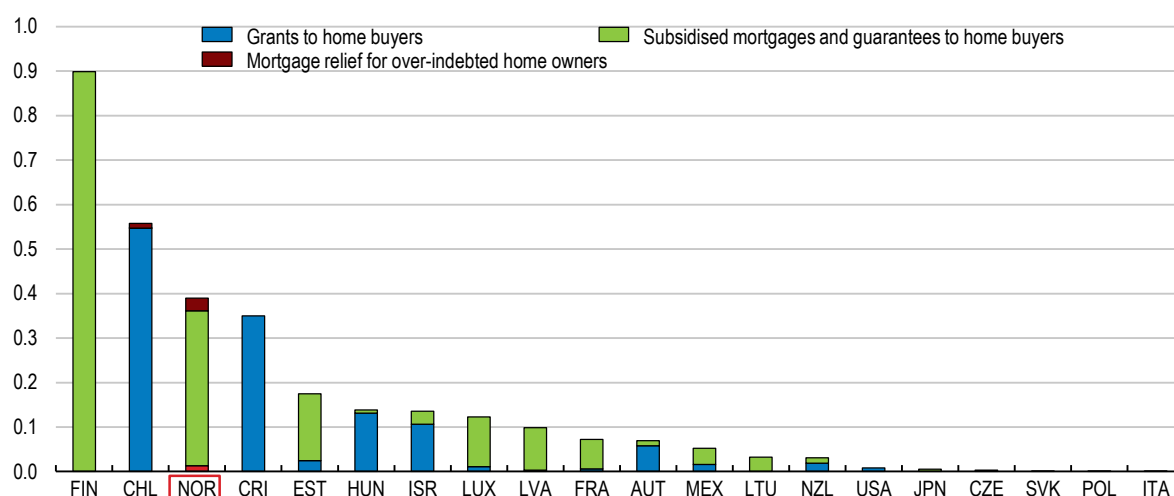
The BSU scheme was sensibly adjusted in 2021 so that it no longer reaches people that already own homes – a move that will reduce the programme’s cost and help avoid fuelling wealth inequality. Annual saving caps will still need to be gradually lifted, as house prices rise, to maintain incentives at current levels. Doing more than that, however, would risk boosting already-strong demand for homeownership to the detriment of those outside the scheme. It could also increase distortions that result in young would-be homeowners simply shifting savings between asset categories. Administered on more generous terms, or within narrower age cut-offs, BSU accounts might, moreover, push people to buy at a time when renting’s benefits (notably geographic mobility) are greatest. In their current form, however, the risk of such effects appears limited.

Low interest-rate mortgages called “Start-up loans” are the main social housing policy instrument helping low-income households buy homes (Figure 11). Available to those unable to get a loan from a private bank, Start-up loans help contain households’ mortgage costs. Efforts have been made in recent years to better target Start-up loans to permanently disadvantaged households. In 2014, regulations were tightened to

stipulate that loans are meant for recipients facing long-term problems getting financing. There is scope to do more. Families with children may, in some instances, still receive support even if they are able to save for a deposit (and thus might seek a loan from a private bank). Past studies have found that many Start-up loans go to recipients that are not disadvantaged (Ekhaugen et al., 2017^[40]). This is set to continue with planned increases in Start-up loan funding (the revised Budget of November 2021 announced that financing for Start-up loans would increase by roughly 10%). Further tightening eligibility criteria could improve efficiency, reduce the scheme's effect on housing prices (NIBR, 2015^[41]) and lower costs associated with the programme, including those borne by municipalities in assessing applications.

Figure 11. Subsidised loans are a key tool of Norwegian housing policy

Public spending on grants and financial support to homebuyers and homeowners as % of GDP, 2020 or latest year

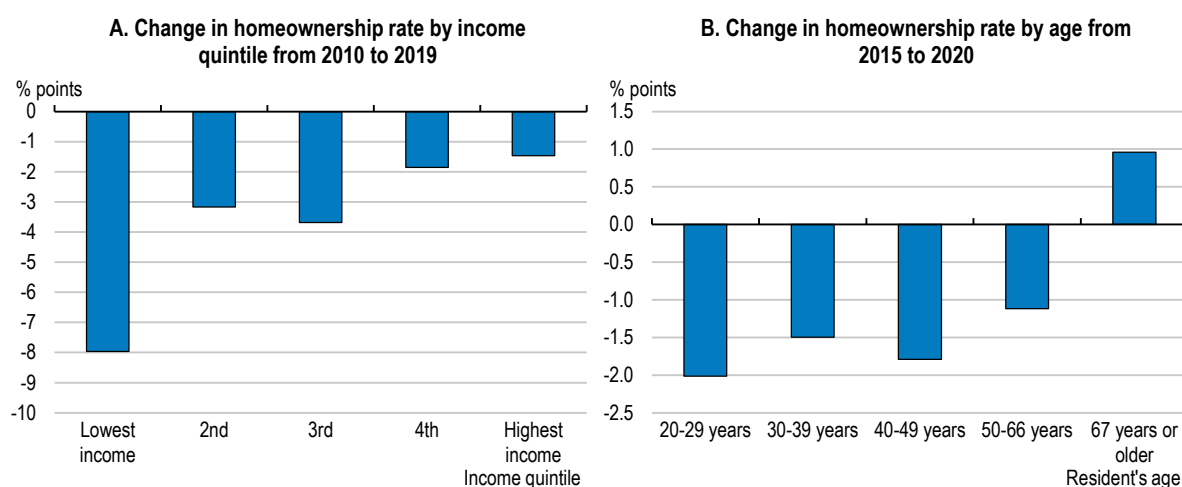


Note: Year of reference: 2020, except for France (2021), Austria and Lithuania (2019) and Luxembourg (2018). For Finland, Israel, Mexico, New Zealand and the United States: information is missing on one programme, and the reported amount is therefore a lower-bound estimate.

Source: OECD Affordable Housing database.

Start-up loans and BSU saving accounts have only partly offset declining homeownership rates in young and low-income households since mortgage lending requirements were tightened in the wake of the financial crisis (Figure 12). It would be a mistake, however, to try to reverse recent trends by extending pro-homeownership interventions to households ill-equipped to repay mortgages. Indeed, reform of the taxation of dwellings and measures to lift supply responsiveness would improve housing affordability and, over time, reduce the need for programmes such as Start-up loans and BSU saving accounts. Until such reform happens, existing homebuyer support should remain targeted. Husbanken routinely commissions reviews of the characteristics of low-income households able to handle mortgage costs and benefit from buying homes. This is useful work and should be continued, including to avoid pushing families to buy homes that would better suited to renting. For vulnerable low-income renters, the emphasis should be on ensuring that existing support is adequate to alleviate housing-cost burdens, especially in expensive cities.

Figure 12. Homeownership rates are falling among lower-income households



Source: OECD Affordable Housing database; and Statistics Norway.

Box 7. Main instruments of Norwegian Social Housing Policy

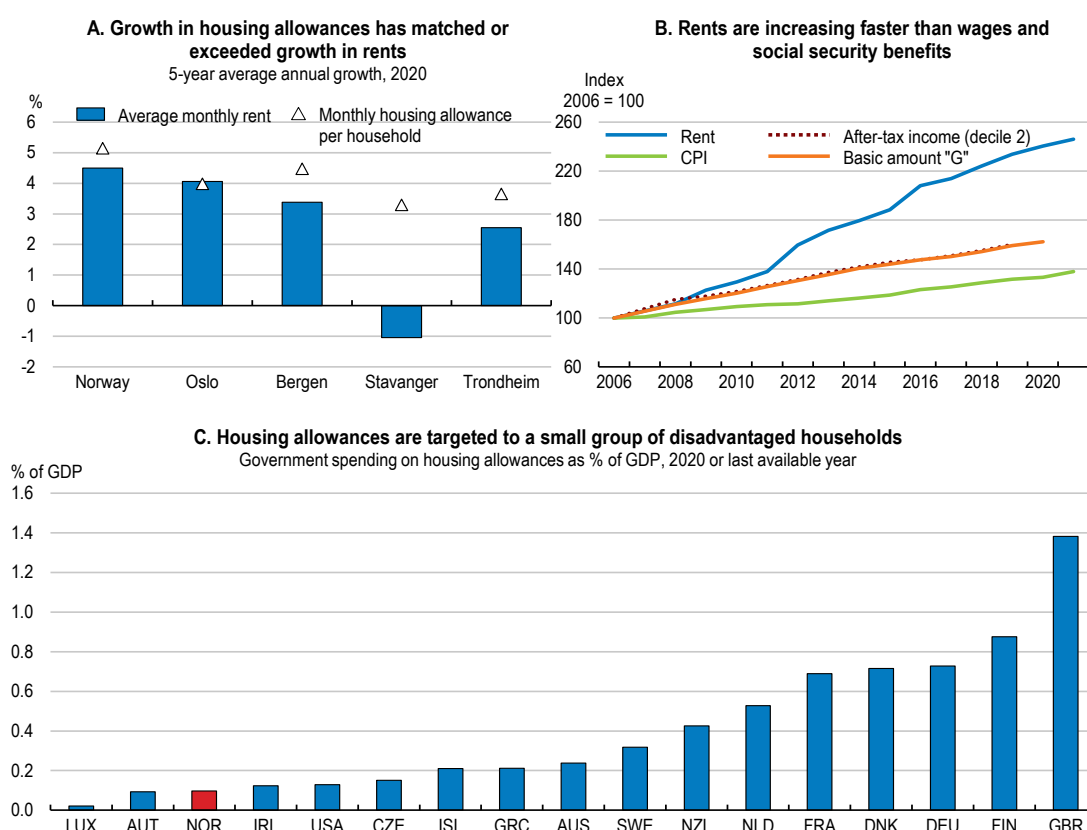
The main instruments of Norwegian social housing policy are:

- Housing allowances:** Means-tested allowances help low-income households pay rent and other housing expenses, either in municipally-managed social housing or private dwellings. Allowances are adjusted for household size and cost differences between cities, with increases pegged to the living expense components of Norway's consumer price index. This helps ensure allowances increase in line with rents. In high-cost cities, municipalities supplement national benefits. There were roughly 124 000 recipients of housing allowances in 2020, representing around 5% of households.
- Loans for low-income housing:** Husbanken administers loans and grants to housing companies, either directly or through municipalities, to subsidise privately built low-cost housing. Most social housing is owned by municipalities, which are also responsible for providing social housing services. However private companies, housing cooperatives and other non-government entities also own a portion of the social housing units at municipalities' disposal (just under a quarter of the stock (Sandlie and Gulbrandsen, 2017^[7])). Social rental housing is targeted at a small group of disadvantaged households, which receive housing allowances to cover below-market rents. The share of housing benefit recipients living in municipal social rental housing has declined in recent years. A government decision in 2016 to enable benefit recipients to live in private housing collectives contributed to this trend (Husbanken, 2021^[39]).
- Start-up loans:** Start-up loans provide subsidised credit to disadvantaged households that cannot get a private loan but can pay ongoing expenses of owner-occupation. The goal is to remove obstacles to home purchases for those shut out of borrowing from private banks (for instance, due to loan-to-value ratio limits or an inability to save for a deposit). Special emphasis is placed on assisting families with children and people facing social and health challenges. Loans are supplemented in some cases with grants from municipalities (a minority of Start-up loan recipients also get national housing allowances). In 2020, Start-up loans represented 63% of loans distributed by the State Housing Bank, which also finances construction of student accommodation (7% of the loan portfolio in 2020) and subsidised rental housing (3%).

Allowances provide cost-effective support to poor renters, but income cut-offs are low

Norway's lowest-income households are supported with means-tested housing allowances (administered jointly by Husbanken and municipalities) to assist with the cost of rent. While benefits are indexed to housing costs (Figure 13, Panel A), income thresholds determining eligibility to receive them are low and tend to evolve more in line with wage growth. This channels support to a small group of very low-income households. By way of example, for Oslo residents, current income cut-offs are below the EU-60 poverty measure, equivalent to 60% of median after-tax income (Husbanken, 2021^[39]). Significant increases to eligibility thresholds could drive up rents and discourage workforce attachment among recipients with stronger employment potential. There is likely scope, however, for moderate expansion in income cut-offs without such risks materialising – especially if paired, in supply-constrained cities, with steps to free up new housing supply. A review of the housing benefit scheme is underway (KMD, 2021^[9]). The committee should assess the cost-effectiveness of extending benefits to a slightly larger group of low-income renters. This could alleviate acute housing costs for vulnerable households currently outside the benefit scheme. Many over the past decade saw rents increase faster than incomes and social security benefits (Figure 13, Panel B and C). Indeed, low-income renters are much more likely to be overburdened with housing costs than owners with mortgages in the same income group: two in five low-income tenants spent at least 40% of their disposable income on housing costs in 2019 compared with one in ten homeowners.

Figure 13. Housing-allowance cut-offs leave many households exposed to high rent burdens



Note: Panel A: Average rent is for a 2-bedroom apartment. Rent data for Oslo includes Baerum municipality. Panel B: Rent is average monthly rent for tenancies starting in the current and previous year. Basic amount "G" is the reference payment in Norway's social security scheme, to which multiple benefits, and eligibility thresholds for benefits, are indexed. Average after-tax income is shown for households in the second income decile, many of whom will not be eligible for housing allowances. Panel C: Data for 2020 refer to the responses to the 2021 OECD Questionnaire on Affordable and Social Housing except for Denmark, Germany, Greece, Iceland where they refer to 2019 QuASH, i.e. around year 2018.

Source: Statistics Norway; Norwegian Tax Administration; OECD Affordable Housing database and OECD calculations.

There is a need for more investment in social rental housing

Public investment in social housing is an important pillar of housing policy. In targeting support at highly disadvantaged households, Norway uses social housing in a more limited way than some other OECD countries (Box 8; Figure 14 Panel A). This can limit cost inefficiencies and disruption to private housing market activity. However, in many settings social housing can provide a more cost-effective means of supporting low-income households than other forms of assistance. This is particularly the case for cities where new housing supply is rigid. In such areas, housing allowances for tenants in private dwellings – the main alternative to social housing provision in Norway – are more likely to drive up rents. In high-cost cities there is also less risk that publicly-funded social housing crowds out unsubsidised private construction of affordable housing (Eriksen and Ross (2015^[42]), NIBR (2015^[41])).

Box 8. Broader approaches to social housing: the experiences of the Netherlands and Austria

In Norway, as in most other OECD countries, social housing makes up less than 10% of the dwelling stock and is targeted at low-income households. In some countries, however, social housing serves a larger role and a broader group of households.

The Netherlands

In the Netherlands, a large rent-controlled social housing sector comprises more than a third of the total housing stock. The income threshold for eligibility is high enough that roughly half the population qualifies for social housing. Non-profit housing corporations own roughly three quarters of regulated social housing units. Municipalities are still able to allocate a portion of the available units to tenants based on specific needs. However, social housing does not always benefit those with the most acute needs and many existing tenants having incomes above prescribed eligibility thresholds. Rent controls also limit landlords' returns and constrain investment in rental housing (OECD, 2021^[27]).

Austria

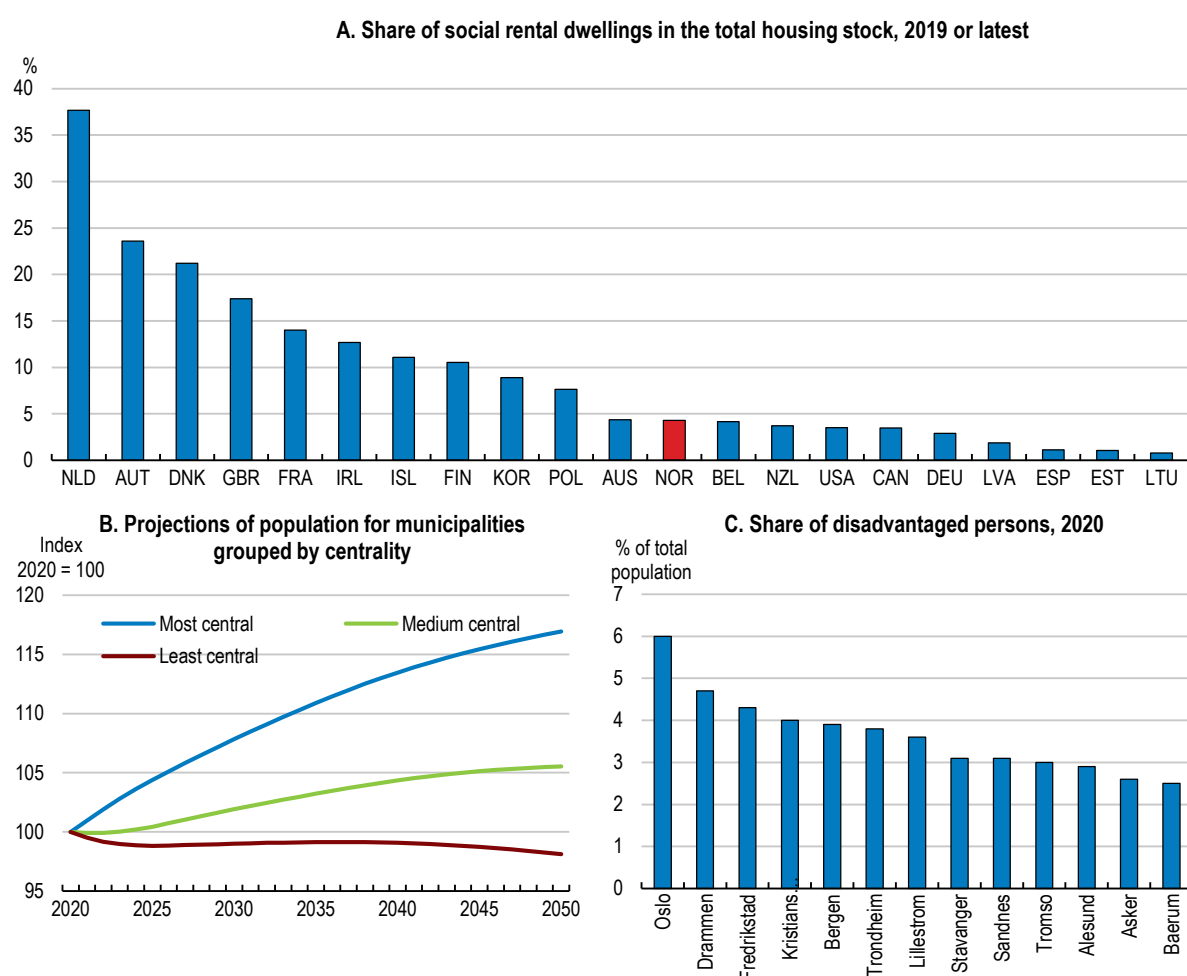
In Austria, social housing accounts for a quarter of all dwellings. More than two-thirds of social housing units are managed by limited-profit housing associations, which build up to 15 000 new homes each year (a bit under a third of all residential construction). Projects are funded through private and public loans and equity in the associations themselves, with surpluses reinvested in new building and renovations. The contribution of housing associations enables the social-housing sector to cater to a large group of households with a relatively stable and solid supply of units. As a model of joint public-private provision of social housing, the system is broadly considered to have worked well. But the future may bring challenges. Many tenants are now in the upper-middle income group. Increased demand risks straining capacity, making it harder to support new entrants to the sector, including younger households (OECD, 2021^[43]). Deposit requirements can already pose a barrier to entry for low-income households (OECD, 2020^[44]) – new tenants must pay a deposit to co-finance a share of construction and land costs. Non-portable tenancy contracts also risk eroding geographical mobility, impacting labour-market performance (OECD, 2021^[43]).

In countries where eligibility is more limited, it may be easier to avoid inefficiencies and target social housing to vulnerable low-income households. Risks of crowding out private housing investment are also likely to be lower. Such countries can, however, face other challenges, including heightened spatial concentration of poverty. It is also important to have well-developed private rental markets, for low-income households ineligible for social housing.

Source: OECD (2021^[12]), OECD (2021^[27]), OECD (2021^[43]), OECD (2020^[44])

Increased investment in the social housing stock is needed already in some high-cost municipalities. Norway's small social housing stock – which is partly owned by non-government entities – expanded at roughly the same rate as the total housing stock from 2011 to 2017. But loans for building or buying social rental housing have decreased each year since 2016 (Husbanken, 2021^[39]), a period that saw construction costs and numbers of disadvantaged persons rise (Box 9). Population growth will put pressure on municipal housing in the coming years, particularly in urban areas (Figure 14 Panel B and C). Deficits of municipal dwellings have recently been reported in Oslo (Husbanken, 2021^[39]), notwithstanding a drop in 2020 in the number of new households queuing for social housing during the COVID-19 crisis. These shortages will need to be addressed as a priority.

Figure 14. Pressure on the social housing stock will grow



Note: Panel A: For New Zealand, data refer to the number of social housing places that are funded through central government and do not include housing provided by local authorities. For the United States, the social housing stock includes public housing, subsidised units developed through programmes targeting the elderly and disabled people, as well as income-restricted units created through the Low-Income Housing Tax Credit programme. For Canada, data exclude units managed by the Société d'habitation du Québec. For Spain, the figures may also contain other types of reduced rent housing, e.g. employer-provided dwellings.

Panel B: Centrality describes the location of a municipality in relation to urban settlements of different sizes. Data for "most", "medium" and "least" central municipalities correspond to categories 1, 4 and 6 in Statistics Norway's centrality classification system.

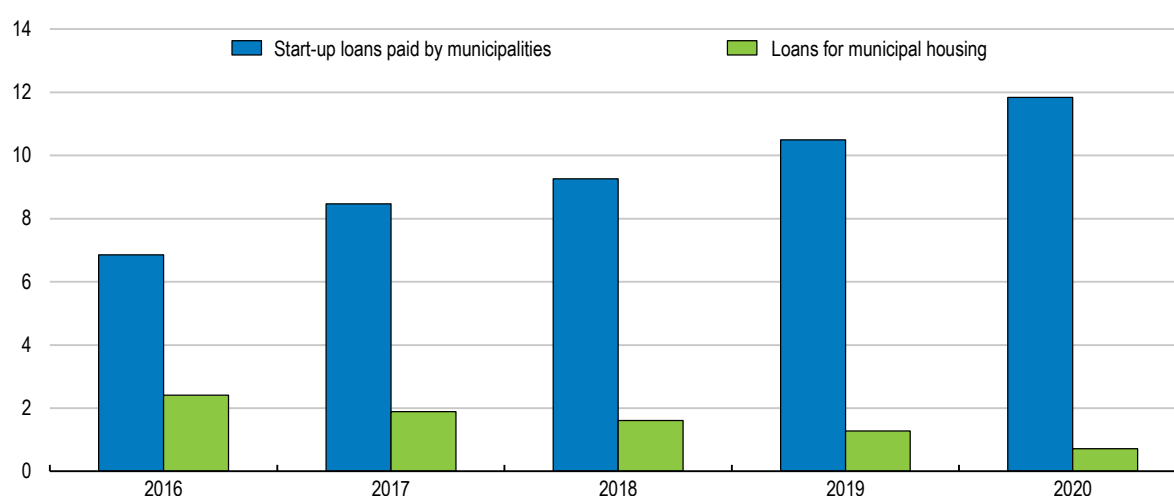
Panel C: "Disadvantaged persons" includes those with low levels of income and wealth, excluding students, that face burdensome housing costs, live in inadequate housing, or are homeless.

Source: OECD Affordable Housing Database; and Statistics Norway.

A social housing policy strategy announced in 2021 aims to provide Husbanken with financing for more loans for rental housing for the disadvantaged (KMD, 2021^[9]). This was a positive signal. Husbanken's loans and grants provide useful tools for increasing construction of affordable housing and have tended to be underused in some cities in recent years (Figure 15). Increased subsidised construction of affordable housing would help relieve cost pressures on vulnerable households in areas experiencing significant growth in rents. To be most effective, new social-housing construction should be matched by local efforts to relax constraints on higher-density residential building in inner-city areas close to transport and jobs. Norway could also consider the possibility of further expanding incentives for provision of social housing through limited-profit housing associations (Box 8).

Figure 15. Loans for rental housing for the disadvantaged have declined

Start-up loans and loan commitments to build or buy rental housing for the disadvantaged, NOK billion



Note: "Loans for municipal housing" are loan commitments for the construction, purchase or rebuilding of rental housing for disadvantaged persons; data before 2020 are for rental housing that received a basic loan for construction, upgrade or purchase. "Start-up loans" are subsidised mortgages allocated by municipalities to low-income households to support homebuying.

Source: Norwegian State Housing Bank.

Avoiding problems tied to socio-economic segregation

As well as expanding social housing in some areas, municipalities should continue working to reduce socio-economic segregation. Some past housing policies had the effect of concentrating disadvantaged groups in parts of Norway's major cities. This is particularly apparent in Oslo, where an east-west divide has persisted since the 19th century. Large-scale affordable housing projects after the Second World War were typically carried out in the city's east (Haandrikman et al., 2021^[45]). In contrast, Oslo's west still tends to be more affluent.

Other Norwegian cities do not have as clear a spatial divide between areas with good and bad living conditions (Norwegian Ministry of Education and Research, 2020^[46]). Moreover, despite increased segregation since 2000 (related to immigrant settlement patterns), Norway does not stand out in comparisons to other Nordic countries. Indeed, some analysis suggests concentrations of poverty are less pronounced in Norway than in Denmark, where social housing is more extensive (Norwegian Ministry of Education and Research, 2020^[46]). Careful planning will, however, remain important to avoid concentrating vulnerable people in particular areas and to improve equality of opportunity for low-income households.

“Socially sustainable urban development” has been emphasised in Norwegian social housing strategy and is already practiced in many municipalities. Some municipalities take steps to allocate low-income households to dwellings in better neighbourhoods. Oslo, Bergen and Trondheim also receive grants from the State Housing Bank aimed at urban regeneration. Grants are used in areas facing challenging living conditions to improve the physical and social environment, including by upgrading buildings and outdoor areas. Similar urban regeneration programmes exist in other countries – including in Chile, France, Mexico and the United States. Coordinated investments in existing neighbourhoods to improve infrastructure and opportunities related to education, public transport and leisure can help build inclusive, socially-mixed neighbourhoods (OECD, 2021^[12]).

New legislation has been proposed to clarify municipalities’ responsibilities in social housing planning. This is welcome, particularly since local authorities retain considerable autonomy in the provision of social housing services. Better delineating local responsibilities could help raise the average quality of municipal services. The new legislation would ideally also elevate the importance of social sustainability in planning. Existing financial instruments can help. Husbanken’s loans for affordable housing construction enable developers to lease a portion of units to tenants paying market rent. Increased construction of affordable dwellings through such channels can contribute to better integration of benefit recipients in better neighbourhoods.

Box 9. Measuring disadvantage for social housing purposes

Norwegian social housing policy targets people that are “disadvantaged”, a term defined to include households with low levels of income and wealth that face burdensome housing costs, live in inadequate housing, or are homeless.

Statistics Norway occasionally releases experimental estimates of the number of disadvantaged persons. Past approaches have drawn on register-based statistics on housing conditions and data on living expenses from Norway’s Rental Market Survey to estimate the size of the disadvantaged population (Thorsen, 2017^[47]). Overrepresented in such estimates are immigrants, renters, residents of Oslo, young people and big families. A recent analysis released by the Ministry of Local Government and Regional Development reported a national estimate of 179 000 disadvantaged persons in 2020, just over 3% of Norway’s population and an increase of 22 000 since 2015 (KMD, 2021^[9]). In contrast to declining numbers of homeless people, the number of disadvantaged persons has increased in recent years, albeit at a declining rate (Husbanken, 2021^[39]).

Municipal-level estimates reveal significant variation across cities. Consistent with earlier work by Statistics Norway, Oslo stands out as the city with the highest share of disadvantaged persons (6% of the population in 2020) (Figure 14). High house prices, a young population and larger numbers of immigrants than other municipalities can help explain higher rates of disadvantage in Norway’s capital than other parts of the country.

Regular reporting of city-level data on disadvantaged persons and municipal housing for the disadvantaged would aid evaluation of social housing policy and assist analysis of future pressures on housing services.

Reforms to improve the responsiveness of private housing supply

The responsiveness of new residential construction to house prices differs within countries as well as between them, and depends on geography as well as local policies. Recent OECD estimates suggest the price elasticity of housing supply in Norway is lower than in other Nordic countries, including Denmark and Sweden, but higher than in a number of other OECD countries (Cavalleri, Cournède and Özsöğüt, 2019^[48]).

Country-level estimates are, however, unlikely to reflect conditions in Norway's urban housing markets. In the country's biggest cities, geographical factors naturally constrain new housing supply. Norway's mountainous topography rules out development in much of the country. Mountains cover approximately 90% of the national landmass. Water, too, is a natural impediment to construction. All of Norway's four most-populous municipalities (Oslo, Bergen, Trondheim and Stavanger) are coastal. Unlike in flatter inland cities in other countries, the expansion of settlements in Norway's coastal municipalities is limited to stretches of non-mountainous land away from the water.

Land-use regulation must manage trade-offs between housing and other objectives

The constraints of Norway's geography increase the importance of statutory limits on use of natural land suitable for building. Many national restrictions on development are in place to limit losses of natural areas. More than half the territory of Oslo municipality is protected by *Markaloven*, laws preventing development in forested areas around the capital and neighbouring municipalities. Other laws prohibit building within 100 metres of the sea and protect against conversion of agricultural land to residential and other uses. Protections of natural and arable land serve multiple policy objectives. Banning the clearing of forests, for example, ensures access to green space for residents of neighbouring developed areas. The same laws can prevent sprawl and reduce transport emissions. Coastal-development bans similarly preserve marine biodiversity and shared use of the shoreline, while protections of arable land safeguard future agricultural supply.

However, overly strict national land-use restrictions can compromise housing-policy objectives. For instance, paired with inflexible local rules controlling construction *within* developed areas, limits on building beyond urban boundaries help drive up metropolitan house prices and rents. Rural municipalities can be affected as well as urban ones when restrictions rule out commercial or residential development in land neighbouring existing settlements. Bans on building near the coast, for example, can impede commercial activity in small towns and island municipalities; this is the case even if the rules' main aim is to restrict overdevelopment of densely populated areas such as Oslofjord. The imperative of preserving biodiversity in marine environments is clear. But in many sparsely populated areas, benign projects – for instance, new homes and shops – would lift economic activity with limited adverse environmental effect.

Box 10. Institutional framework for Norwegian housing policy

Design and implementation of Norwegian housing policy involves actors and instruments at national, regional and local levels of government.

National

- **The Planning and Building Act** sets requirements for environmental impact assessment, processes for zoning and building applications, and rights of objection and appeal.
- **Technical standards for buildings**, known as TEK17, prescribe minimum requirements in respect of quality, safety, health and energy-efficiency with which new buildings must comply.
- **The national government** determines a national planning strategy – including a national transport plan – and government agencies are involved in inter-regional planning decisions.
- **The Ministry of Local Government and Regional Development** implements national planning and building policies, issues planning policy guidelines, and serves an appellate function, determining the outcome of objections to municipal zoning plans.

- **Norway's State Housing Bank, Husbanken**, administers social housing assistance in coordination with municipalities. It also advises municipalities on effective social housing solutions and facilitates knowledge sharing between local authorities.

Regions

- **County councils** produce regional planning strategies that local authorities are expected to adhere to. County council members are themselves often members of municipal councils in the region.
- **Regional planning forums** – comprised of representatives of national, regional and local bodies – clarify the range of interests relevant to work on regional and municipal plans. The forums are managed by regional planning authorities and aim to limit recourse to time-consuming objections to zoning plans.
- **County governors** coordinate objections to zoning proposals from authorities at the local, regional and national levels of government. Objections operate as a check on municipal authority and are meant to ensure integration of regional and national considerations in local land-use decisions.

Local

- **Municipalities** develop legally binding master plans and detailed zoning plans for local areas and review building and zoning applications. They are further empowered, by the Planning and Building Act, to determine local rules limiting the size and number of dwellings, prescribe maximum building heights, and regulate plot utilisation rates, building location, and some physical characteristics of built structures. Municipalities also determine local needs for social housing assistance and deliver support backed with financing and advice from Husbanken.

Progress has been made to soften land-use restrictions – more is needed

National guidelines on coastal-zone building were softened in 2021, giving rural municipalities more scope to grant exemptions for housing and other developments compatible with environmental objectives. This is a sensible compromise. Similar concessions should extend to protections of natural land more broadly. This would relieve pressure at the periphery of Norway's space-constrained cities, helping more households live near where job offers are available.

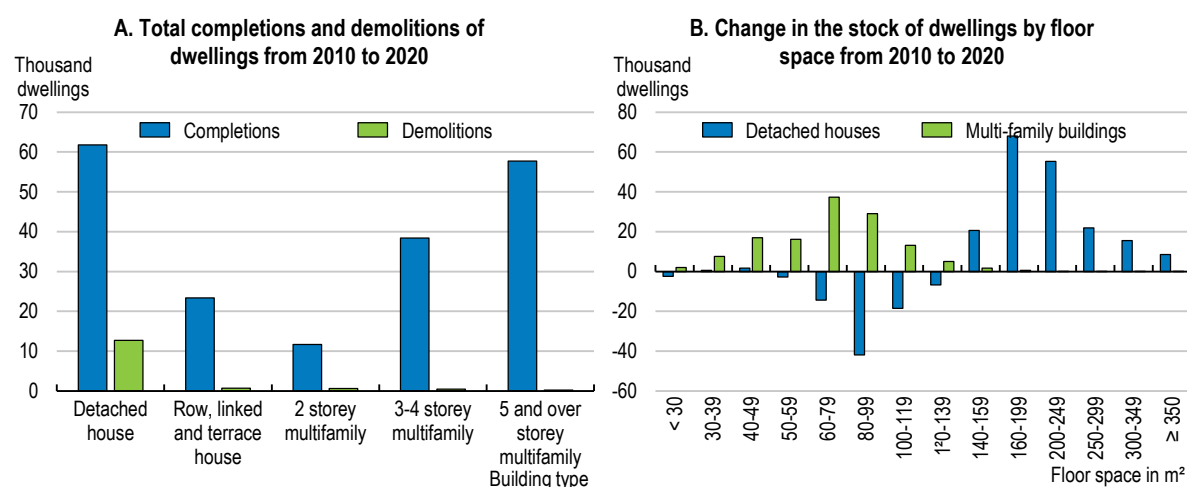
National laws protecting arable land are still quite strict and can undermine housing affordability. Agricultural land covers a relatively small 3.5% of Norway's territory. But with much of it located in low-lying areas close to major urban settlements (OECD, 2016^[49]), land set aside for farming represents a much larger share of the territory fit for building. Statutory restrictions include bans on the conversion of arable land for other uses, and form part of Norway's wider policy of strong protection and support for the farming industry. By limiting possibilities for greenfield housing development close to built-up areas, these restrictions contribute to inflexibility in housing supply. They also likely go beyond what is needed to achieve the aim of safeguarding land for farming, and might therefore be moderated.

Whereas national land-use laws restrict residential construction beyond developed areas, municipal rules limit the supply of housing within them. In addition to restrictions on where homes can be built – for instance, away from space zoned for parks and nature areas – planning laws allow municipalities to set density restrictions. Norwegian cities set height limits on apartment blocks and non-residential buildings. Norway has relatively few tall buildings per urban population compared with other rich countries (Jedwab, Barr and Brueckner, 2020^[50]). This reflects restrictions on building heights. Oslo's municipal plan, for example, allows structures of up to 30 metres in dedicated inner-city development areas (Oslo Municipality, 2015^[51]). But in most districts the plan prevents building structures more than seven metres taller than the

typical building height in a given street. This rule, together with bans on building close to sites of cultural heritage significance, can hinder new residential development. Data on dwelling types reveal the relatively low density of neighbourhoods in parts of Norway's capital. Detached and semi-detached houses make up 23% of homes in Oslo (in comparison, such dwellings comprise 8% of homes in Copenhagen). While apartment blocks dominate inner-Oslo, lower-density residential buildings account for half the dwellings in the city's outer west and south (Oslo Municipality, 2021^[52]). City or region-wide re-zoning of existing neighbourhoods – as has been done recently in New Zealand and California (Box 11) – could help speed up densification of residential areas.

Rules enforcing minimum dwelling sizes further restrict the supply of housing in urban areas. In Oslo, 35 square metres is the minimum allowed size for new apartments (a standard within the typical range of equivalent rules in OECD countries). Local rules additionally cap numbers of small flats. Notably, no more than 35% of units in inner-Oslo can be “small” (35 to 50m²), while a minimum 40% must have floorspace of at least 80m². A proposal to abolish the “apartment norm” was voted down in early 2021. While it officially applies to just four of Oslo's 15 districts, the norm reportedly guides planning decisions in other parts of the city. Such rules are designed in part to manage strain on local infrastructure (for instance, congestion on roads) and to improve living environments – considerations developers might otherwise overlook. Significant impacts on housing supply and affordability can, however, result. In areas of Oslo, for instance, there are reported deficits of small apartments. In Norway as a whole, increases in the number of small units have been modest, notwithstanding increased construction of mid-sized apartment buildings (Figure 16).

Figure 16. More mid-sized buildings are being constructed, but few small apartments



Source: Statistics Norway.

Box 11. Relaxing land-use rules: the cases of New Zealand and California

Accelerating medium-density housing development in New Zealand

New Zealand has experienced rapid house price growth and deteriorating housing affordability in recent years. To address housing shortages in major cities, the government has proposed changes to relax land-use rules in urban residential areas. A bill put to parliament would enable people to build up to three homes of three storeys each on most sites without needing local approval (New Zealand Government, 2021^[53]). The aim is to rapidly increase the amount of medium-density housing in districts currently zoned only for single-family dwellings. Modelling commissioned by the government suggests the supply effects of the new policy will be large. Up to 105 500 dwellings could be built over the next eight years according to estimates by PwC. In Auckland, where housing supply has been particularly strained, an additional 53 700 dwellings could result from the new medium-density dwelling rules. This would go a long way to eliminating housing shortages in New Zealand's most populous and most expensive city. Before the pandemic, the shortfall in Auckland was estimated at 40 000 to 55 000 homes (Coleman and Karagedikli (2018^[54]), OECD (2019^[55])).

Ending single-family zoning in California

California is also taking steps to increase housing supply. A new law passed in September, called SB9, ended single-family zoning in the state (California Legislature, 2021^[56]). This will allow owners to build two housing units on lots where there are currently single-family dwellings, provided plots are of a certain size. Another law called SB10 enables the construction of up to ten units on parcels of land near major public transport stops and some urban infill sites (California Legislature, 2021^[57]). As in the case of New Zealand, the new laws are meant to help address housing shortages in major population centres. Rigid housing supply has contributed to soaring prices in San Francisco and Los Angeles in particular. While not aimed at adding affordable housing – checks are incorporated to ensure the laws do not reduce it, either – these measures should have a significant effect on total housing supply, and thus help moderate house price growth. Estimates released by the Turner Center for Housing Innovation suggest SB9 could enable the construction of an additional 700 000 homes, marking a 40% increase in what would otherwise be built (Metcalf et al., 2021^[58]).

There is scope to review and relax caps on small-apartment numbers, especially in districts where new housing development would not stretch local infrastructure. There is also a case for local authorities trialling more exceptions to municipal regulations and guidelines on minimum apartment sizes, as done in some other cities (for instance, New York). Norway's national building standards exist already to safeguard minimum habitation standards. Additional unit-size limits likely force some households to consume more housing than they otherwise would (Quigley and Raphael, 2004^[37]). In contrast, permitting higher-density residential construction would have clear benefits for affordability, improving options for households seeking smaller dwellings in inner-city areas. It would also reduce the housing stock's environmental impact by lowering transport emissions and loss of natural land to sprawl. Energy for heating would also decrease with more compact apartments, as would quantities of building materials and associated greenhouse gas emissions (see below). Moreover, by enhancing flows of workers to high-wage, high-productivity cities, lifting density restrictions could also increase economic potential (Glaeser and Gyourko, 2018^[59]).

National building standards also affect density and influence construction costs

In addition to national land-use rules, building standards can also influence scope for residential construction and the cost of building. With some exceptions, national building-code revisions from 2000 to 2015 typically tightened minimum requirements for safety, quality and accessibility (as well as energy-efficiency). Beyond their construction-cost impacts, which in some cases have been reported to be significant (NOU, 2015^[60]), provisions to ensure buildings are accessible to all people tend to increase the minimum floorspace required in rooms, access areas and residential buildings generally. For example, enhanced interior-access requirements and stricter rules for elevators (elevator requirements were tightened in 2010 to apply to all new buildings three storeys or higher) raise housing quality and improve accessibility but also increase floorspace required in apartment buildings. While potentially heading-off accessibility problems as the population ages, the implications of these and other building-code changes for construction costs and urban density deserve greater policy consideration. Indirect environmental impacts should also be taken into account. Standards that increase the floorspace required for new apartments also likely imply greater use of CO₂-intensive materials such as steel and cement.

Some strict quality standards have been relaxed in recent years. A rule requiring new dwellings to have an interior storage room was, for example, repealed in 2017 and replaced with more flexible, less-prescriptive storage requirements. National guidelines on building location and light exposure have also been relaxed in recent years. This was part of a welcome drive to simplify national technical standards, a push that started with the release of the current building code (called *TEK17*). Where health and safety are not at risk, replacing additional highly prescriptive minimum standards with more functional requirements, enabling greater innovation in construction, could reduce the impact of the code on building costs and affordability.

There is still the possibility, in Norway's planning system, that despite well-designed and proportionate national building rules, some municipalities use strict local rules for undesirable ends. For instance, local rules on building position and plot utilisation can impede new construction to benefit existing homeowners. As a check against such behaviour, regional authorities should play a more active oversight role. In particular, counties should ensure that local planning rules – including directives on plot utilisation and building orientation – reflect the national planning priority of facilitating housing supply. This aim should also be supported in the work of regional planning forums.

Making planning and zoning quicker, cheaper and more predictable

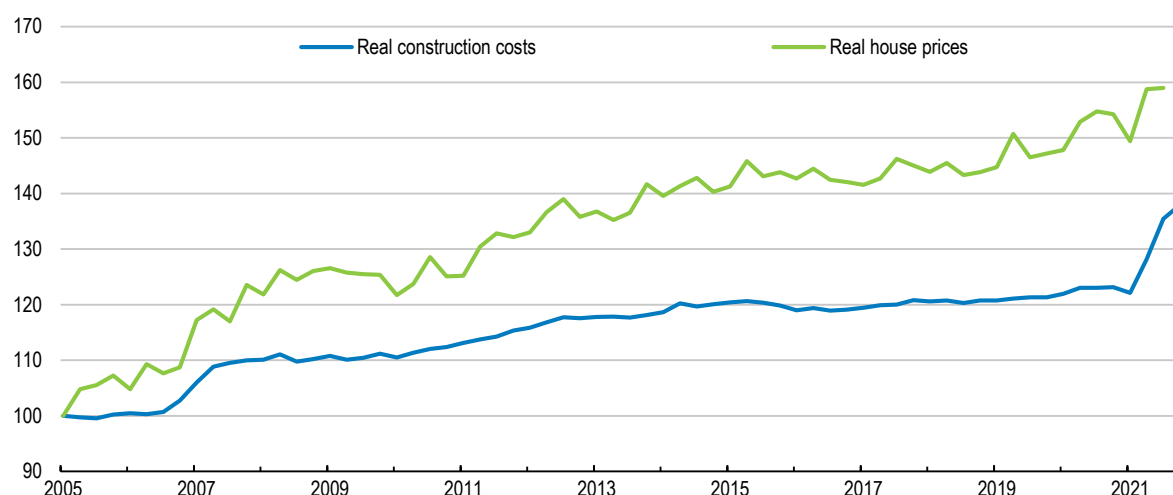
More efficient zoning and building application processes could also facilitate residential property development. Densely populated areas in Norway reportedly still present considerable opportunities for property development that remain unexploited. Improvements to planning and zoning processes could ensure such opportunities are harnessed, encouraging greater supply responsiveness to increased housing demand. Beyond direct impacts on timeframes for construction, zoning laws and practices influence rates of new building through their effect on builders' returns.

Studies of planning and zoning in Norway point to developers' co-contributions to public infrastructure funding, onerous impact-assessment requirements and lengthy approval processes as major contributors to construction costs (Figure 17). Development agreements facilitate co-financing of local infrastructure (for instance, funds for roads, water and sewerage) between municipalities and private developers to support new projects. There is a rationale for asking developers to contribute to infrastructure costs. It forces them to internalise the toll on neighbourhoods of new buildings and residents (for instance, from more traffic on local roads). Rules limit what municipalities are able to ask of developers. In particular, contributions must be proportionate to a project's scale and exclude financing of social infrastructure (kindergartens, schools and aged-care facilities). Past reviews have found, however, that development agreements can be abused, with local authorities demanding disproportionate contributions from developers. The impacts of infrastructure contributions on developers' costs are often large (NOU,

2015_[60]). There is a welcome proposal to clarify rules on development agreements. The proposal includes a new model for financing local infrastructure whereby municipalities can stipulate a payment obligation in the relevant zoning plan. This will improve opportunities to review municipally-determined payment obligations. It could also help discourage misuse of the rules, enhance predictability and equal treatment among developers, and reduce developers' costs.

Figure 17. Labour and material costs account for only part of past house-price increases

Real construction costs (labour and materials) and detached-house prices (excluding land), index 2005 Q1 = 100



Note: Nominal indices of construction costs and house prices have been deflated using the consumer price index. Data are for detached houses made of wood and both series exclude the price of land.

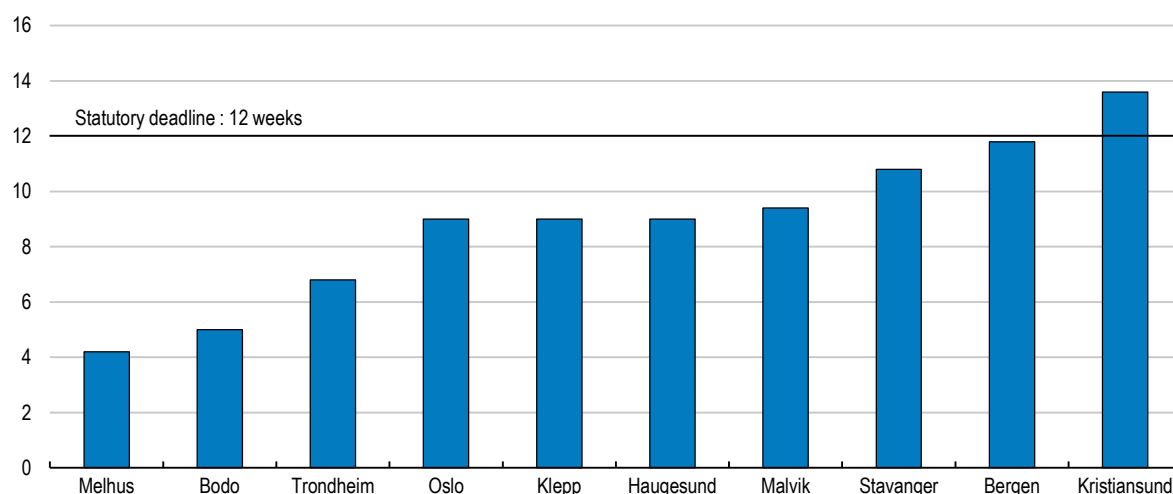
Source: Statistics Norway and OECD calculations.

Impact assessments for zoning proposals have been increasing in number and scope and also add to costs. A Productivity Commission (PC) review in 2015 noted an increase in scope of mandatory impact assessments, which derive from European Union directives (NOU, 2015_[60]). Growing impact assessment requirements, affecting both private zoning proposals and municipally-led planning, are consistent with the increasing range of objectives planning decisions are expected to balance. These are detailed in the Planning and Building Act and include promoting sustainable development, facilitating resource management, safeguarding principles of universal design, conditions for raising children, and neighbourhood aesthetics. Considerations to be addressed in plans have been augmented to include reducing greenhouse gas emissions through solutions for energy supply, land use and transport (added in 2014 and modified in 2019); management of the water cycle (added 2019); and, perhaps belatedly, facilitating adequate residential construction (incorporated in 2021).

On top of the direct costs of investigations and reporting, impact assessments add to the time required to complete development applications, pushing further into the future the expected returns from building. The Productivity Commission noted an increase over recent decades in the time taken to process applications. Legislated 12-week deadlines for processing building and zoning applications are not long by international standards (Gyourko and Molloy, 2014_[61]). Municipalities tend, on average, to stick to these deadlines, too (Figure 18). But in addition to time consumed preparing applications, time gets taken up in consultations, correcting errors, and responding to requests for clarifications. Correcting errors and omissions, in particular, can cause planning delays to balloon, requests for changes or more information extending review deadlines and cutting against laws designed to speed up processes (Box 12).

Figure 18. Average planning application review times are typically below the statutory limit

Average weeks to process applications subject to 12-week deadlines: selected urban municipalities, 2019 or latest year



Note: Data are for applications subject to 12-week review deadlines in the Planning and Building Act, including zoning and building applications. Bergen and Trondheim data are for 2020.

Source: Statistics Norway.

Useful steps are being taken to reduce time spent correcting errors in plans. The national ByggNett Strategy facilitates greater use of digital applications. A digital service platform launched as part of the strategy in 2018 aims to further improve standardised applications, ensuring they contain all the information local regulations require. This initiative goes part way towards eliminating costs and delays associated with incomplete applications. Application requirements and processes do, however, still differ by municipality. Greater central government-led efforts towards enhancing and standardising digital processes across municipalities could help improve planning efficiency in some local areas and further reduce the time taken to rectify problems or omissions in zoning proposals.

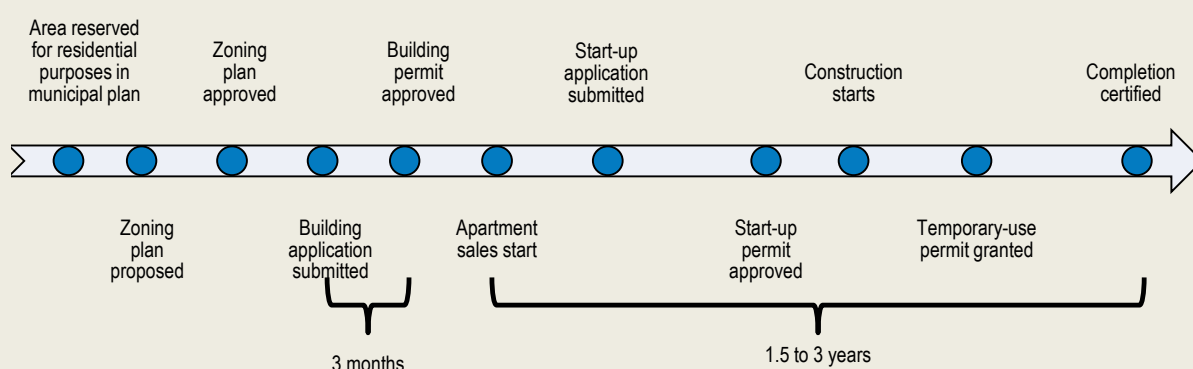
Comprehensive zoning processes, including impact assessments, may be excessive for small residential construction projects. Simplified approval procedures should be introduced for small urban infill projects. The Planning and Building Act already exempts from building-permit requirements minor alterations to existing structures. Extending such exemptions to additional categories of small construction projects could save developers time and costs and lift supply in urban municipalities with spare space.

Predictability in planning and building processes, including private zoning proposals, would be enhanced by grounding municipalities' discretion to approve or reject applications. As in other countries, planning and building laws allow local planning authorities a wide degree of discretion to reject proposals without reference to legal provisions or their own detailed plans (OECD, 2021^[12]). This relatively unfettered discretion provides a window to local interest groups and landowners looking to influence planning outcomes, including by preventing residential construction. Affected parties can also appeal agreed zoning plans. Overall, the unpredictability of urban development projects erodes commercial incentives to build. One way to curtail the influence of local interest groups would be to increasingly tie municipalities' decisions to planning rules or criteria.

Box 12. Planning milestones in residential development projects

Large-scale residential developments often require a detailed zoning proposal. This includes when projects involve changing the prescribed land use in a given area (for instance, from permitting detached houses to multi-storey apartment blocks). Before this occurs, higher-level Municipal plans must set aside land for current and future residential construction. This could occur well before physical construction of new homes starts. The efficiency of these processes influences the responsiveness of housing supply. Figure 19 shows the order in which these planning stages occur and presents an indication of timeframes required to complete a typical apartment-block construction project once these preliminary municipal and zoning plans have been approved.

Figure 19. Illustrative timeline for a typical apartment project in an urban area



Source: Samfunnsøkonomisk analyse AS (2021^[62]); and Planning and Building Act 2008.

Stages involved in zoning proposals:

- **Impact assessment:** Impact assessments are required for zoning plans that may have significant effects on the environment and society. They may require investigations and are designed to clarify the effects of the plan on the environment, health, safety, accessibility and other public interests. Assessment results are included with the proposal description as part of notification requirements.
- **Notification and consultation:** Affected public bodies and other interested parties must be notified at the initiation of planning work. “Interested parties” may include central, regional and local government bodies, neighbouring municipalities, private organisations, institutions and individuals affected by a proposal. Proposals should normally be submitted for consultation at the same time as notification is given, and must be published electronically and in at least one local newspaper. Deadlines can be specified for making a statement during consultations, or registering an objection, but can be no shorter than six weeks. The 6-week minimum originates in EU laws.
- **Objections:** Regional and central government bodies and other municipalities can object to proposed municipal and zoning plans to protect national, regional or local interests. Objections must be submitted during consultations at the latest. In practice they are often registered at earlier planning stages (Asplan Viak and Agenda, 2012^[63]). If the municipality is unable to resolve an objection (for example, by altering the zoning plan), it is referred to mediation. If mediation fails, the objection passes to the Ministry of Local Government and Regional Development for resolution, which may result in the plan being amended. If it wishes to challenge the Ministry’s determination, the municipality has recourse to the courts up to six months from the Ministry’s decision.

- **Submission and municipal decision:** At the end of consultations, provided no objection has been filed, the proposed zoning plan goes to the municipality for consideration together with statements from consultations. The municipal administration has 12 weeks to make a final proposal. The deadline can, however, be extended by 6 weeks in complicated cases or where further clarifications are required. The municipal council then has 12 weeks to make a determination.
- **Appeal:** Affected parties in the area, including landowners, must be notified of approved zoning plans by letter, including information about rights of appeal.

Stages involved in obtaining building permits and completing construction:

- **Building permit:** Once the zoning plan is approved, a building permit application may be submitted and must be reviewed by the municipality within 12 weeks. Time can be saved if the municipality agrees to joint review of the building permit application and the proposed zoning plan. For larger projects, two stages are typically involved. First, a general or “framework” permit is granted, giving the developer the right to undertake the project in line with set conditions. Then, once the conditions are satisfied, a start-up permission is granted allowing construction to begin.
- **Sales:** Developers typically start selling apartments once the general building permit has been granted. Lenders commonly require that 50 to 70% of units in the development are sold before physical construction begins. The practice of selling a proportion of flats “off-the-plan” before construction (sometimes called “pre-sales”) is common to other countries (for example, Australia, Canada, the United Kingdom). It can enable developers to secure better borrowing terms from lenders and allows builders to realise returns before a project finishes. In Norway it often takes 1½ to three years from the first apartment sales to the point where residents move into the building (Samfunnsøkonomisk analyse AS, 2021^[62]).
- **Start-up permit:** Provided the developer satisfies any conditions required under the general building permit, a start-up permit is granted, enabling actual building to start.
- **Completion certificate:** Once building is finished the municipality awards a completion certificate and residents can move in. In cases where only minor works are required to finish the project, the municipality may grant a temporary-use permit allowing part of the building to be occupied.

Doing more to stamp out abuses of the objections system

More needs to be done to reduce time spent resolving objections to proposed municipal and zoning plans by regional and central government authorities. Introduced as a check on municipal review powers with the entry into force of the Planning and Building Act in 1985, the objections system is intended to protect significant regional and national interests. Statutory grounds for objections are broad, encompassing “matters of significant importance” to the nation, regions, other municipalities, the Sami community and businesses. Common reasons for objecting to municipal area and zoning plans relate to soil protection, preservation of marine habitats and culturally significant sites, and impacts on congestion, sprawl and agricultural land.

Objections can provide a useful means for coordinating and integrating multiple perspectives in planning processes. They can also be used to ensure appropriate planning and preparation for municipalities’ future housing needs, for instance through reserves of land for residential development. In addition to county governors, frequent objectors include the Norwegian public roads authority and cultural heritage agencies. As the final arbiter of unresolved objections (many are settled earlier by municipalities, or through mediation), the Ministry of Local Government and Regional Development (KDD) must balance competing policy goals – for instance, determining whether to approve a new residential area permitting the building of new homes, or rejecting the measure because it will increase car use and congestion and undermine national guidelines on compact cities. Time taken to resolve objections can significantly increase planning timeframes, affecting how quickly new residential construction can respond to increases in demand. A

2012 review found that objections add, on average, 10 months to planning processes that should otherwise take two years (Asplan Viak and Agenda, 2012^[63]).

While some objections are upheld, being found necessary to serve matters of national or regional significance (in line with the intention of planning laws), abuses are also common. Past objections have been found often to relate not to matters of national or regional significance but to disagreements about land use (Asplan Viak and Agenda, 2012^[63]). A high proportion are also based on non-legal documents. The objections system has been found to be a major hurdle to private residential zoning proposals (National Competition Authority, 2018^[64]). Welcome steps have been taken to limit abuses. Guidelines were clarified following recommendations by a Housing Committee (NOU, 2015^[60]). These emphasised the importance of flagging significant interests early in planning procedures and introduced a requirement that objectors justify reasons for challenging zoning proposals. County governors (and county councils) were assigned the role of coordinating objections from different sources; they are now also tasked with screening out unfounded challenges. Legislative changes to the Planning and Building Act in 2017 further attempted to clarify grounds for objections based on national and regional interests (they remain, however, quite broad).

There is some evidence that recent reform efforts have been successful. A 2018 review by the Office of the Auditor General found that objections are better substantiated than in the past (Office of the Auditor General, 2018^[65]). In contrast, county governors have tended to make limited use of their increased screening powers. Moreover, practices and objection rates vary across regions, undermining the consistency and predictability of planning processes. Objections are still used a lot. Data published by Statistics Norway show that in 2020 30% of zoning applications were subject to objections. An average 28 objections were reviewed by the Local Government ministry each year from 2016 to 2020. This statistic, which excludes objections resolved by municipalities or in mediation, was little changed from the average 30 per year registered over the previous five years. In contrast, the success rate of objections has declined (from 43% over 2010-2013 to 22% over 2014-2017), offset partly by increased partial acceptance of objections. This is consistent with efforts to tighten the system (Office of the Auditor General, 2018^[65]).

More should be done to enhance the efficiency of the objections system and pare back abuses. One step would be to only allow objections that relate to regional and municipal plans, impact-assessment reports, or specific provisions in laws and regulations. Environmental, heritage and transport considerations should, to the extent feasible, be clarified in regional plans. Regional planning forums exist for this purpose. Better management and resourcing of regional planning forums could reduce the need for time-consuming objections at later stages of planning cases (Office of the Auditor General, 2018^[65]). In screening objections, county governors could also be given recourse to submit complicated cases to the Ministry of Local Government and Regional Development for advice. This might help rule out unfounded challenges and free up capacity to review other objections more quickly.

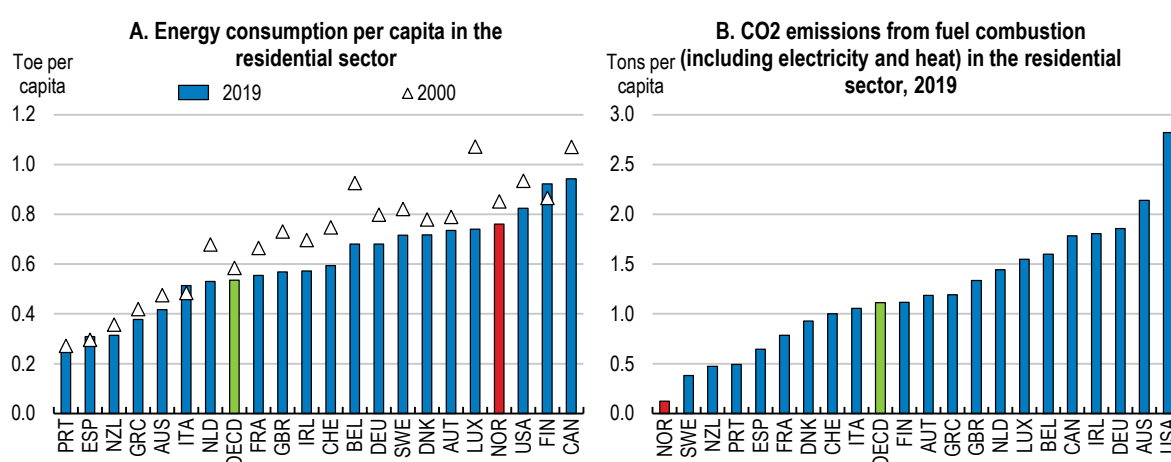
Reducing the environmental impact of housing

The environmental impact of Norway's housing stock is small in international comparison. Restrictions on developing natural land have helped limit losses of forested and other natural areas. Urban areas, as a consequence, have become more dense (OECD, 2018^[66]). A national strategy of concentrating development around public transport hubs aims, appropriately, to continue this trend. This will help cap transport-related CO₂ emissions. But to succeed, the strategy will need the cooperation of urban municipalities to relax land-use policies impeding higher-density construction (as discussed above).

Norway's high energy-efficiency standards are already near the frontier

Norway has low CO₂ emissions from housing use, including heating. As a cold country with relatively big homes, per-capita energy consumption is larger than in most other OECD countries (Figure 20, Panel A). But with hydropower supplying almost all of Norway's electricity, CO₂ emissions from the residential sector are very low (Figure 20, Panel B). Energy-efficiency upgrades have further reduced residential emissions. A push to electrify residential heating has also paid off. Publicly-funded grants supported the retrofitting of older homes with fossil-free heating systems ahead of a ban on oil burners that took effect in 2020 (Enova, 2021^[67]). State-owned enterprise Enova continues to provide households with advisory services and funding for climate-related and energy upgrades (Box 13). While the economic case for Enova's grants is clear, individual measures should continue to be regularly reviewed as markets and technologies mature, to check they are delivering anticipated energy savings, and that support remains cost effective.

Figure 20. Residential energy use is similar to other cold countries but CO₂ emissions are low



Source: IEA (2020), Energy Efficiency Indicators (database).

Norway's building code sets high energy-efficiency standards for new buildings. The country's technical building standards are among the strictest in the world, with energy-efficiency requirements at passive house standard (requiring that thermal comfort be achieved to a large degree through "passive" measures such as insulation and heat from human occupants, household appliances and the sun) (Box 13) (IEA, 2017^[68]). Proposals are being considered to further tighten performance standards. This would bring new homes to a near-zero net energy use standard, freeing up renewable energy for use in other sectors, including for the electrification of transport. Reducing energy consumed in homes would also enable greater exports of hydroelectric power to the regional electricity market, lowering emissions in other countries. These benefits should, however, be weighed against the potential for tighter energy-efficiency standards to push up construction costs and house prices. Construction cost implications of changes to the building code should be reviewed before tightening energy-efficiency and quality requirements.

Box 13. Main policy instruments for lifting energy efficiency in Norwegian homes

- **The building code** is the main regulatory tool used to ensure that new homes are energy efficient. The current version, called *TEK17*, sets limits for the net energy used for space heating, cooling, and hot water, and prescribes technical standards for windows, roofs, floors, walls and air tightness, along with other requirements (IEA, 2017^[68]). Threshold standards for new homes and properties subject to major renovations were tightened in 2016 to “passive house” level. This is a particularly high standard of heat and energy efficiency. It requires thermal comfort to be achieved to a large extent through “passive” measures such as insulation and heat from the sun, household appliances, and a dwelling’s human occupants.
- **Enova Subsidies** complement the technical building standards. Grants provide a financial incentive for households to make climate-related and energy-efficiency investments in existing homes. A pre-defined set of measures are eligible for funding without prior approval. Popular measures include installations of solar cells, heat-efficient mechanical ventilation systems (“balanced ventilation”) and liquid-to-liquid heat pumps – energy-efficient devices for heating buildings by transferring heat between spaces.
- **Low interest-rate loans** from *Husbanken*, the Norwegian State Housing Bank, are separately available to people building energy-efficient homes using sustainable construction practices, and for energy-efficiency upgrades to existing dwellings.
- **The Energy Certification Programme** provides information on buildings’ energy standards and potential energy-saving improvements.

There is scope for greener housing construction and building materials

Residential construction’s environmental impact remains large. Whereas CO₂ emissions related to housing-stock use have been almost eliminated, building homes, and the associated production and disposal of building materials, still have significant environmental costs. Buildings and construction account for 14% of Norway’s greenhouse gas emissions, with two thirds of this from production and transport of materials. Large quantities of CO₂ are generated, in particular, in the production of steel and to make cement, the most carbon-intensive ingredient in concrete, which alone contributes 2.5% of Norway’s emissions (SINTEF, 2020^[69]). In addition to carbon emissions embodied in materials, the construction sector generates roughly a quarter of Norway’s waste; about a third of the waste from demolition and renovations goes to landfill.

Greener energy can help reduce CO₂ emissions from material production and construction. Planned increases to the carbon tax will help in this regard. Other CO₂ emissions will be harder to eliminate without large and cost-effective technological improvements. Advances in the reuse of scrap metal have reduced the capacity for further cuts in carbon emissions from already-efficient Norwegian steel manufacturing (SINTEF, 2020^[69]). In the case of cement production, significant greenhouse gas emissions are inherent to material processing: only expensive carbon capture can neutralise CO₂ generated from the decomposition of limestone (Habert et al., 2020^[70]).

More efficient use of building materials can contribute to a greener housing stock. Norwegian research organisation SINTEF estimates that material efficiency strategies (also called “circular economy” measures) can have a big impact on waste and greenhouse gas emissions, reducing building material use by 20% and lowering CO₂ emissions by up to 18% (SINTEF, 2020^[69]). An added benefit would be reduced consumption of water, mineral resources and land (Pauliuk et al., 2021^[71]).

Making regulation more conducive to efficient use of building materials

A regulatory framework is being developed to enhance material efficiency. Guidelines have been published to explain rules governing trade and use of recycled materials. These complement other initiatives, notably government-funded research into sustainable materials and support for digital marketplaces facilitating trade in recycled products (Enova, 2021^[67]). Supporting regulatory change would come from simplifying EU and national rules around documentation of building materials, an obstacle to selling second-hand building products. Amendments to the relevant regulations were proposed in September 2021. In a welcome move, the Directorate for Building Quality was also tasked in 2021 with identifying scope for adjusting technical building standards to enable increased reuse of building materials.

Work is also underway to identify and amend rules that discourage using buildings for longer. The building code can present hurdles to renovation as it mandates quality and energy-efficiency improvements for buildings undergoing major alterations. These provisions can have unintended consequences if they lead to higher rates of demolition and new construction, with greater overall use of emissions-intense materials. A proposed amendment to the planning and building act would give municipalities increased scope to grant waivers from strict building-upgrade requirements in TEK17 (Box 13). This would enable local authorities to determine appropriate upgrade standards on a case-by-case basis in view of sustainability considerations. This proposal could potentially remove an important obstacle to both greater development activity and more sustainable use of the building stock. Broader assessment of the environmental impact of building regulations is also warranted.

Minimum content requirements for recycled construction products will help push industry towards more sustainable production practices. The EU has flagged its intention to introduce new minimum thresholds for recycling non-hazardous waste from construction (European Commission, 2020^[72]). Such performance standards should be stepped up progressively, giving producers time to adapt to new methods and technologies, but ensuring an appropriate base level of sustainability in production.

Using market-based instruments to speed the shift to greener construction

Industry progress towards adopting sustainable construction materials and practices could be stimulated through market-based instruments. A longer-term EU ambition is to reduce allocations of free allowances to steel and cement manufacturers in the EU's Emissions Trading System. Makers of these carbon-intense building materials will continue to receive 100% of their allocated allowances free-of-charge through to 2030. This limits risks of carbon leakage (relocation of production to countries with less stringent environmental policies) while encouraging emissions cuts by manufacturers able to profit from selling allowances. Risks of carbon leakage could diminish with the emergence of viable technological paths to greener materials production. This would enable a tightening of incentives for building-material producers to accelerate emissions cuts. Other reforms could, however, be needed first, including changes to rules on concrete production – for instance, to allow lower-carbon alternatives to cement in construction. The sequencing of circular-economy measures is thus important. This is a good feature of circular economy strategy in Norway, which has focused first on removing obstacles to production and trade in greener construction products while signalling a readiness to embrace market-based instruments once a regulatory framework is in place.

Box 14. Greener public procurement and social housing

Sustainable use of publicly managed dwellings is set to contribute to reducing greenhouse gas emissions from buildings in Norway. This is done through procurement of green buildings and by meeting emerging needs, to the extent possible, with existing publicly managed buildings. Cooperation with municipalities on sustainable management of social housing can contribute to this goal, even if the

direct impact on CO₂ emissions is likely to be smaller than in countries with larger stocks of social housing than Norway. Proposed amendments to planning laws to enable more exemptions from strict technical standards on building upgrades could help here, too, reducing the relative cost of renovations compared with demolition and new construction.

Public procurement of green buildings is also set to lift demand for used building products, complementing new digital marketplaces for greener materials. Public-sector demand could also accelerate the diffusion of sustainable practices, including the commercialisation of greener materials, such as harvested-wood products, for use in government buildings. However, procurement of sustainably built structures should not be a reason to cut back support for research and development, as this is needed to overcome significant technological obstacles to reducing the carbon-intensity of low-cost building materials. Public procurement should instead be used as a complement to traditional R&D, with practical applications of relatively well-developed technologies helping isolate areas in need of future research (Arrow et al., 2008^[73]).

Trade-offs between affordability and other objectives need to be re-examined

Achieving some environmental policy objectives requires managing trade-offs with housing affordability. Such trade-offs are clear in restrictions on developing natural land, as well as proposals to tighten energy-efficiency requirements for buildings, or mandate increased use of recycled materials. These measures could push up house prices, either by increasing construction costs or constraining the supply of land for development. Some, such as higher carbon prices, affecting emissions-intensive materials including cement, could disproportionately affect low-income households: globally, cement represents a higher share of construction costs for low-cost housing than other types of dwellings (Habert et al., 2020^[70]).

The presence of policy trade-offs (Table 6) strengthens the need for regular evaluation of the costs and benefits of environment-related housing policies, both to assess new policy proposals and to check past reforms are working as intended. Trade-offs might be managed by increasing existing support to first-time homebuyers and vulnerable renters (Start-up loans, BSU saving accounts and housing benefits). A better approach would be to package environment-related policy reforms with measures to improve the flexibility of housing supply. This would moderate house price growth during periods of strong demand, and help offset construction-cost impacts of climate-related housing policies.

Table 6. Managing trade-offs in housing-related policy interventions

Chief gains from housing reforms and main challenges

Selected reform directions	Chief gains	Main challenges
Reduce biases favouring housing in taxation.	Enhances efficiency and fairness of the tax system. Neutralises incentives to invest in owner-occupied and rental dwellings and improves accessibility of homeownership in the long run.	Political economy of tax reform in a country with a high homeownership rate. Need for gradual phase-in period to limit short-term increase in housing costs and market instability.
Reduce minimum lease durations for rentals.	Encourages supply of rental dwellings in job-rich cities. Improves employment opportunities for geographically mobile renters.	Perceived risk to lease stability if not coupled with balanced termination rights.
Invest in more social housing in populous cities.	Lifts supply of affordable housing for disadvantaged households. Addresses social-housing shortages.	Need to avoid segregation and ensure appropriate health and social services for housing support recipients.

Selected reform directions	Chief gains	Main challenges
Relax national restrictions on land use.	Frees-up land for new housing supply in areas close to existing settlements. Improves housing affordability.	Potential for sprawl and associated environmental harms if governance is lax.
Reduce urban density restrictions.	Greater supply of compact, energy-efficient housing in job-rich areas. Improves affordability.	Increased strain on local infrastructure. Challenges of balancing multiple policy objectives in urban planning.
Reduce time and cost of planning and zoning, including by reducing governance overlap across public bodies.	Enhances responsiveness of housing supply. Improves affordability.	Implementation requires effective cooperation between municipalities, regions and central government. Potential opposition from homeowners in currently highly regulated areas.
Promote building material reuse.	Reduces the environmental impact of housing.	Risk of construction-cost increases.

Table 7. Policy recommendations from this working paper

MAIN POLICY FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Improving the efficiency and fairness of taxes on housing assets	
Favourable tax treatment of owner-occupied dwellings diverts resources from more productive investments and props up high dwelling prices. Reform of the tax treatment of imputed rents, capital gains and housing wealth would in time improve housing affordability, reduce inequality, and enhance tax-system efficiency.	Gradually phase in imputed rents to owner-occupied dwellings in income tax or gradually phase out mortgage-interest deductibility. Introduce tax on capital gains from sales of owner-occupied dwellings, eliminating exemptions based on periods of ownership and occupancy. Reduce disparities in wealth-tax discount rates applied to owner-occupied homes and other assets. Consider reducing labour income tax on low-income households, as a broad means of addressing housing affordability and other cost-of-living issues. Lower the rate of document tax (stamp duty).
Recent reductions of ceilings on property tax rates deprive municipalities of an efficient means to raise revenue to fund local services. Deductions intended for owners of lower-cost homes can unintentionally benefit well-off multiple-property owners.	Reverse recent changes lowering national statutory ceilings on municipal property tax and consider restricting municipalities' right to set tax-free thresholds.
Enhancing the performance of rental markets	
Tax concessions for landlords leasing out parts of their primary dwellings encourage informal leases, likely at the expense of bigger formal rental markets and more stable tenancies.	Remove income-tax concessions for owner-occupiers renting out parts of their primary residences or second dwellings.
Long minimum lease durations discourage the development of deep rental markets that would improve options for renters.	Reduce minimum lease durations on fixed-term tenancy agreements to 6-12 months while clarifying landlords' termination rights.
Improving housing affordability for low-income households	
Homeless rates are low and temporary-housing facilities adequately serve those in acute need of support. But social housing shortages have emerged in high-cost cities. There is likely scope to expand means-tested housing allowances while still targeting low-income households, without driving up rents. Inadequate targeting of subsidised mortgages can, in contrast, benefit homebuyers that are not disadvantaged.	Increase loans for building social rental housing, particularly in cities such as Oslo with currently constrained supply. Consider the possibility of further expanding incentives for provision of social housing through limited-profit housing associations. Review eligibility thresholds for means-tested housing allowances for disadvantaged renters. Tighten eligibility for Start-up loans to better target disadvantaged households.
Local authorities make efforts to limit segregation of social-housing support recipients. However, municipalities retain a high degree of autonomy in the provision of associated housing-support services, which differ by area.	Follow through with plans to clarify municipalities' responsibilities with respect to social-housing planning, including the provision of health and social services to recipients of social-housing support.

MAIN POLICY FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Making private housing supply more responsive	
Statutory protection of arable and natural land limits housing supply in areas suitable for development. These laws can obstruct benign residential projects that would help make housing more affordable.	Ease national restrictions on land use. Regularly review the proportionality of statutory limits on development of coastal and natural areas.
Building height restrictions and strict local rules on the size and number of small apartments in inner-city areas undercut national strategies to densify neighbourhoods well-served with public transport. The same rules help to price lower-income households out of high-wage, high-productivity cities.	Allow more small apartments in inner-city neighbourhoods. Relax municipal limits on building heights in urban areas. Trial increased use of waivers of local rules limiting the size and number of small apartments (while maintaining compliance with national building standards).
Recent national building-code changes have sensibly relaxed overly prescriptive requirements around accessibility and building quality.	Continue to move towards proportionate national standards around building access, position and plot utilisation rates. Assign more priority to construction-cost considerations in assessing future building-code changes, including mandatory quality improvements.
Uncertainty and delays in zoning approval processes impede housing supply. Government agencies often object to municipally-approved plans for grounds not covered in planning laws. There are inconsistencies across regions in the effectiveness of Regional Planning Forums.	Bolster County-led screening of objections and clarify grounds for objecting to zoning plans. Improve the management and resourcing of Regional Planning Forums. Reduce governance overlaps across government bodies.
Co-financing of public infrastructure for new developments forces developers to internalise burdens on roads and utilities. Without oversight, however, abuses occur, with municipalities requesting disproportionate contributions that discourage supply.	Follow through with proposals to facilitate appeals of disproportionate payment obligations under development agreements requiring private provision of local infrastructure.
Comprehensive zoning processes, including impact assessments, can be excessive for small residential construction projects.	Enable streamlined approval processes for small urban-infill projects.
Planning laws rightly cap time for local review of development applications. But errors in applications take additional time to resolve, adding to developers' costs and delaying construction.	Continue to standardise digital planning application processes across municipalities.
Reducing the environmental impact of housing	
CO ₂ emissions from using dwellings are low, reflecting carbon-free energy supply. Financial incentives and regulations have helped improve energy efficiency and phased out fossil-fuel heating. There remains scope to reduce emissions from production of building materials. A longer-term EU ambition is to reduce allocations of free allowances to steel and cement manufacturers in the ETS.	Push ahead with proposals to remove regulatory impediments to increased use of second-hand building materials. Follow through with proposals to expand case-specific waivers of building-code rules requiring major quality upgrades for renovated buildings, to encourage higher rates of maintenance and longer building lives.

References

- Alpanda, S. and S. Zubairy (2016), "Housing and Tax Policy", *Journal of Money, Credit and Banking*, Vol. 48/2-3, pp. 485-512, <https://doi.org/10.1111/jmcb.12307>. [18]
- Arrow, K. et al. (2008), "A Statement on the Appropriate Role for Research and Development in Climate Policy", *SSRN Electronic Journal*, <https://doi.org/10.2139/ssrn.1313827>. [73]
- Asplan Viak and Agenda (2012), *Innsigelsesinstituttets påvirkning på lokalt selvstyre*. [63]
- Bø, E. (2019), "Taxation of Housing: Killing Several Birds with One Stone", *Review of Income and Wealth*, Vol. 66/3, pp. 534-557, <https://doi.org/10.1111/roiw.12423>. [15]
- Caldera Sánchez, A. and D. Andrews (2011), "To Move or not to Move: What Drives Residential Mobility Rates in the OECD?", *OECD Economics Department Working Papers*, No. 846, OECD Publishing, Paris, <https://dx.doi.org/10.1787/5kqhtc7kzx21-en>. [28]
- California Legislature (2021), *SB-10 Planning and zoning: California Legislative Information*. [57]
- California Legislature (2021), *SB-9 Housing development: California Legislative Information*, https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB9 (accessed on 29 October 2021). [56]
- Cavalleri, M., B. Cournède and E. Özsöğüt (2019), "How responsive are housing markets in the OECD? National level estimates", *OECD Economics Department Working Papers*, No. 1589, OECD Publishing, Paris, <https://dx.doi.org/10.1787/4777e29a-en>. [48]
- Coleman, A. and Ö. Karagedikli (2018), "Residential construction and population growth in New Zealand: 1996-2016", *Reserve Bank of New Zealand Discussion Paper Series DP2018/02*, https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Discussion%20papers/2018/dp18-02.pdf?revision=674c0a80-0353-4808-a10e-5b27dc633da3&cf_chl_jschl_tk_=pmd_zSzeh_ghExCMYs0H7AYvZ3MS5mhbfXXsqbz2htTsVuQ-1635509268-0-ggNtZGzNAuWjcnBszQdl. [54]
- Dokka, Å. (2018), *Half of young homebuyers get parental help*, <https://www.ssb.no/bygg-bolig-og-eiendom/artikler-og-publikasjoner/halvparten-av-unge-boligkjopere-far-foreldrehjelp>. [4]
- Eggum, T. and E. Røed Larsen (2021), "Is the housing market an inequality generator?", *Housing Lab Working Paper Series 2*, pp. 1-41, https://housinglab.oslomet.no/wp-content/uploads/2021/06/HLWP2021_2_new.pdf. [8]
- Eiendom Norge and Eiendomsverdi (2021), *Sykepleierindeksen H1 2021*, <https://eiendommnorge.no/aktuelt/blogg/sykepleierindeksen-h1-2021> (accessed on 4 October 2021). [38]
- Ekhaugen, T. et al. (2017), *From housing support to program work: An evaluation of the state's social housing instruments*, <https://www.regjeringen.no/contentassets/bbc4e19a887c4723b87958238953de57/fra-bostotte-til-programarbeid---en-evaluering-av-statens-boligsosiale-virkemidler.pdf>. [40]

- ElFayoumi, K. et al. (2021), "Affordable Rental Housing: Making It Part of Europe's Recovery", *IMF Departmental Paper* No 2021/013, <https://www.imf.org/en/Publications/Departmental-Papers-Policy-Papers/Issues/2021/05/24/Affordable-Rental-Housing-Making-It-Part-of-Europes-Recovery-50116>. [35]
- Enova (2021), *Annual Report 2020*, https://www.enova.no/download?objectPath=/upload_images/F00FA2198797415D9B8FBC7F46F68E2B.pdf. [67]
- Eriksen, M. and A. Ross (2015), "Housing Vouchers and the Price of Rental Housing", *American Economic Journal: Economic Policy*, Vol. 7/3, pp. 154-176, <https://doi.org/10.1257/pol.20130064>. [42]
- European Commission (2020), *Questions and Answers: A New Circular Economy Action Plan for a Cleaner and More Competitive Europe*. [72]
- Eurostat (2017), *Technical manual on owner-occupied housing and house price indices*, <https://ec.europa.eu/eurostat/documents/7590317/0/Technical-Manual-OOH-HPI-2017/>. [25]
- Floetotto, M., M. Kirker and J. Stroebel (2016), "Government intervention in the housing market: Who wins, who loses?", *Journal of Monetary Economics*, Vol. 80, pp. 106-123, <https://doi.org/10.1016/j.jmoneco.2016.04.005>. [19]
- Glaeser, E. (2011), "Rethinking the Federal Bias Toward Homeownership", *Cityscape: A Journal of Policy Development and Research*, Vol. 13/2, pp. 5-37, <https://www.hks.harvard.edu/publications/rethinking-federal-bias-toward-homeownership#citation>. [13]
- Glaeser, E. and J. Gyourko (2018), "The Economic Implications of Housing Supply", *Journal of Economic Perspectives*, Vol. 32/1, pp. 3-30, <https://doi.org/10.1257/jep.32.1.3>. [59]
- Goodman, L. and C. Mayer (2018), "Homeownership and the American Dream", *Journal of Economic Perspectives*, Vol. 32/1, pp. 31-58, <https://doi.org/10.1257/jep.32.1.31>. [14]
- Gyourko, J. and R. Molloy (2014), *Regulation and Housing Supply*, National Bureau of Economic Research, Cambridge, MA, <https://doi.org/10.3386/w20536>. [61]
- Haandrikman, K. et al. (2021), "Socio-economic segregation in European cities. A comparative study of Brussels, Copenhagen, Amsterdam, Oslo and Stockholm", *Urban Geography*, pp. 1-36, <https://doi.org/10.1080/02723638.2021.1959778>. [45]
- Habert, G. et al. (2020), "Environmental impacts and decarbonization strategies in the cement and concrete industries", *Nature Reviews Earth & Environment*, Vol. 1/11, pp. 559-573, <https://doi.org/10.1038/s43017-020-0093-3>. [70]
- Housing Lab (2021), *Bubble Index*, <https://housinglab.oslomet.no/bubble-index/> (accessed on 8 October 2021). [10]
- Housing Lab (2021), *Norwegian Housing Market Watch*, Oslo Metropolitan University, https://housinglab.oslomet.no/wp-content/uploads/2021/03/NHMW2021_Final_230221.pdf. [1]
- Husbanken (2021), *Annual Report 2020*, [http://file:///C:/Users/conigrave_b/Downloads/Husbankens%20rsrapport%202020%20\(7\).pdf](http://file:///C:/Users/conigrave_b/Downloads/Husbankens%20rsrapport%202020%20(7).pdf). [39]

- IEA (2017), *Energy Policies of IEA Countries: Norway 2017 Review*. [68]
- IMF (2020), *Norway: Financial Sector Assessment Program-Technical Note-Risk Analysis and Stress Testing*, International Monetary Fund (IMF), <https://doi.org/10.5089/9781513560755.002>. [3]
- Jedwab, R., J. Barr and J. Brueckner (2020), "Cities Without Skylines: Worldwide Building-Height Gaps and their Possible Determinants and Implications", *CESifo Working Paper No. 8511*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3682010. [50]
- KMD (2021), *Alle trenger et trygt hjem - Nasjonal strategi for den sosiale boligpolitikken (2021-2024)*, <https://www.regjeringen.no/contentassets/c2d6de6c12d5484495d4ddeb7d103ad5/oppdatert-versjon-alle-trenger-en-nytt-hjem.pdf> (accessed on 4 October 2021). [9]
- Lindquist, K. et al. (2021), "The housing market in the pandemic year 2020", *Norges Bank Staff Memo 6/2021*, pp. 1-22, https://www.norges-bank.no/contentassets/2d89852082084e2a8bd27f5d880b5fcb/sm_staff-memo-6_21---the-housing-market-in-the-pandemic-year-2020.pdf?v=06/29/2021152529&ft=.pdf. [6]
- Metcalf, B. et al. (2021), *Will Allowing Duplexes and Lot Splits on Parcels Zoned for Single-Family Create New Homes? Assessing the Viability of New Housing Supply Under California's Senate Bill 9*, <https://turnercenter.berkeley.edu/wp-content/uploads/2021/07/SB-9-Brief-July-2021-Final.pdf>. [58]
- Millar-Powell, B. et al. (2022), "Measuring effective taxation of housing: Building the foundations for policy reform", *OECD Taxation Working Papers*, No. 56, OECD Publishing, Paris, <https://dx.doi.org/10.1787/0a7e36f2-en>. [23]
- Mirrlees, J. et al. (2011), *Tax by design*, Oxford University Press, <https://ifs.org.uk/publications/5353>. [33]
- National Competition Authority (2018), *Competition in the housing developer market in Norway*, https://konkurransetilsynet.no/wp-content/uploads/2018/08/rapport_-_konkurransen_i_boligutviklermarkedet.pdf. [64]
- New Zealand Government (2021), *Releases: Beehive.govt.nz*, <https://www.beehive.govt.nz/release/red-tape-cut-boost-housing-supply> (accessed on 29 October 2021). [53]
- NIBR (2015), *Indirect market effects of social housing instruments - empirical analyses*, https://www.regjeringen.no/contentassets/3212bf5975834a95a716a926b0349c39/nibr_rapport_2015_12.pdf. [41]
- Norwegian Ministry of Education and Research (2020), *Living conditions in cities — Good communities for all*, <https://www.regjeringen.no/no/dokumenter/nou-2020-16/id2798280/?ch=3#kap3>. [46]
- Norwegian Ministry of Finance (2021), *Consultation - New valuation system for holiday homes*, <https://www.regjeringen.no/no/dokumenter/horing-nytt-verdsettelsessystem-for-fritidsboliger/id2874614/?expand=horningsbrev> (accessed on 7 December 2021). [26]
- Norwegian Ministry of Finance (2020), *Taxes 2021 - Proposition to the Storting (bill and draft resolution) for the fiscal year 2021*. [21]

- NOU (2021), *Norway towards 2025*, <https://www.regjeringen.no/en/dokumenter/nou-2021-4/id2841052/>. [32]
- NOU (2015), *Productivity – basis for growth and welfare - Productivity Commission's first report*, <https://www.regjeringen.no/no/dokumenter/nou-2015-1/id2395258/>. [60]
- NOU (2014), *Kapitalbeskatning i en internasjonal økonomi*. [31]
- NOU (2003), *Skatteutvalget: Forslag til endringer i skattesystemet*, <https://www.regjeringen.no/no/dokumenter/nou-2003-9/id381734/>. [30]
- OECD (2022), *OECD Economic Surveys: Norway 2022*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/df7b87ab-en>. [11]
- OECD (2021), *Brick by Brick: Building Better Housing Policies*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/b453b043-en>. [12]
- OECD (2021), *Inheritance Taxation in OECD Countries*, OECD Tax Policy Studies, No. 28, OECD Publishing, Paris, <https://dx.doi.org/10.1787/e2879a7d-en>. [22]
- OECD (2021), *OECD Economic Surveys: Austria 2021*, <https://doi.org/10.1787/eaf9ec79-en>. [43]
- OECD (2021), *OECD Economic Surveys: Netherlands 2021*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/dd476bd3-en>. [27]
- OECD (2020), "Social housing: A key part of past and future housing policy", *Employment, Labour and Social Affairs Policy Briefs*, <https://www.oecd.org/social/social-housing-policy-brief-2020.pdf>. [44]
- OECD (2019), *OECD Economic Surveys: New Zealand 2019*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/b0b94dbd-en>. [55]
- OECD (2018), *Rethinking Urban Sprawl: Moving Towards Sustainable Cities*, OECD Publishing, Paris, <https://dx.doi.org/10.1787/9789264189881-en>. [66]
- OECD (2016), *OECD Economic Surveys: Norway 2016*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-nor-2016-en. [49]
- OECD (2012), *OECD Economic Surveys: Norway 2012*, OECD Publishing, Paris, https://dx.doi.org/10.1787/eco_surveys-nor-2012-en. [29]
- Office of the Auditor General (2018), *The Office of the Auditor General's Investigation of Processing of Objections in Planning Matters*, https://www.riksrevisjonen.no/globalassets/rapporter/no-2018-2019/innsigelser_plansaker.pdf. [65]
- Ogbamichael, T. (2017), *Statistics Norway*, <https://www.ssb.no/priser-og-prisindekser/artikler-og-publikasjoner/hva-vet-vi-om-leiemarkedet-i-norge>. [36]
- Olsen, Ø. (ed.) (2021), *June 2021 Monetary Policy Report With Financial Stability Assessment*, https://www.norges-bank.no/contentassets/384c8a9c3c594c0db87b8f601034ee6a/mpr_221.pdf?v=06/30/2021144545&ft=.pdf. [2]

- Oslo Economics (2021), *Det norske leiemarkedet og situasjonen for langtidsleietakere: Rapport utarbeidet for Husbanken*, Husbanken, <http://biblioteket.husbanken.no/arkiv/dok/Komp/Det%20norske%20leiemarkedet%20og%20situasjonen%20for%20langtidsleietakere%20.pdf> (accessed on 4 October 2021). [34]
- Oslo Municipality (2021), *Boligmengden*, <https://www.oslo.kommune.no/statistikk/boliger-byggevirksomhet-arbeids-og-naringsliv/boligmengde/#gref> (accessed on 6 December 2021). [52]
- Oslo Municipality (2015), *Oslo towards 2030: Municipal Plan 2015*, <https://www.oslo.kommune.no/getfile.php/1374702-1599727170/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Politikk/Kommunep lan/Tidligere%20kommuneplandokumenter/Kommuneplan%202015%2C%20del%202%3A%20Juridisk%20arealdel.pdf>. [51]
- Pauliuk, S. et al. (2021), “Global scenarios of resource and emission savings from material efficiency in residential buildings and cars”, *Nature Communications*, Vol. 12/1, <https://doi.org/10.1038/s41467-021-25300-4>. [71]
- Quigley, J. and S. Raphael (2004), “Is Housing Unaffordable? Why Isn’t It More Affordable?”, *Journal of Economic Perspectives*, Vol. 18/1, pp. 191-214, <https://doi.org/10.1257/089533004773563494>. [37]
- Revol, M. (2019), *Statistics Norway Analysis 2019/23: Young People In The Housing Market*, <https://www.ssb.no/bygg-bolig-og-eiendom/artikler-og-publikasjoner/faerre-unge-kjoer-bolig>. [5]
- Samfunnsøkonomisk analyse AS (2021), *Boligbyggingen fra 2000-2020 i et historisk perspektiv*, <https://www.regjeringen.no/contentassets/b4821864e02647839e12881a335d0700/notat-2-2021-boligbygging-i-et-historisk-perspektiv.pdf>. [62]
- Sandlie, H. and L. Gulbrandsen (2017), “The Social Homeownership Model – the Case of Norway”, *Critical Housing Analysis*, Vol. 4/1, pp. 52-60, <https://doi.org/10.13060/23362839.2017.4.1.324>. [7]
- Shoven, J. and J. Whalley (eds.) (1992), *Taxation and Housing Markets*, University of Chicago Press, <https://www.nber.org/system/files/chapters/c7486/c7486>. [20]
- SINTEF (2020), *Reduserte klimagassutslipp og overgang til lavutslippssamfunn gjennom strategier for sirkulær økonomi*. [69]
- Sommer, K. and P. Sullivan (2018), “Implications of US Tax Policy for House Prices, Rents, and Homeownership”, *American Economic Review*, Vol. 108/2, pp. 241-274, <https://doi.org/10.1257/aer.20141751>. [17]
- Tackle, M. and P. City (2019), “Modell for beregning av boligformue: Oppdatert med tall for 2018”, *Statistics Norway Working Paper 10*, <http://hdl.handle.net/11250/2598467>. [24]
- Thomas, A. (2021), “Reforming the taxation of housing in Israel”, *OECD Taxation Working Papers*, No. 53, OECD Publishing, Paris, <https://dx.doi.org/10.1787/83fd48ad-en>. [16]
- Thorsen, L. (2017), *Vanskeligstilte på boligmarkedet: Hvordan måle og hvem er utsatt på boligmarkedet?*, Statistics Norway, <https://www.ssb.no/forside/attachment/302752?ts=15b3883f218>. [47]

