OECD Economic Surveys
AUSTRIA

JULY 2024



OECD

OECD Economic Surveys: Austria 2024



This document, as well as any data and 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.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Note by the Republic of Türkiye
The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".

Note by all the European Union Member States of the OECD and the European Union
The Republic of Cyprus is recognised by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Please cite this publication as:
OECD (2024), *OECD Economic Surveys: Austria 2024*, OECD Publishing, Paris, https://doi.org/10.1787/60ea1561-en.

ISBN 978-92-64-34200-2 (print)
ISBN 978-92-64-68427-0 (PDF)
ISBN 978-92-64-40083-2 (HTML)
ISBN 978-92-64-74546-9 (epub)

OECD Economic Surveys
ISSN 0376-6438 (print)
ISSN 1609-7513 (online)

OECD Economic Surveys: Austria
ISSN 1995-3127 (print)
ISSN 1999-0189 (online)

Photo credits: Cover © Pajor Pawel/Shutterstock.com. Foreword © Vadym Lavra/Shutterstock.com. Executive summary © porcelaniq/Shutterstock.com; © Diachuk Vasyl/Shutterstock.com.

Corrigenda to OECD publications may be found on line at: www.oecd.org/about/publishing/corrigenda.htm.

© OECD 2024

Attribution 4.0 International (CC BY 4.0)
This work is made available under the Creative Commons Attribution 4.0 International licence. By using this work, you accept to be bound by the terms of this licence (https://creativecommons.org/licenses/by/4.0/).
Attribution – you must cite the work.
Translations – you must cite the original work, identify changes to the original and add the following text: *In the event of any discrepancy between the original work and the translation, only the text of original work should be considered valid.*
Adaptations – you must cite the original work and add the following text: *This is an adaptation of an original work by the OECD. The opinions expressed and arguments employed in this adaptation should not be reported as representing the official views of the OECD or of its Member countries.*
Third-party material – the licence does not apply to third-party material in the work. If using such material, you are responsible for obtaining permission from the third party and for any claims of infringement.
You must not use the OECD logo, visual identity or cover image without express permission or suggest the OECD endorses your use of the work.
Any dispute arising under this licence shall be settled by arbitration in accordance with the Permanent Court of Arbitration (PCA) Arbitration Rules 2012. The seat of arbitration shall be Paris (France). The number of arbitrators shall be one.

Foreword

This Survey is published on the responsibility of the Economic and Development Review Committee of the OECD, which is charged with the examination of the economic situation of member countries.

The economic situation and policies of Austria were reviewed by the Committee on 5 March 2024. The draft report was then revised in light of the discussions and given final approval as the agreed report of the whole Committee on 16 April 2024.

The Secretariat's draft report was prepared for the Committee by Gabriel Machlica, Sébastien Turban, and Gizem Gergin, under the supervision of Philip Hemmings. Statistical research assistance was provided by Eun Jung Kim and editorial assistance by Michelle Ortiz. Other valuable inputs and comments were received from the OECD's Centre for Tax Policy and Administration, the Directorate for Science, Technology and Innovation, the Environment Directorate, the Directorate for Public Governance, the Trade and Agriculture Directorate and the OECD's Centre on Well-being, Inclusion, Sustainability and Equal Opportunity.The previous Survey of Austria was issued in December 2021.

Information about the latest as well as previous Surveys and more details about how Surveys are prepared is available at www.oecd.org/eco/surveys



Table of contents

Foreword 3

Executive Summary 9

1 Adapting the economy for future challenges 15

2 Improving public finances as economic growth picks up 20
The economy contracted in 2023 20
Housing and banking sector risks are contained 28
Austria needs to plan for medium-term fiscal consolidation 29
Greater efforts to contain public expenditure are needed 32
Shifting taxation away from labour towards property taxation would support growth 40
Recommendations 48
References 49

3 Raising productivity to improve living standards 56
Trend productivity growth remains below par 56
Enhancing innovation 59
Promoting transparency in government action 63
References 66

4 Addressing labour market challenges for sustainable and inclusive growth 69
Barriers to economic opportunities persist for particular groups 69
Improving skills to support inclusiveness 73
References 81

5 Achieving a successful green transformation in Austria 85
Austria has set ambitious emission-reduction targets 86
Ensuring good policy on carbon pricing and green investment 89
Ensuring decarbonisation in high-emission sectors of the economy 94
Reducing flood risk, exposure, and vulnerability 122
Recommendations 126
References 128

FIGURES

Figure 1. Inflation is declining but remains high 9
Figure 2. Socio-economic status is a strong predictor of student outcomes 11
Figure 3. Emissions from transport and industrial processes are not declining 12
Figure 1.1. Living standards are higher than in most OECD countries 16
Figure 1.2. Inequalities of opportunity hamper vulnerable groups and women 17
Figure 1.3. Greenhouse gas emissions are relatively low 17

Figure 1.4. Illustrative impact of structural reforms on GDP growth 19
Figure 2.1. Austria's economy shrank in 2023 20
Figure 2.2. Inflation has been declining less rapidly than that in the Euro area as a whole 21
Figure 2.3. Austria's exports are closely linked to European industrial supply chains 22
Figure 2.4. The increase in employment has been driven by part-time jobs 23
Figure 2.5. The historically tight labour market has started to loosen in 2023 23
Figure 2.6. Wages have followed productivity, but their purchasing power has declined 24
Figure 2.7. Interest payments remain low in international comparison 28
Figure 2.8. Crises-related expenditures have had a persistent impact on the fiscal balance 29
Figure 2.9. Ageing will add significant fiscal pressure 30
Figure 2.10. Tobacco and alcohol consumption are high 36
Figure 2.11. Austria's health system is hospital-centric 39
Figure 2.12. Government revenues are high and rely heavily on levies on labour income 41
Figure 2.13. Property taxation in Austria is low, and relies mostly on inefficient transaction taxes 43
Figure 2.14. Housing wealth is concentrated in the top income quintile 44
Figure 2.15. Austria's wealth is highly concentrated and a large share is inherited 46
Figure 2.16. Inheritance is concentrated among the wealthy 46
Figure 3.1. Firm entry and exit rates are low 56
Figure 3.2. There is room to reduce regulation and promote competition 58
Figure 3.3. Austria provides substantial government support for innovation 60
Figure 3.4. Venture capital investment and corporate equity financing could be developed further 62
Figure 3.5. There is room to better combat corruption 64
Figure 4.1. Labour market outcomes are weak for particular groups 70
Figure 4.2. Despite improvements, women still spend significantly fewer hours per week in paid work than men 71
Figure 4.3. Socio-economic status is a strong predictor of school outcomes 74
Figure 4.4. Students who attended preschool education are less likely to become poor performers 75
Figure 4.5. Participation in pre-school among young infants is particularly low 76
Figure 4.6. The gap of exposure to poverty between immigrant and native-born is large 79
Figure 5.1. Austria has set an ambitious net zero target for 2040 86
Figure 5.2. Emissions have decoupled from growth but have not fallen much in transport and industrial processes 87
Figure 5.3. Emissions per capita in Austria are mid-ranking among OECD countries 88
Figure 5.4. Austria's net effective carbon rates are low compared to peer countries 90
Figure 5.5. Austria has a large number of passenger cars relative to its population 95
Figure 5.6. Austria has a dense, and relatively electrified, rail network 97
Figure 5.7. The increase in EV purchases has slowed down, and new cars are more polluting than in other countries 100
Figure 5.8. The relative tax burden on EVs versus ICE small cars is low by international comparison 101
Figure 5.9. Austria has green domestic energy production but imports of fossil fuels are substantial 105
Figure 5.10. Indicators suggest Austria faces relatively large barriers to wind and solar deployment 107
Figure 5.11. Fossil fuels are used in a sizeable share of district heating systems 111
Figure 5.12. Emissions from industrial processes are driven by the production of iron and steel 112
Figure 5.13. Austria's energy consumption per capita in buildings is above-average, even considering climatic factors 116
Figure 5.14. The deployment of heat pumps lags best performers 117
Figure 5.15. A large share of the population is exposed to floods 122

TABLES

Table 1. The economy will gradually pick up 10
Table 2.1. Events that could entail major changes to the outlook 27
Table 2.2. Macroeconomic indicators and projections 27
Table 2.3. Illustrative fiscal impact of recommended reforms 31
Table 2.4. Public social expenditures are high compared to other European countries 32
Table 2.5. An ageing population puts pressure on public finances 34
Table 3.1. Past OECD recommendations on increasing productivity and business dynamism 59
Table 3.2. Recommendations on raising productivity 65

Table 4.1. Past OECD recommendations on improving social and labour market outcomes 73
Table 4.2. Recommendations on inclusiveness 80
Table 5.1. Existing and scheduled measures are not sufficient to achieve Austria's emissions targets 88
Table 5.2. Fiscal incentives for commuting and the use of cars as part of business activities are diverse 98
Table 5.3. Support for the purchase of electric vehicles, 2023 102
Table 5.4. Interconnection needs after 2025 in an "optimal" European grid 108
Table 5.5. Subsidies for switching heating systems 119
Table 5.6. Renovation subsidies applying in 2023 and 2024 120

BOXES

Box 1.1. Recent and upcoming reforms in Austria 18
Box 1.2. Potential impacts on output of economic reforms 19
Box 2.1. Collective wage settlements in Austria and the impact of inflation 26
Box 2.2. Quantifying the impact of selected policy recommendations 31
Box 2.3. Austria's eco-social tax reform 41
Box 2.4. Recent reforms updating cadastral values for recurrent property taxation 45
Box 3.1. Promoting collaboration between business and the research community in Austria 61
Box 4.1. Getting strong teachers to the schools that need them most 78
Box 5.1. Austria's KlimaTicket for public transport 99
Box 5.2. Recent trends in natural gas reserves in Austria 104
Box 5.3. The deployment of large-capacity heat pumps in Sweden and Denmark 110
Box 5.4. Germany's carbon contracts for difference ("Förderprogramm Klimaschutzverträge") 115
Box 5.5. Austria's Catastrophes Fund (*Katastrophenfonds*) 123

Follow OECD Publications on:

https://twitter.com/OECD

https://www.facebook.com/theOECD

https://www.linkedin.com/company/organisation-eco-cooperation-development-organisation-cooperation-developpement-eco/

https://www.youtube.com/user/OECDiLibrary

https://www.oecd.org/newsletters/

This book has...

StatLinks

A service that delivers Excel® files from the printed page!

Look for the StatLink at the bottom of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser or click on the link from the digital version.

BASIC STATISTICS OF AUSTRIA, 2023[1]

(Numbers in parentheses refer to the OECD average)[2]

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million, 2022)	9.0		Population density per km² (2022)	109.6	(39.0)
Under 15 (%, 2022)	14.4	(17.2)	Life expectancy at birth (years, 2022)	81.1	(79.6)
Over 65 (%, 2022)	19.8	(18.0)	Men (2022)	78.8	(77.0)
International migrant stock (% of population, 2019)	19.9	(13.2)	Women (2022)	83.5	(82.4)
Latest 5-year average growth (%)	0.5	(0.4)	Latest general election	September-2019	
ECONOMY					
Gross domestic product (GDP)			Value added shares (%, 2022)		
In current prices (billion USD)	517.5		Agriculture, forestry and fishing	1.5	(2.8)
In current prices (billion EUR)	478.6		Industry including construction	29.1	(28.0)
Latest 5-year average real growth (%)	0.6	(1.6)	Services	69.3	(69.2)
Per capita (thousand USD PPP, 2022, OECD: 2022)[2]	71.0	(56.0)			
GENERAL GOVERNMENT Per cent of GDP					
Expenditure (OECD: 2022)	52.0	(42.9)	Gross financial debt (OECD: 2022)	84.3	(113.3)
Revenue (OECD: 2022)	49.3	(39.6)	Net financial debt (OECD: 2022)	43.5	(67.5)
EXTERNAL ACCOUNTS					
Exchange rate (EUR per USD)	0.92		Main exports (% of total merchandise exports, 2022)		
PPP exchange rate (USA = 1)	0.71		Machinery and electronics	25.5	
In per cent of GDP			Metals	14.9	
Exports of goods and services	59.6	(31.3)	Chemicals	11.8	
Imports of goods and services	56.4	(31.4)	Main imports (% of total merchandise imports, 2022)		
Current account balance	2.7	(-0.1)	Machinery and electronics	21.4	
Net international investment position	16.9		Fuels	12.6	
			Metals	11.8	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (aged 15 and over, %)	58.6	(58.0)	Unemployment rate, Labour Force Survey (aged 15 and over, %)	5.1	(4.8)
Men	63.4	(65.6)	Youth (aged 15-24, %)	10.4	(10.6)
Women	54.0	(50.8)	Long-term unemployed (1 year and over, %, 2022)	1.2	(1.2)
Participation rate (aged 15 and over, %)	61.7	(60.9)	Tertiary educational attainment (aged 25-64, %, 2022)	35.6	(40.7)
Average hours worked per year (OECD: 2022)	1,443	(1,735)	Gross domestic expenditure on R&D (% of GDP, 2021)	3.3	(2.9)
ENVIRONMENT					
Total primary energy supply per capita (toe, 2022)	3.4	(3.8)	CO2 emissions from fuel combustion per capita (tonnes, 2022)	6.2	(7.8)
Renewables (%, 2022)	31.4	(12.0)	Renewable internal freshwater resources per capita (1 000 m³, 2020)	6.2	
Exposure to air pollution (more than 10 g/m³ of PM 2.5, % of population, 2020)	71.5	(56.5)	Municipal waste per capita (tonnes, 2021, OECD: 2022)	0.8	(0.5)
SOCIETY					
Income inequality (Gini coefficient, 2021, OECD: latest available)	0.281	(0.316)	Education outcomes (PISA 2022 score)		
Relative poverty rate (%, 2021, OECD: 2020)	9.8	(11.7)	Reading	480	(476)
Median disposable household income (thousand USD PPP, 2021, OECD: 2020)	37.7	(26.7)	Mathematics	487	(472)
Public and private spending (% of GDP)			Science	491	(485)
Health care (2022)	11.4	(9.2)	Share of women in parliament (%)	41.0	(32.8)
Pensions (2019)	13.7	(9.5)	Net official development assistance (% of GNI)	0.4	(0.4)
Education (% of GNI, 2021)	4.9	(4.4)			

1.The year is indicated in parenthesis if it deviates from the year in the main title of this table. Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 80% of member countries.
2. OECD aggregate refers to weighted average.
Source: Calculations based on data extracted from databases of the following organisations: OECD, International Energy Agency, International Labour Organisation, International Monetary Fund, United Nations, World Bank.



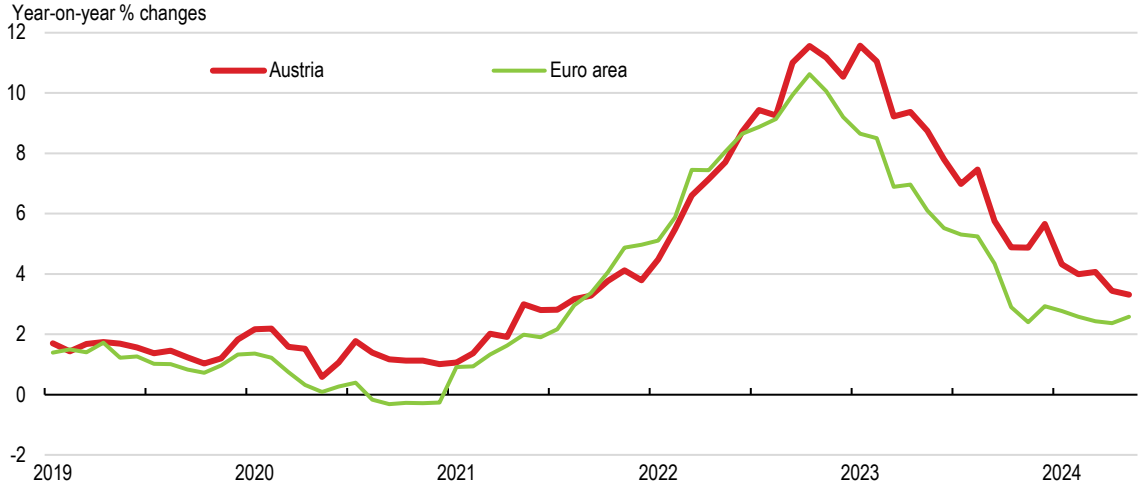
Executive Summary

Growth will recover only slowly from the current downturn

Domestic demand, the main driver of the contraction in 2023, will gradually recover as inflation slows and financial conditions improve. The public deficit declined from its pandemic peak, but remains relatively high.

Figure 1. Inflation is declining but remains high

Headline inflation



Note: Headline inflation refers to the harmonised index for consumer prices.
Source: OECD (2024), OECD Price Statistics; and Eurostat.

StatLink https://stat.link/nc9mog

Economic activity has been decelerating since the second half of 2022, due to weakening domestic demand. Inflation increased significantly (Figure 1) following the surge in energy prices after the outbreak of the war in Ukraine. Real household consumption has been lacklustre due to reduced purchasing power. Tighter financial conditions and labour shortages have hampered investment.

The public finances have improved since the pandemic. Public spending in response to the pandemic led to budget deficits of 8.0% in 2020 and 5.8% in 2021. The public balance has improved since then; and deficits are expected to be slightly below 3% in 2024 and 2025. Moreover, the public debt burden has decreased from its pandemic peak by almost 5 percentage points of GDP and reached 77.8% in 2023. However, this partly reflects high nominal GDP growth due to high inflation.

Output will gradually recover. Economic growth will reach 0.2% in 2024 and 1.5% in 2025, as inflation slows down and interest rates stop increasing. The decline in inflation will be hindered by sticky prices in services. An easing of monetary policy in the Euro area and a global recovery will support growth in 2025.

There are important risks to the outlook. The currently elevated geopolitical tensions bring indirect but sizeable risk to Austria's economy through its role in European manufacturing value chains for globally marketed goods.

Table 1. The economy will gradually pick up

(Annual growth rates, % unless specified)

	2022	2023	2024	2025
Gross domestic product	**4.9**	**-0.7**	**0.2**	**1.5**
Private consumption	5.8	-0.1	0.9	1.9
Government consumption	0.1	-0.1	0.1	0.8
Exports	11.8	0.2	2.6	2.7
Imports	8.1	-2.0	3.5	2.8
Unemployment rate	4.7	5.1	5.5	5.4
Inflation (harmonised CPI)	8.6	7.7	3.7	2.9
Current account balance (% of GDP)	-0.3	2.7	2.3	2.1
General government budget balance (% of GDP)	-3.3	-2.6	-2.8	-2.7

Note: Projections for 2024 and 2025.
Source: OECD (2024), OECD Economic Outlook 115: Statistics and Projections (database).

Medium-term fiscal challenges need to be addressed

Public finances risk embarking on an unsustainable path under the pressure of spending related to climate change, digitalisation, and ageing populations.

The public debt burden is not forecast to decrease significantly in the medium term given expected deficit outcomes. Moreover, expenditure on health, long-term care, and pensions is projected to rise by around 5.8 percentage points of GDP by 2060. Investment needs for the green transition are also substantial and will be mostly borne by the public sector.

Containing spending pressures related to population ageing represents a major challenge for fiscal policy. Keeping the public pension system viable requires that Austrians work longer to alleviate pressures on pension expenditures. In addition, there is room to increase efficiency in health care spending. While Austria's health care system performs relatively well, it is costly and too strongly centred on hospitals.

A lasting reduction in the fiscal deficit requires identifying and addressing inefficiencies in government expenditures. A campaign of public spending reviews is under way, but it has so far only considered activities that account for around 5% of government expenditure. Moreover, the impact of reviews is limited as they are not integrated into the budget process.

A more growth-friendly tax system could help the public finances and boost living standards. A high share of government revenues comes from distortive taxes on labour, including for low-income workers where labour demand is highly responsive to labour costs. Correspondingly, the government relies relatively less on consumption taxation and significantly less on property taxation than other OECD countries.

Structural reforms would improve productivity and business dynamism

As in many other advanced economies, productivity growth has been slowing. Low rates of firm entry and exit compared to other OECD countries point to ample scope to boost market dynamism in support of efficient resource allocation.

There is room to further encourage innovation. Austria provides generous fiscal incentives to support innovation activities, and R&D expenditures as a percentage of GDP are high in international comparison. Nevertheless, innovative activity lags behind best performing countries. One drag is a low take-up of risk capital, including angel funding and formal venture capital. The funding of companies is heavily concentrated on bank loans, while equity financing is low in international comparison.

Weak competition hinders efficient resource reallocation. Product market regulations in Austria are somewhat stricter compared to other OECD countries, indicating room for pro-competitive reforms. In particular, regulatory barriers are relatively high in professional services sectors.

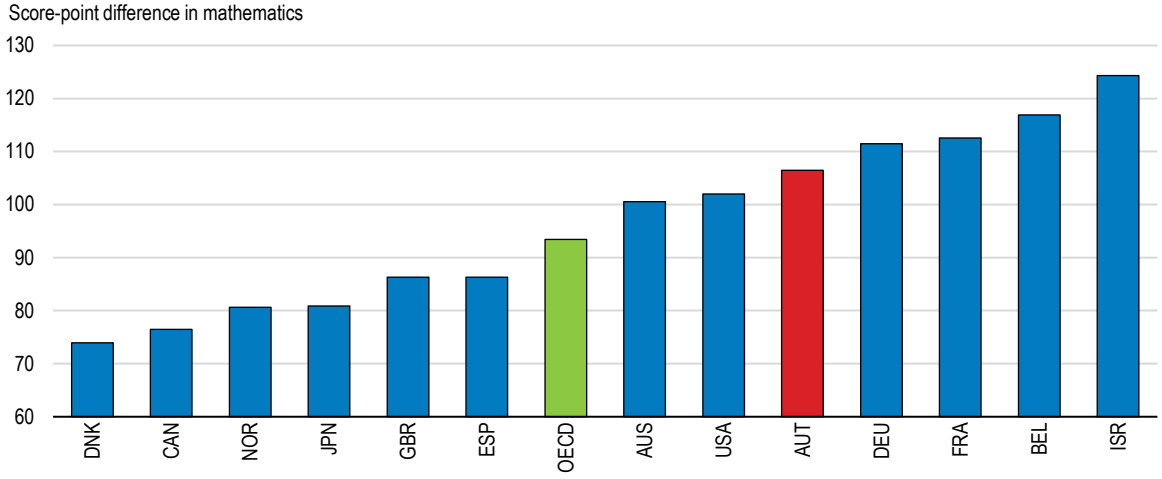
Austria still lags behind top performing countries in digitalisation. There is considerable potential for improvement in fast broadband coverage. Less than 40% of Austrian households have a contracted internet speed of at least 100 Megabytes per second, which is one of the lowest shares in the OECD.

Vulnerable groups face barriers to realise their economic potential

Income inequalities in Austria are relatively low and the poverty rate is well below many other OECD countries. However, vulnerable groups still face inequalities of opportunity in education and the labour market.

Figure 2. Socio-economic status is a strong predictor of student outcomes

Difference in PISA mathematics performance between advantaged and disadvantaged students, 2022



Source: OECD (2023), PISA 2022 Results (Volume I): The State of Learning and Equity in Education.

StatLink https://stat.link/0qbny1

The outcomes of the Austrian school system are generally good, but there is room to strengthen inclusiveness. The difference between advantaged and disadvantaged students (Figure 2) corresponds to more than five years of schooling. Gaps between schools on the basis of pupils' socio-economic status and migrant background are wide. Austria's very early streaming of students is likely fuelling these inequalities.

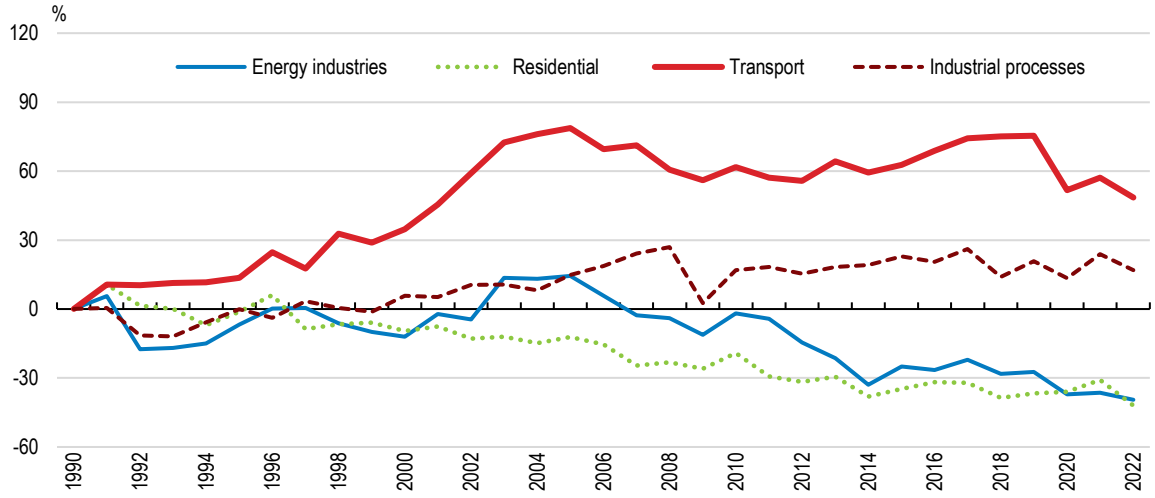
The labour market outcomes of working-age women, migrants and low-skilled are weak. Part-time work is common among women in particular due to childcare obligations. The double burden of work and care obligations affect women more than men. There are comparatively large gender gaps in hours worked and pension income. Employment gaps exist between disadvantaged groups and the rest of the population, including the low-educated and migrants. The poverty rate among migrants is three times higher than the native-born population and is above the OECD average. Language is a substantial barrier to labour market access.

Achieving a successful green transformation

Under current policies, Austria is not on track to reach its ambitious target of eliminating net greenhouse gas emissions by 2040. Domestic energy production is largely decarbonised, but the country relies on substantial energy imports of fossil fuels.

Figure 3. Emissions from transport and industrial processes are not declining

Growth in emissions relative to 1990, by sector



Source: Austrian greenhouse gas emissions from 1990 to 2022, by CRF sector (UNFCCC).

StatLink https://stat.link/kltvqi

Incentives for faster emission abatement should be strengthened. Effective carbon prices in Austria are low relative to leading countries, with a significant share of emissions under-priced. Austria also implicitly supports fossil fuels through tax expenditures. A stronger framework for green investment, with competitive procurement, would help achieve the substantial investment needs.

Transportation, Austria's largest source of greenhouse gas emissions, is characterised by high levels of private car use, alongside a slow transition to low-emission vehicles. Emissions from transport have increased over the last decades (Figure 3). Low population density and significant urban sprawl (coupled with excessive land take) contribute to reliance on road travel dominated by private transport. The tax system still creates incentives for travel by car. The share of electric vehicles (EVs) in new car sales is rising rapidly. However, the average emission rating of new cars is still relatively high, and to date EVs only represent 3% of the total car stock.

Administrative procedures for installing renewable energy production facilities are burdensome and slow down the deployment of renewable energy. Domestic generation is decarbonised but only meets one-third of final consumption. Simplifying procedures and harmonising them across the country, and reducing the cost of expanding the electricity grid, would help speed the transition towards green energy supply.

Steel production accounts for a large share of emissions and is hard to decarbonise given current technologies. Emissions from industrial processes represent more than a fifth of emissions, a larger share than in most OECD countries. Steel production in Austria currently uses relatively emission-intensive technologies. Low-emission options exist but support for further innovation will be required to make them competitive.

Emissions from energy use in buildings are high compared to countries with a similar climate. The high upfront costs of renovations and greening heating systems will require smart fiscal support and transparent standards.

Austria will be vulnerable to increasing flood risk due to climate change. The country is less exposed to other climate-related hazards, but floods are likely to be more frequent, and a large share of the population is exposed. Broadening insurance coverage will be required to reduce households' vulnerability and fiscal pressure.



MAIN FINDINGS	KEY RECOMMENDATIONS
Ensuring fiscal sustainability and making the tax system more growth friendly	
Growth is expected to be below potential in 2024 while monetary policy remains tight. In parallel, the public deficit is only expected to slowly diminish over the next years slightly below 3%, and public debt is at historically high levels.	Maintain a stable public deficit in the short term, while demand is weak and monetary policy is contractionary. Introduce a stronger medium-term plan to reduce the deficit and the debt level as the economy picks up.
Expenditure on health, long-term care and pensions is projected to rise by around 5.8 percentage points of GDP by 2060 based on current policies. Without measures to reduce or offset these costs, the debt-GDP ratio will potentially be on an unsustainable trajectory. Austria spends substantially more than most countries on hospital inpatient care. In contrast, spending on prevention and primary care is lower than the OECD average.	Ensure the long-term sustainability of the pension system, e.g. by linking the retirement age to life expectancy. Strengthen preventive measures for chronic health conditions to reduce health expenditure, continuing a package of measures targeting alcohol and tobacco consumption, including higher taxes. Shift health services away from hospital care by strengthening outpatient care to ensure the long-term fiscal sustainability of the healthcare system.
The scope of spending reviews is narrow, they lack direct integration in the budget process, and transparency is limited.	Implement comprehensive spending reviews and integrate the results in the annual and medium-term budget processes.
Austria taxes property at low levels, mostly through transaction taxes. The labour tax wedge remains high in Austria compared to other OECD countries and is a barrier to higher employment of low-wage employees.	Shift the taxation from labour to other bases, including higher carbon taxation and the recurrent taxation of immovable property. Introduce a regular update of property values.
The increase in imported inflation over the past year has put pressure on the collective bargaining system which uses the average previous-year CPI inflation as a reference.	Consider a measure of core inflation to be used as reference in wage negotiations when the economy normalises.
Improving productivity	
Regulatory barriers in services are among the strictest in the OECD and slow down productivity.	Ease regulation of services, particularly the strict entry requirements into certain professional services.
Public perception of corruption has worsened and trust in the national government is one of the lowest in the OECD.	Encourage more transparency in lobbying, including through more provisions allowing public scrutiny. Strengthen the independence of the Prosecution Office in line with European and international standards on the independence and autonomy of the prosecution.
Addressing inequality in socio-economic outcomes	
Shortages in the supply of high-quality childcare limit women's labour force participation.	Further expand high-quality early childhood education and care services, prioritising disadvantaged families.
Labour market participation by women of child-bearing age remains low, reflecting little shift towards men taking a greater role in childcare. Only around 4% of Austrian fathers take parental leave.	Further strengthen incentives for more balanced use of parental leave between mothers and fathers.
The OECD's PISA shows there are still large differences between students' outcomes in Austria and these are significantly explained by socio–economic status. The gap between advantaged and disadvantaged students corresponds to more than five years of schooling.	Provide more resources to low-achieving schools with greater needs and a large share of disadvantaged students, for instance through "need-based financing". Phase out early tracking, separating students into different streams later in the schooling process.
Decarbonising the economy and adapting to climate change	
Effective carbon prices in Austria are low relative to leading countries, and heterogeneous across sectors. Austria continues to provide support to fossil fuels, mainly through tax expenditures.	Accelerate effective carbon-price increases, in particular in non-ETS sectors. Phase out fossil fuel subsidies, replacing them with targeted support for vulnerable groups, as necessary.
Favourable tax treatments for car-based commuting and for company cars incentivise car use and long distance travel.	Reform the commuter allowance with better social and ecological targeting.
Planning and permitting procedures for renewables installations and the electricity grid can be complex and lengthy.	Designate more renewables projects as of overriding public interest, and define more acceleration areas. Simplify procedures for renewables installation.
Austria's pace of small-scale heat-pump installation is relatively slow. In addition, the speed of building renovation to improve energy efficiency is slow despite a large share of old and poorly insulated buildings.	At the subnational level, gradually set tighter requirements for heat generators in buildings, and identify and expand the set of trigger points for buildings renovation and efficiency requirements.
Recent efforts to provide targeted support to reduce residential emissions focus on the switching of heating systems by low-income homeowners.	Target renovation grants to vulnerable households, and provide on-bill financing instruments for other households and SMEs.
Land take is high relative to other European countries. Flood exposure of population living in built-up areas is high.	Finalise the Soil Strategy, launched in 2021 and which was due to be presented in 2022, to reduce land take based on a quantitative limit.

1 Adapting the economy for future challenges

Austria's economy performed well over the past two decades. The country's GDP per capita ranks among the highest in the OECD (Figure 1.1). Income inequalities are relatively low (Figure 1.2) thanks to high redistribution through public transfers, which contributes to a relative poverty rate well below many other OECD countries. The domestic production of energy has a low carbon content largely due to significant hydropower resources (Figure 1.3).

The economy is set to recover from a recession in 2023, but it will do so only slowly and remains fragile. Output growth was -0.7% in 2023, and is projected to rise gradually to 0.2% in 2024. The inflation shock in the wake of Russia's war of aggression against Ukraine is taking time to subside. Public debt has increased substantially, while the public deficit remains close to 3%.

Greater capacity of the economy to adapt to future shocks and address structural challenges is needed. Austria's business sector is less dynamic compared to other OECD countries, with exceptionally low rates of firm entry and exit. Strict regulations and complex intergovernmental fiscal arrangements dissuade investments, including those needed for the green transformation (Chapter 5). The efficient allocation of resources is also hampered by narrow financing options and low labour mobility. In parallel, social mobility is also low, as educational and labour market outcomes are strongly determined by individuals' socio-economic and cultural background. Finally, Austria's greenhouse gas emissions are still significant as domestic energy consumption relies heavily on imported fossil fuels. Administrative and regulatory constraints threaten the fast deployment of renewables, there is intense use of polluting cars, and a high share of emissions is generated by industrial processes.

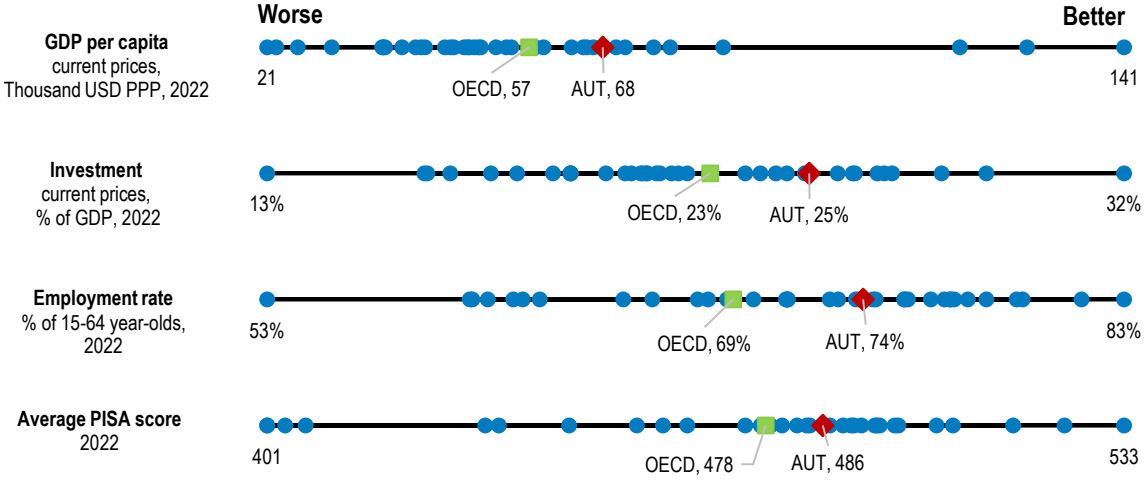
Bolstering the adaptability of the economy would help cope with long term challenges. The Austrian population is ageing fast with a projected decline in the share of the working-age population from around 76% of the total population in 2020 to 69% in 2060. Digitalisation and technological disruptions, as evidenced by the recent progress in artificial intelligence, are already changing labour market needs significantly. Substantial investment will be required to achieve the country's net zero emissions target by 2040, and to adapt to the consequences of a changing climate.

The government already launched a package of structural reforms spurred on by Austria's Recovery and Resilience Plan (RRP) to address these challenges (Box 1.1). Complementary reforms will be needed to sustain high living standards and support the resilience of the economy. In this context, the four key messages of this Economic Survey are:

- Sound public finances and low government debt provide fiscal space and strengthen a country's resilience against short- and long-term shocks. In the short-term, the government should maintain a stable public deficit as long as demand remains weak and uncertainty elevated. When growth picks up, the government should reduce the public deficit to put the public debt on a sustainable path. Pension system reforms and efficiency measures in health care can help to mitigate long-term fiscal pressures. Public revenues need to be more friendly to sustainable and inclusive growth by shifting away from high levies on labour towards less growth-distortive taxes (See Chapter 2).

- Reduce barriers to an efficient allocation of resources towards promising activities and firms. The regulation of services, including strict entry requirements into certain professional services, needs to be eased (see Box 1.2 for the potential impact of such reform on growth). Innovation should be further encouraged, including through the expansion of equity financing (see Chapter 3).
- Create opportunities for vulnerable social groups (Chapter 4). Particularly, reducing the gap in skills for disadvantaged students and improving the integration of immigrants will be essential to provide equal access to the labour market (see Box 1.2). The government should also continue to support higher labour market participation of women and address the gender pay gap through high quality childcare and well-designed parental leave.
- Accelerate the reduction in greenhouse gas emissions. Achieving net zero emissions by 2040 will require a clear and comprehensive strategy including higher and more harmonised carbon prices. Administrative and regulatory constraints, and coordination failures with provinces pose constraints on required investments and need to be tackled. Finally, high exposure to future climate risks, in particular floods, needs to be addressed, and insurance coverage against natural disasters should be expanded (see Chapter 5).

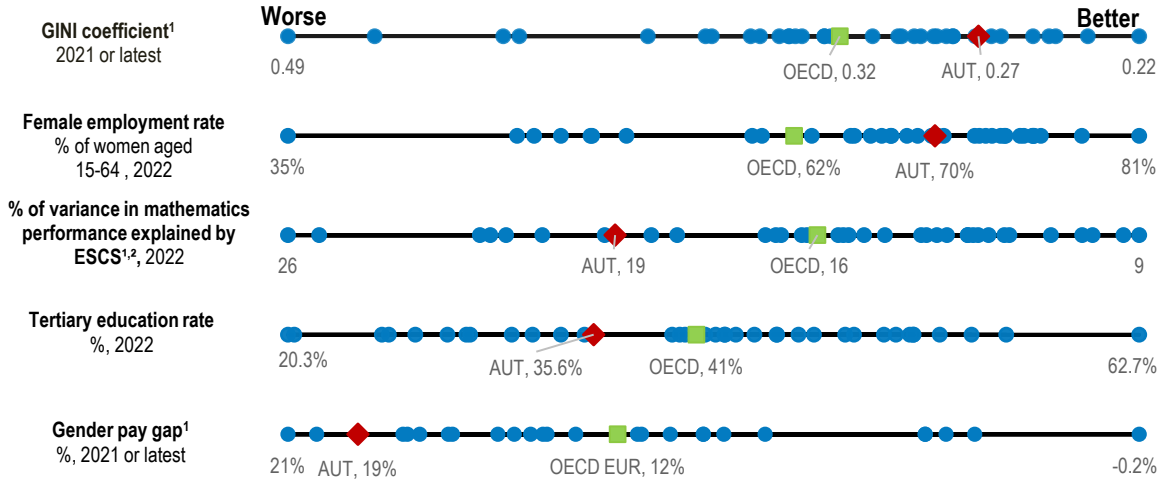
Figure 1.1. Living standards are higher than in most OECD countries



Source: OECD Economic Outlook database; OECD Labour Force Statistics database; and OECD calculations.

StatLink https://stat.link/6sx1c0

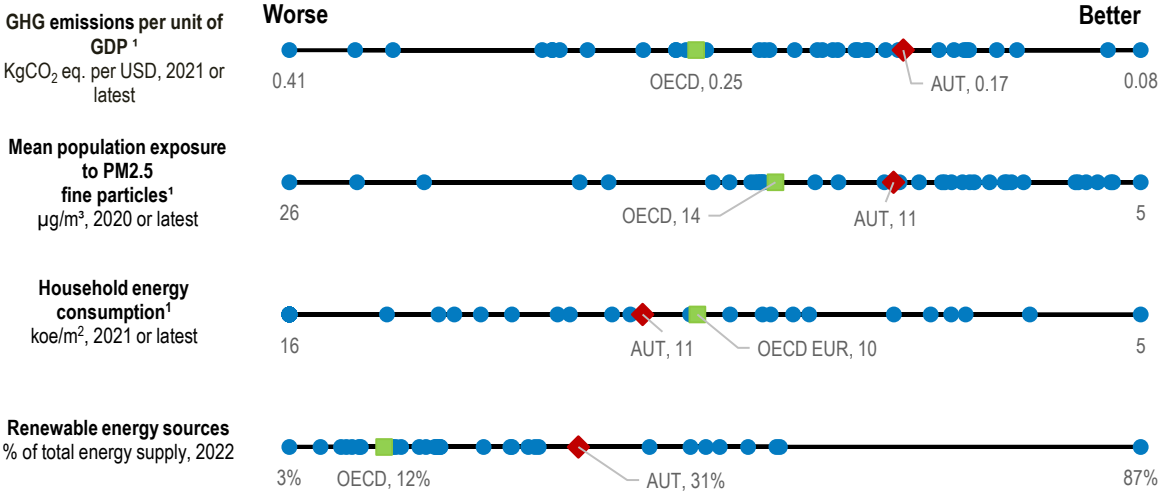
Figure 1.2. Inequalities of opportunity hamper vulnerable groups and women



1. Indicator reversed so that the right side of the scale corresponds to a better outcome.
2. ESCS refers to the PISA index of economic, social and cultural status. This is a composite measure that combines into a single score the financial, social, cultural and human capital resources available to students.
Note: Relative poverty rate is the rate after taxes and transfers with poverty line at 60% median household income. OECD EUR is the unweighted average of OECD European countries.
Source: OECD Income Distribution database; OECD Labour Force Statistics database; OECD PISA 2022 database; OECD Education at a Glance database; Eurostat; and OECD calculations.

StatLink https://stat.link/9plsdq

Figure 1.3. Greenhouse gas emissions are relatively low



1. Indicator reversed so that the right side of the scale corresponds to a better outcome.
Note: Greenhouse gas (GHG) emissions excluding land use, land-use change and forestry (LULUCF) per unit of GDP, measured in 2015 PPP USD, is the GHG intensity. The household energy consumption is the energy consumption per m² of households for space heating scaled to EU average climate. OECD EUR is the unweighted average of OECD European countries.
Source: OECD Green Growth Indicators (database); OECD Environment Statistics (database); IEA World Energy Balances database; and OECD calculations.

StatLink https://stat.link/ey07np

Box 1.1. Recent and upcoming reforms in Austria

Reform momentum has picked up in Austria, spurred on by Austria's Recovery and Resilience Plan (RRP). This box details selected structural reforms that have been completed since the previous Survey or are planned for the next two years.

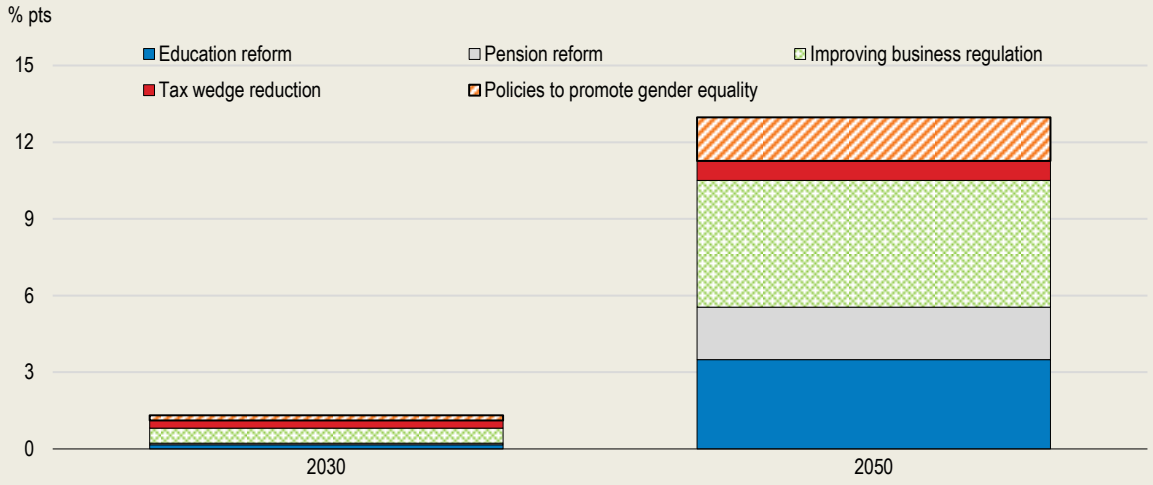
- **Tax policy:** Austria has introduced the eco-social tax reform, which combines a broadening of carbon pricing with tax reductions and other benefits for households and businesses starting in 2022. The reform includes reduction in personal income tax rates and reduction in the corporate income tax rate (Box 2.3). In 2022, the government decided to index income tax brackets to inflation starting in 2023.
- **Health care:** The 2022 Care reform addresses nursing shortages and long-term care, including via salary increases, additional week leaves, and training opportunities. A reform package for 2024-2028 was presented in November 2023 to invest EUR 14 billion for health and long-term care. Its main goals are support for the digitalisation of health services; strengthening the ambulatory sector and increasing the number of positions for primary care physicians; structural reforms in hospitals to facilitate outpatient care; and additional funding for the 2022 reform.
- **Easing regulatory barriers:** 'Once-only' reform was introduced, whereby businesses will only have to report certain data once rather than repeated reporting to different regulatory departments.
- **Parental leave:** Since 2022, a bonus of EUR 500 is paid to parents who claim the childcare allowance in almost equal parts.
- **Support for long-term unemployed:** The "Springboard" programme targeting long-term unemployed was extended in 2022. The programme has been mainly used to provide recruitment incentives, as well as in-work benefits for older people and people with disabilities ('Kombilohn') and supports employment in social enterprises.
- **Deploying renewable energy.** The Renewable Energy Expansion Act, passed in 2021, included several elements to increase renewable electricity generation such as a market premium, investment grants, and regulatory simplifications. The Renewable Heat Act, originally proposed in 2022, aimed to regulate the phaseout of fossil-fuel heating systems and provide financial support for renewable heating systems. In October 2023, the government introduced a revised proposal focused on a ban on the installation of polluting heating systems in new buildings, for both centralised and decentralised heating.
- **Public transport:** In October 2021, Austria introduced a nationwide climate ticket – the "KlimaTicket". It offers almost unlimited public transport use across the country with a single ticket for a full year. The government proposed to make the KlimaTicket free for 18-year-olds in the 2024 budget.
- **Energy efficiency:** The 2023 Energy Efficiency Reform Act fixes a limit on final energy consumption in 2030, achieved through reinforced energy audits and an acceleration in the renovation rate of federal buildings. As part of the RRP, the Renovation Offensive (*Sanierungsoffensive*) provides support for renovations in private residential construction.

Box 1.2. Potential impacts on output of economic reforms

The potential for a substantial growth dividend from reforms is illustrated in Figure 1.4. The figure shows simulated impacts on GDP from a reform package that comprises (i) regulation easing to promote competition in product markets and services; (ii) improving equality of opportunity in the education system; (iii) enhancing fiscal sustainability by linking retirement age to life expectancy; (iv) a reduction in the labour tax wedge and (v) policies that promote gender equality on the labour market. This package has the potential to improve living standards and make the economy more resilient. Simulations based on the OECD Long-Term Model (Guillemette and Turner, 2018[1]) suggest that this ambitious reform package could boost Austria's GDP per capita by almost 13% by 2050.

Figure 1.4. Illustrative impact of structural reforms on GDP growth

Difference from baseline GDP per capita (no policy change) scenario, by policy area



Note:1) Education reform: improving the PISA score to the average of the average of the 10 best OECD countries. 2) Pension reform: linking the retirement age to life expectancy. 3) Improving business regulations: halving the gap in the PMR indicator vis-a-vis the best 5 OECD countries. 4) Tax reform: reducing the tax wedge by 2 p.p. 5) Policies to promote gender equality: reducing the gap in employment rate between men and women (age 25- 54) to the level of the best performing country in the OECD (1.3 p.p) by 2050.
Source: OECD simulations based on OECD Economics Department Long-term Model. Methodological details on the long-run projections can be found in (Guillemette and Turner, 2018[1]).

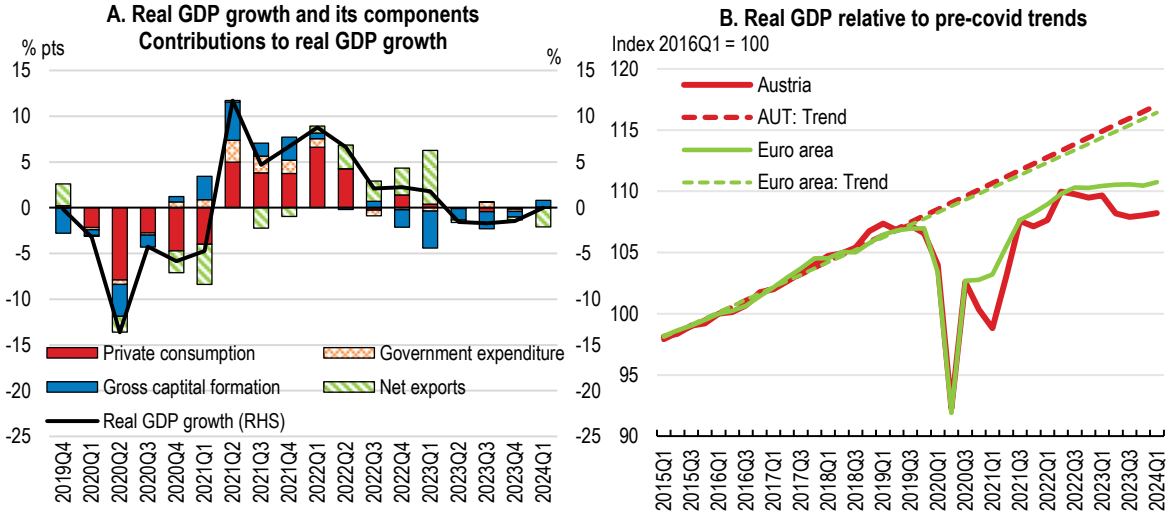
StatLink https://stat.link/lk3x9t

2 Improving public finances as economic growth picks up

The economy contracted in 2023

Fast recovery from the pandemic saw GDP growth reaching 4.2% in 2021 and 4.8% in 2022. However, economic activity has been decelerating since the second half of 2022, following the increase in energy prices after the outbreak of the war in Ukraine. Weakening domestic demand was the main reason behind the downturn (Figure 2.1, Panel A). The slowdown has impacted most areas of the economy, in particular large sectors such as wholesale and retail trade, and manufacturing. While Austria's recovery was similar to the Euro area as a whole before 2023, the economy has since performed less favourably, and the level of output is still below pre-pandemic trends (Figure 2.1, Panel B).

Figure 2.1. Austria's economy shrank in 2023



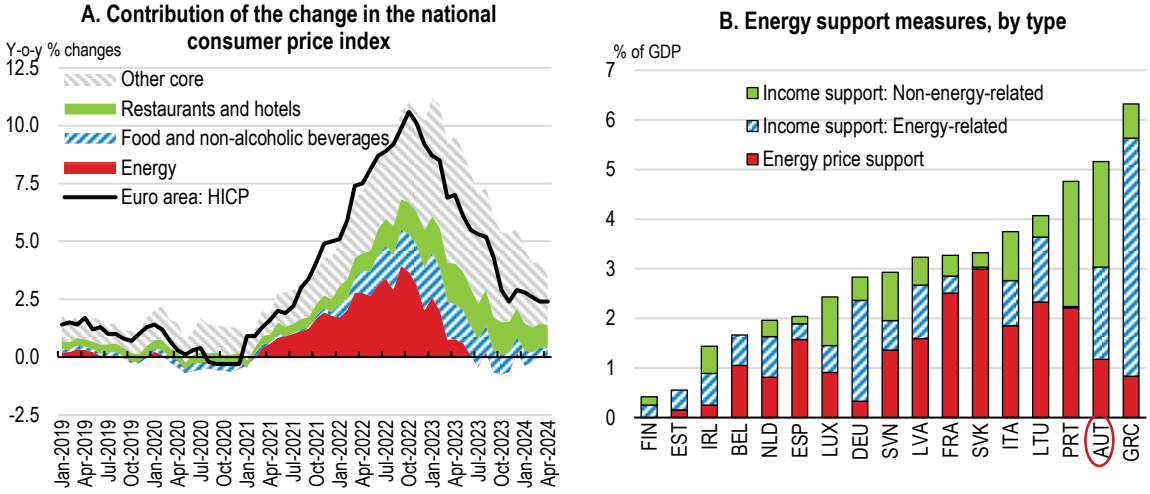
Note: The aggregate of Euro area covers 17 countries of both OECD and Euro area.
Source: OECD (2024), OECD Economic Outlook: Statistics and Projections (database); and Eurostat (2024), National Accounts (ESA2010).

StatLink https://stat.link/ti6zmx

Inflation has increased later, and more, than in many other Euro area countries. Consumer-price inflation reached double-digit levels in the last quarter of 2022. It has since fallen significantly but has spread further into core prices, which are likely to be stickier. Inflation has also declined less rapidly than in the Euro area (Figure 2.2, Panel A). This was driven by two main factors. First, government support in response to higher energy prices has been relatively generous and targeted prices less directly than other European countries,

as it supported businesses and households mostly through income-support measures (Hemmerlé et al. (2023[1]) and Figure 2.2 Panel B). Second, the composition of Austria's economy has contributed to inflation persistence. Higher prices in restaurants and hotels contributed to inflation more than in other countries as they grew faster and their weight in the consumption basket is 50% higher than in the Euro area. In 2023, restaurants and hotels accounted for roughly half of the gap in year-on-year inflation vis-à-vis the Euro area. Finally, the increase in inflation has also been delayed relative to the Euro area because of the slow passthrough of wholesale energy prices to final energy consumption due in particular to long contractual lock-in periods (Moser et al., 2023[2]).

Figure 2.2. Inflation has been declining less rapidly than that in the Euro area as a whole



Note: Energy price support measures directly reduce, regulate or cap energy market prices or reduce energy end-use through reductions in VAT or excise duties. Energy-related income support involve budgetary transfers linked to the level of energy consumption while non-energy-related income support directly increase the disposable income of beneficiaries through budgetary transfers or tax reductions without any link to energy consumption.
Source: OECD (2024), OECD Consumer Prices Indices (database); and OECD (2023), Energy Support Measures Tracker.

StatLink https://stat.link/mpk39r

Domestic demand has been lacklustre

Reflecting rising prices, private consumption growth was subdued in 2023. Private consumption had been the main growth driver in the post-pandemic recovery, supported by real wage growth and government transfers. However, the increase in consumer prices has weakened consumers' purchasing power. Real disposable income decreased slightly by 0.4% in 2023. In particular, growth in the consumption of non-durable goods (mostly food, energy, and medicine) is far below pre-covid trends. Accumulated savings from the pandemic period remain significant and have likely prevented a stronger consumption slowdown.

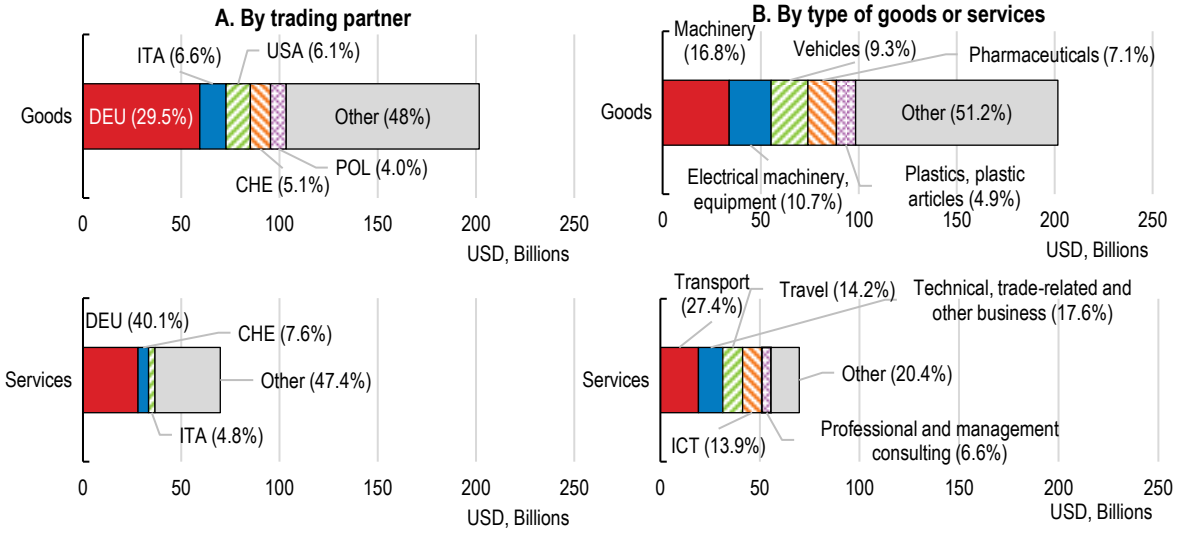
Private investment has been hit by supply-chain constraints and labour shortages, and more recently by weak demand. After the trough of the pandemic, business investment was initially hampered by shortages in materials and equipment arising from supply-chain bottlenecks, and by labour shortages in particular in the service sectors. While these constraints have gradually subsided, firms are now facing a slowdown in demand (Figure 2.5, Panel B). Tighter monetary conditions coupled with prolonged uncertainty have also likely contributed to subdued investment activity. In particular, the demand for housing loans has fallen sharply since the second half of 2022, and housing investment has fallen significantly since then.

Exports weakened at the turn of 2022, but performed better than other Euro area countries. The country gained market share in 2021 and 2022 partly due to a relative fall in export prices driven by a decline in

relative unit labour costs and depreciation of the euro (Bittschi and Meyer, 2023[3]). However, the relative price advantage is now subsiding, as inflation has been higher in Austria than among its trading partners, while external demand among the country's main partners has slowed down. Goods exports, which represented 70% of exports in 2022, have hardly grown since the second half of 2022, although they appear to have picked up recently at the beginning of 2024 in particular for intermediate goods. The subdued goods exports are in line with the lack of growth in Germany over this period, which is the destination of 30% of Austria's exports. Still, Austria's goods exports have performed better than other Euro area countries even in 2023, which could be explained by several factors including a lower relative exposure to China, a specialisation in specific niches of the machinery and vehicle industry, and lower profit margins set by exporters (Oberhofer et al., 2024[4]). In services, the tourism sector has now fully recovered. The 2022-2023 winter season was the third best season for tourism in terms of overnight stays and the 2023 summer season broke its 2019 record (Stefan Schiman-Vukan and Ederer, 2023[5]; Sebbesen et al., 2023[6]). Freight transport, which represents another quarter of services exports, recovered to pre-covid levels in 2021. Nevertheless, services exports have also flatlined since the second half of 2022. Overall, in 2023, real exports only grew by 0.3% compared to the previous year.

Figure 2.3. Austria's exports are closely linked to European industrial supply chains

Share of exports on goods and services, by type and trading partner, 2021



Note: Data on merchandise exports based on the two-digit Harmonized System 2017.
Source: OECD (2023), OECD International Trade by Commodity Statistics (database); and OECD Balance of Payment Statistics: EBOPS 2010 - Trade in services by partner economy (database).

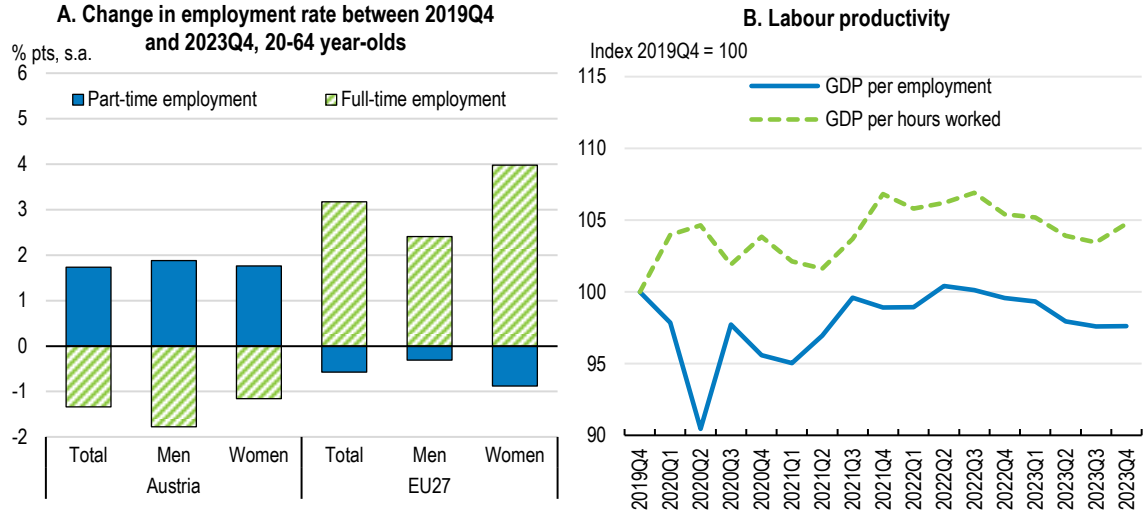
StatLink https://stat.link/pkecv6

Labour demand is easing amid rising wage pressures

The labour market has remained strong despite the slowing economy. The unemployment rate had steadily declined in 2021 during the post-pandemic recovery, reaching a historic low below 4.5% in early 2022. This was echoed in labour force participation and employment rates gradually increasing above pre-covid levels. In parallel, the job vacancy rate jumped to record high levels (Figure 2.5, Panel A). Shortages of workers became the strongest constraint on business activity, particularly in services but also for industrial companies (Figure 2.5, Panel B). Even as the economy has started to weaken since the second half of 2022, the employment rate has remained relatively strong. This phenomenon, which is also observed in other European countries, can be partly explained by labour hoarding by companies. In addition, while the employment rate has held up, the number of hours worked per worker has decreased and is 5% below pre-covid trends, while it has fully recovered in Europe. In particular, part-time jobs as a share of the

working-age population have increased and full-time employment has actually decreased since 2019, while employment growth in other European countries was driven by full-time jobs (Figure 2.4, Panel A). This will widen the pre-existing gap in the prevalence of part-time employment between Austria and its peers. In particular, among women aged over 15, the part time employment rate was 33.9% in 2019 against 23.9% in the EU (OECD, 2023[7]) in part due to the incentives generated by the tax and benefits system and the unavailability of high-quality childcare (see Chapter 4). Finally, the fall in the number of hours can also be explained by an increase in the number of sick days in 2022, in line with other European countries (Arce et al., 2023[8]). As a consequence, while productivity per employed worker remains below that in 2019, productivity per hour has increased by 5% and is in line with pre-covid trends (Figure 2.4, Panel B).

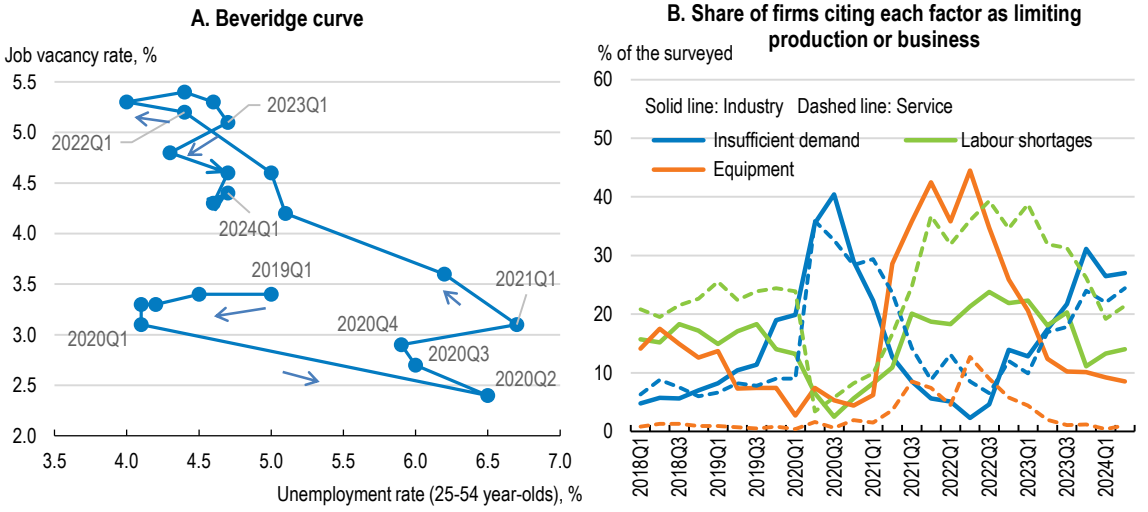
Figure 2.4. The increase in employment has been driven by part-time jobs



Source: OECD (2024), OECD Economic Outlook: Statistics and Projections (database); and Eurostat (2024), Employment and unemployment (Labour force survey).

StatLink https://stat.link/5eyv0n

Figure 2.5. The historically tight labour market has started to loosen in 2023

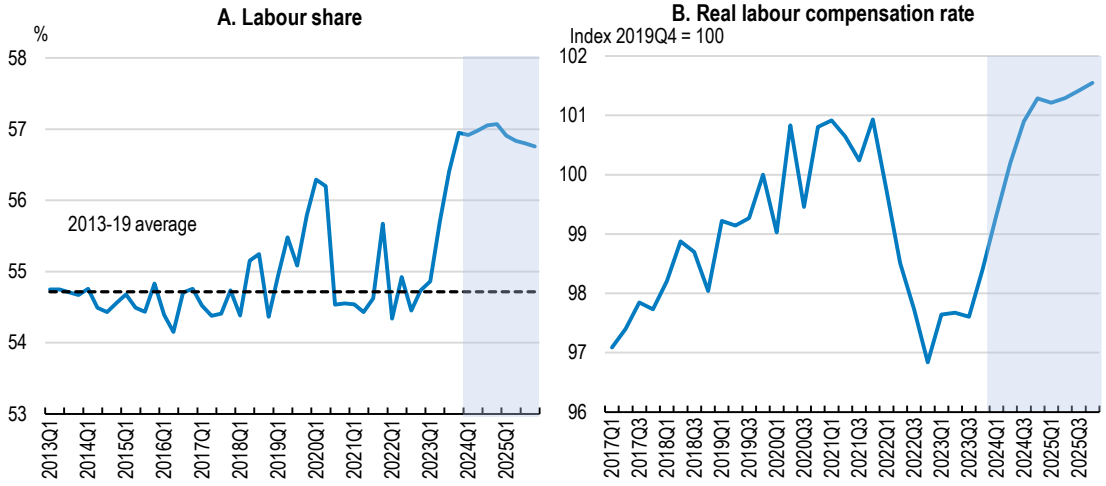


Note: In Panel B, the surveyed firms respond to the question: What main factors are currently limiting your production?
Source: Eurostat (2024), Job vacancy statistics by NACE Rev. 2 activity and Unemployment by sex and age – quarterly data; and EU harmonised business surveys.

StatLink https://stat.link/ricomy

Wages have continued to increase in line with productivity, albeit more slowly than inflation. In Austria, nominal wages tend to adjust to inflation with a lag, because of the backward-looking nature of the wage bargaining process (Box 2.1). Nominal wages did not keep up with increasing prices in 2021 and 2022 but increased sharply after the winter round of collective agreements in 2022-23. As a consequence, the labour share of the economy initially fell but reached pre-covid levels at the end of 2023 (Figure 2.6, Panel A). Overall, since 2019, labour compensation has been in line with productivity trends and economy-wide markups. However, wages have lost purchasing power (Figure 2.6, Panel B). This divergence has been the focus of the recent collective bargaining rounds.

Figure 2.6. Wages have followed productivity, but their purchasing power has declined



Note: In Panel A, the labour share is computed as the fraction of labour compensation over GDP net of taxes (less subsidies) on production and imports. The dashed line is the 2013-2019 quarterly average. In both panels, the grey area corresponds to the forecast window. In Panel B, the labour compensation rate is the total compensation of employees divided by dependent employment. It is then deflated by the consumption deflator.
Source: OECD calculations based on OECD (2024), OECD Economic Outlook: Statistics and Projections (database) and OECD Quarterly National Accounts Statistics (database).

StatLink https://stat.link/3xlrtp

The economy will slowly recover, but downside risks remain

Economic activity is expected to gradually recover over the next two years, as supply constraints subside and interest rates peak (Table 2.2). Household consumption will be bolstered by strengthening real disposable income due to receding inflation and higher negotiated wages. A further unwinding of excess savings could also support consumption. Tighter financial conditions will continue to discourage business investment in 2024. Business expectations are pessimistic, and the current level of stocks is now above pre-Covid levels. The global macroeconomic tightening, with low growth in Austria's main trading partners, will also damp export growth, but the forecast recovery in German's consumption and investment could help reverse the recent slowdown in goods export. The labour market will likely continue loosening, with a slight increase in unemployment. An easing of monetary policy and a global recovery will likely support growth above potential in 2025. Inflation is expected to steadily decrease, but it will remain high and above 2% as inflation in core services should be sticky.

The budget deficit is expected to remain stable around 2.7% of GDP in 2024 and 2025 because the withdrawal of crises-support measures is compensated by higher social benefits and labour compensation, along with new discretionary measures (see below). Given that growth is expected to be below potential in 2024, the fiscal stance measured as the change in the underlying primary balance will be slightly contractionary. However, the negative impact on growth should be contained as the fall in public expenditure reflects the catchup of private domestic income. Fiscal policy will then be broadly neutral in 2025.

Significant global and domestic uncertainties will continue to cloud the outlook, while tail risks exist (Table 2.1)**.** Geopolitical tensions outside Europe can have an indirect but sizeable effect on Austria's economy through its integration in European value chains for globally marketed goods. Within Austria, the outcome of wage negotiations in the current and future bargaining rounds, along with the eventual passthrough to prices, are key uncertainties. Higher-than-expected nominal wages would support consumption but increase unit labour costs, with a potentially negative impact on investment, employment and competitiveness. It could also lead to more persistent inflation. Recent analyses by the central bank and the Institute for Advanced Studies suggest that a 10% increase in wages is associated with a 2% or 3% increase in prices (Stiglbauer, 2023[9]; IHS, 2023[10]). The final impact on prices will depend on the behaviour or profits and the cost of depreciation, which have tended to drive price growth at the start of the inflation cycle (OeNB, 2023[11]; Fritzer, Reiss and Schneider, 2023[12]). The recent experience with high inflation has illustrated a key weakness in the otherwise effective collective bargaining system. The reference level for wage adjustment lags economic developments, produces inefficient fluctuations after a supply shock, and potentially creates sizeable second-round effects with a delay (Box 2.1). After the economy has normalised, considering the use of a price index excluding volatile elements as a reference for negotiations, based on a commonly agreed measure among social partners, would reduce the recurrence of inefficient labour share fluctuations in the future and the subsequent pressures on collective bargaining negotiations.

Excess private savings accumulated over the last three years could support consumption and investment more than projected. Excess savings in the household sector, as measured by differences with pre-Covid trends in disposable income and consumption, are significant. However, they are also likely concentrated among high-income households with lower propensity to consume (Battistini and Gareis, 2023[13]) and invested in illiquid assets (Battistini, Nino and Gareis, 2023[14]; Schneider and Sellner, 2021[15]). Besides, the net wealth of households has actually shrunk due to Important valuation effects after the increase in interest rates. On the corporate side, the cumulated real disposable income between 2020 and 2022 is 20% higher than what would have been expected before the pandemic. This additional liquidity may limit the negative effects of tighter financial conditions on real economic activity, investment, and labour demand, in the next two years.

Box 2.1. Collective wage settlements in Austria and the impact of inflation

Collective bargaining in Austria has performed quite well in the past

Nearly all Austrian workers in the private sector are covered by collective agreements. Collective bargaining takes place primarily at the sectoral level, while only a small share is at the firm level. Collective agreements are generally renegotiated annually.

The collective bargaining institutions of Austria have regularly been identified as performing well. The "organised decentralised" system provides flexibility for adaptation of sector-level agreements at lower levels. Negotiated wages and other conditions can adjust quickly as agreements are usually renegotiated every year. The lack of pure wage indexation also allows for flexibility in adapting compensation to idiosyncratic economic conditions. The quality of labour relations is highly satisfactory (OECD, 2019[16]).

Recently, high imported inflation has put pressure on the collective bargaining system

Austria's wage settlement mechanism has no formal indexation rule. Informally, wage negotiations often use a starting point based on the national inflation rate in the consumer price index over the last twelve months and an assessment of the medium-term productivity growth rate, as part of the so-called "Benya formula". Including the inflation rate in the formula helps preserve workers' purchasing power. In addition, in theory if inflation is equal to the growth in the GDP deflator and productivity is well estimated, this formula implies a constant split between the labour share and the share of gross operating surplus in corporate value-added. The stability of the labour share has been an essential argument for unions in favour of the Benya formula (Mesch, 2015[17]).

However, there can be a misalignment between preserving workers' purchasing power and the stability of the labour share when consumer inflation and the GDP deflator diverge, in particular in the context of terms of trade shocks. This has been put into stark relief since 2022 when energy prices increased significantly, lifting the price of imports relative to domestic production. This situation has illustrated some of the drawbacks of using past CPI inflation as a reference in wage bargaining: the divergence with the price of domestic value-added can generate large variations in the labour share, and the delayed pass-through of highly volatile inflation to wages generates large variations in workers' purchasing power.

Proposals have been made to modify the inflation reference in wage negotiations

Several alternatives have been proposed to change the inflation reference measure. Using the GDP deflator as a reference would in theory stabilise the labour share. However, it is less timely than inflation measures and can be revised for up to 3 years. As a result, the Central Bank has suggested the use of core inflation which smooth movements in consumer prices, while being closely correlated with the GDP deflator, but available quickly and less prone to revision (Stiglbauer, 2023[9]). Several OECD countries, such as Belgium, France and Italy, are using core inflation or a similar national index excluding volatile components as a reference or an index in their wage bargaining. The Austrian Institute for Economic Research has also recently proposed to shorten the backward window over which inflation is assessed to calculate the reference inflation, which would align wage adjustments more closely with current economic conditions (Felbermayr, Bittschi and Baumgartner, 2023[18]). However, such a measure may not compensate for large temporary shocks in prices if they happen outside of the horizon window, although real wage developments would likely be similar to the current system over long periods. This would also be less of a problem if the inflation index excludes volatile components. In the future, considering the use of core prices as a reference in the Benya formula, based on a commonly agreed measure, while preserving the flexibility of the current system, would be a simple change addressing the issues that have put pressure on collective bargaining in the last year.

Table 2.1. Events that could entail major changes to the outlook

Risks	Likely impact	Policy response options
Significant trade disruptions	The mild projected cyclical upturn in trade in 2024 and 2025 could be weaker than expected. A new wave of protectionism or additional local content rules could materialise, and lead to a cycle of retaliatory measures. Additional geopolitical tensions or persistent climate events could affect trade choke points such as the Suez and Panama canals. This could increase trade costs and impact Austrian exports to main trading partners, a major driver of recent growth, in particular in intermediate goods.	Look for complementarities, for instance along the supply chains, building on Austria's comparative advantages, including in services and technology sectors. Ensure strong coordination of industrial policies at the European level. Consider continuing to diversify trading partners, and collect data and monitor supply-chain risks.
Large spikes in energy and food prices	Geopolitical tensions could see renewed increases in energy and food prices. In particular, persistent tensions around the Gulf of Aden have already led to a significant increase in transport costs although for now the impact on oil prices has been subdued. This would impact households and firms while fiscal and monetary policy space is already limited.	Ensure that gas storage continues to be at capacity. Additional fiscal support would need to be more targeted to vulnerable households and corporations, compared to the measures put in place in 2022 and 2023. The price signal on energy should be maintained. Create fiscal space in case interest rates stay persistently high.

Table 2.2. Macroeconomic indicators and projections

Annual percentage change, volume (2015 prices)

	2019	2020	2021	2022	2023	Projections	
	Current prices (EUR billion)					2024	2025
Gross domestic product (GDP)	**397.1**	**-6.7**	**4.4**	**4.9**	**-0.7**	**0.2**	**1.5**
Private consumption	204.8	-8.5	4.1	5.8	-0.1	0.9	1.9
Government consumption	77.2	-0.4	7.6	0.1	-0.1	0.1	0.8
Gross fixed capital formation	98.8	-5.2	6.0	0.3	-1.2	-0.4	1.2
Housing	18.5	-0.7	7.9	3.0	-8.1	-4.8	0.8
Business		. .	. .	. .	. .	. .	. .
Government	12.4	. .	. .	. .	. .	. .	. .
Final domestic demand	380.8	-6.0	5.3	3.1	-0.4	0.4	1.5
Stockbuilding[1]	1.6	0.0	1.2	-0.3	-1.4	0.0	0.0
Total domestic demand	382.4	-5.9	6.5	2.7	-1.7	0.5	1.5
Exports of goods and services	221.8	-11.2	9.4	11.8	0.2	2.6	2.7
Imports of goods and services	207.2	-10.0	14.0	8.1	-2.0	3.5	2.8
Net exports[1]	14.7	-1.1	-1.9	2.1	1.3	-0.4	0.0
Other indicators (growth rates, unless specified)							
Potential GDP	. .	1.0	1.2	1.3	1.2	1.0	1.0
Output gap[2]	. .	-5.1	-2.1	1.3	-0.6	-1.4	-0.9
Employment	. .	-1.3	0.2	3.2	0.9	0.0	0.2
Unemployment rate	. .	5.4	6.2	4.7	5.1	5.5	5.4
GDP deflator	. .	2.7	2.1	5.3	7.8	4.3	2.8
Consumer price index (harmonised)	. .	1.4	2.8	8.6	7.7	3.7	2.9
Core consumer prices (harmonised)	. .	2.0	2.3	5.1	7.3	4.3	2.9
Household saving ratio, net[3]	. .	13.2	11.2	9.2	9.0	8.9	9.0
Current account balance[4]	. .	3.4	1.6	-0.3	2.7	2.3	2.1
General government fiscal balance[4]	. .	-8.0	-5.8	-3.3	-2.6	-2.8	-2.7
Underlying general government fiscal balance[2]	. .	-4.4	-4.5	-4.3	-2.5	-2.0	-2.2
Underlying government primary fiscal balance[2]	. .	-3.4	-3.6	-3.6	-1.7	-1.0	-1.1
General government gross debt (Maastricht)[4]	. .	83.1	82.5	78.4	77.6	77.7	78.1
General government net debt[4]	. .	60.4	53.6	43.5	43.5	44.5	45.3
Three-month money market rate, average	. .	-0.4	-0.5	0.3	3.4	3.7	2.8
Ten-year government bond yield, average	. .	-0.2	-0.1	1.7	3.1	2.9	2.8

1. Contribution to changes in real GDP.
2. As a percentage of potential GDP.
3. As a percentage of household disposable income.
4. As a percentage of GDP.

Source: OECD (2024), OECD Economic Outlook 115: Statistics and Projections (database)

Housing and banking sector risks are contained

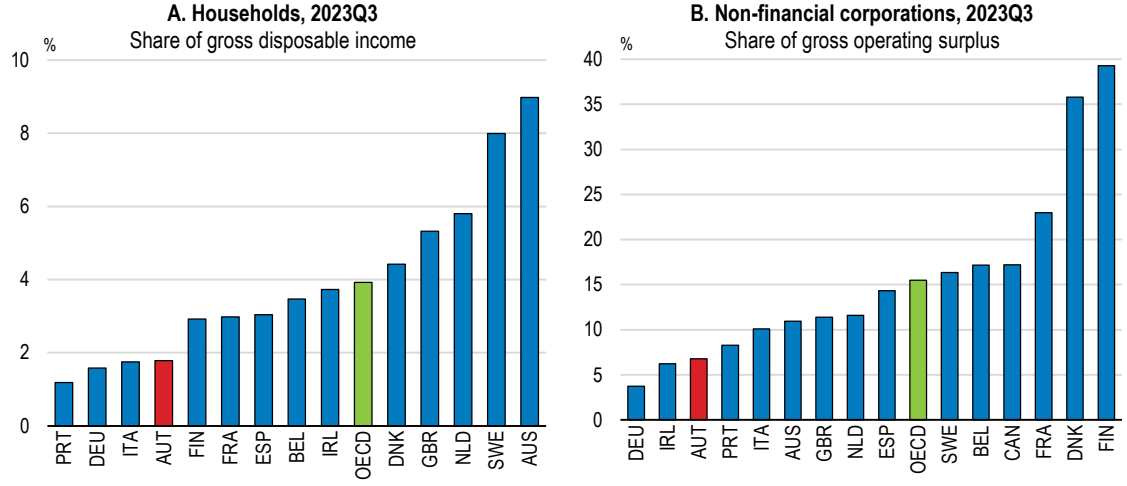
High inflation, subdued economic conditions and monetary tightening in the Euro area have diminished financing activity and cooled the housing market further. The growth in corporate loans has halved in 2023 compared to 2022. The latest Austrian Bank Lending Survey confirms that, since 2022, banks have become increasingly pessimistic about future economic prospects, which has prompted them to tighten lending standards for corporate loans (OeNB, 2023[19]).

The mortgage loans contracted by 1.2% in August 2023 compared to the same period in the previous year. In addition, house price growth has cooled. The residential property price index decreased by 2.6% in in the first quarter of 2024. The fraction of properties sold relative to the total on offer has fallen significantly for both houses and flats (OeNB, 2023[20]).

Though interest payments by households and corporations have risen, they remain relatively low in international comparison (Figure 2.7). In 2022, more than two thirds of Austrian households (71.1%) were not in debt and high mortgage debts were concentrated among high-income households (OeNB, 2023[20]). The share of vulnerable households with basic payments accounting for more than 70% of income is low (Valderrama et al., 2023[21]). These measures indicate a lower risk of a significant increase in loan default rates and distressed sales. Given that new loans have the highest outstanding amount of debt, it is important to maintain sustainable lending standards. The recent increase in the share of new loans to households with variable interest rates, which reached almost 50%, warrants close monitoring.

Significant systemic risks to financial market stability stemming from gradually deteriorating lending standards in the residential real estate sector have been identified since 2016. Hence, in August 2022, legally binding borrower-based measures were introduced - they cap loan maturity at 35 years, the loan-to-collateral ratio at 90% and the debt-service-to-income ratio at 40% of net income. These measures can help mitigate risks stemming from the residential real estate sector. The constitutional court confirmed the necessity, appropriateness, and effectiveness of borrower-based measures in Austria in January 2024.

Figure 2.7. Interest payments remain low in international comparison



Note: For non-financial corporations interest payments are reported as shares of gross operating surplus and mixed income. OECD refers to the average of the shown countries only.
Source: OECD (2024), OECD Quarterly National Accounts database.

StatLink https://stat.link/fqli7j

The commercial real estate sector also requires higher attention as increasing financing costs and post-pandemic structural changes affect demand for working spaces. A large Austrian real estate company, operating also in other countries, filed for bankruptcy at the end of 2023. Commercial real estate loans in

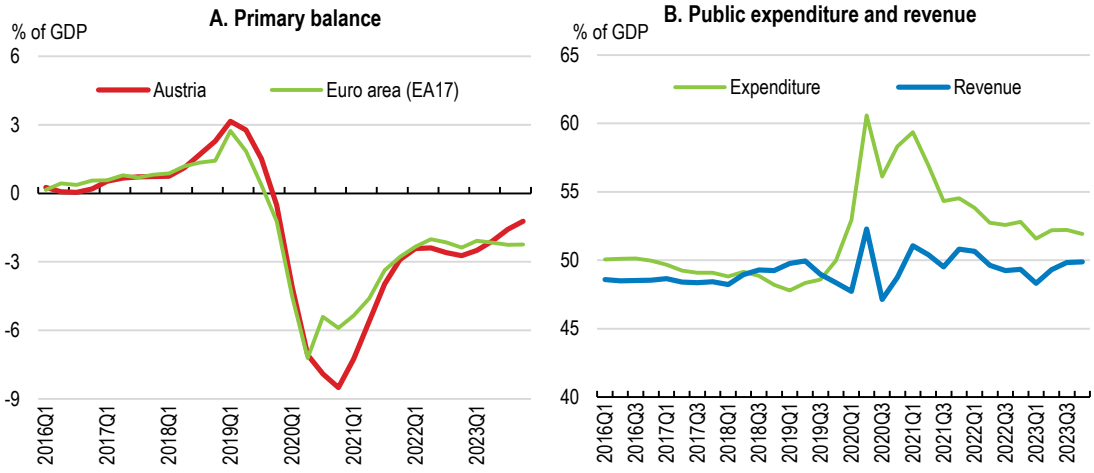
Austria account for a smaller share of Austrian banks' portfolios, but Austrian banks are more exposed than other EU countries (OeNB, 2023[22]). Therefore, appropriate property valuations and adequate risk provisioning are warranted.

Indicators suggest that Austria's banking sector remains in good shape. Subdued economic conditions and tight monetary conditions have not had a significant negative effect on the sector so far. The nonperforming loan ratio for both corporate and household loans stayed below 3% as of mid-2023. The banking sector is well-capitalised. The profit of Austrian banks increased by 139% year on year in the first half of 2023 thanks to high interest margins. Compared with levels recorded before the global financial crisis of 2008–09, the Austrian banking sector has more than doubled its capital ratio in line with tighter prudential requirements (OeNB, 2023[22]). The latest stress test conducted by the Austrian Central Bank indicates that the banking system is well placed to withstand substantial macroeconomic shocks combined with a prolonged phase of elevated inflation and interest rates (OeNB, 2023[23]).

Austria needs to plan for medium-term fiscal consolidation

The pandemic and the increase in energy prices have led to large fiscal deficits, but the public debt burden was contained because of strong nominal GDP growth. After an average primary surplus of 1% of GDP between 2015 and 2019, the response to the pandemic led to large primary deficits of 6.6% in 2020 and 4.7% in 2021. Pandemic support had not been totally withdrawn in 2022 when the increase in energy prices hit, and energy relief measures contributed to a deficit of 3.3% in 2022 (Figure 2.8, Panel A). Government revenues have recovered to pre-pandemic levels, but expenditures (as a share of GDP) are still 3 percentage points above their level in 2019 (Figure 2.8, Panel B). The public debt ratio rose to 82.9% of GDP in 2020 but has come down subsequently and reached 77.8% in 2023 despite the large primary deficits, thanks to high nominal growth during the economic recovery from the pandemic and the increase in inflation.

Figure 2.8. Crises-related expenditures have had a persistent impact on the fiscal balance



Source: OECD (2024), OECD Economic Outlook: Statistics and Projections (database).

StatLink https://stat.link/vlph89

The deficit is expected to remain around 2.7% of GDP in 2024 and 2025, which will not allow a significant decrease in the debt level. On the expenditure side, public intermediate consumption and current transfers fall in 2024 via the final drawdown of Covid-related measures. The subsidies implemented for inflation relief will expire: the energy price subsidy for companies in 2024, and the electricity price brake for households in 2025. However, the delayed passthrough of past inflation in higher labour compensation

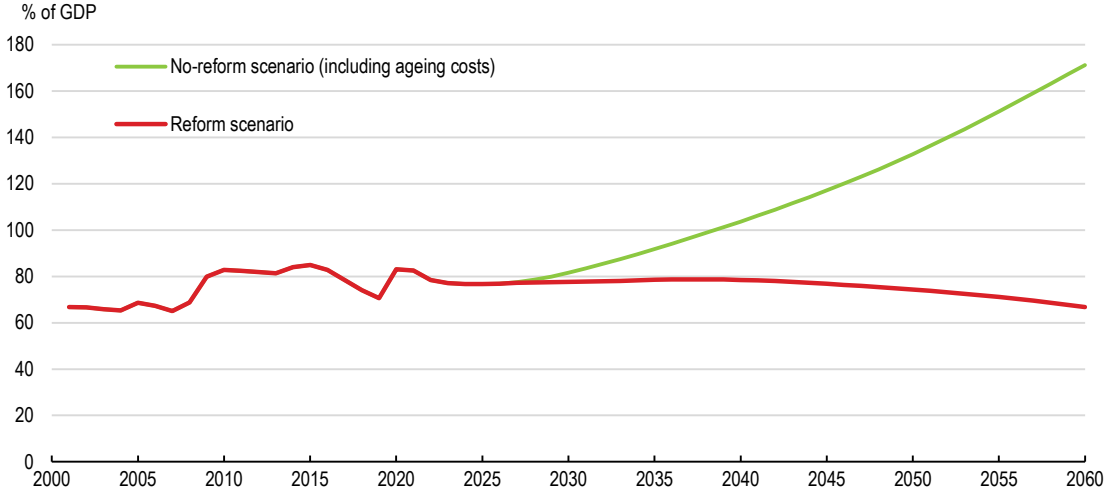
(from collective agreements) and social benefits (via indexation) will contribute to higher expenditures. Additional discretionary expenditures are expected in particular from the new financial equalisation agreement which increases spending by EUR 1.9 bn. On the revenue side, the implementation of the eco-social tax reform continues with additional revenues from carbon pricing more than offset by reductions in income taxation, for both households and corporations. The inflation indexation of tax brackets reduces trend income tax revenues. Indirect taxation will also be supported by the pick up in consumption. Income taxation and social contributions are supported by higher nominal wages and relatively stable employment.

A stable public deficit in the short term despite a high level is warranted given the economic context: the output gap remains large, economic growth will be below potential growth in 2024, and monetary policy will remain contractionary. However, the government needs a stronger medium-term plan to reduce the deficit as the economy picks up.

Moreover, fiscal policy also increasingly needs to address long-term spending pressures such as expenditures related to the climate transition and ageing-related spending. Expenditures on pension, long-term care and health are expected to increase cumulatively by around 5.8% of GDP from 2025 to 2060, under the assumption that pensions will increase in line with wages (OECD, 2019[24]). Without measures to offset these costs, the debt-to-GDP ratio will increase significantly (Figure 2.9, No-Reform scenario). Putting the public finances on a sustainable path will require identifying and addressing inefficiencies in government expenditures, containing spending pressures due to an ageing population, and ensuring that the structure of government revenues promotes sustainable and inclusive growth (Figure 2.9, Reform scenario).

Figure 2.9. Ageing will add significant fiscal pressure

General government debt, Maastricht definition



Note: The “No-reform scenario” is based on the OECD Economic Outlook 115 projections until 2025, the OECD long-term model thereafter. The scenario assumes a continuation of the policy stance with constant structural primary balance deficit of 1.1% of GDP from 2026. The scenario assumes an increased spending on health care, long term care and pensions, which will add on average an additional 0.1 percentage points of GDP to annual government spending assuming no policy change in line with the EC Ageing Report. The “Reform scenario” is based on the OECD Economic Outlook 115 projections until 2025. The reform simulation is based on reform package in the Box 1.2 using OECD Long-Term Model (Guillemette and Turner, 2018), including measures improving the fiscal balance GDP listed in the Box 2.2

Source: Calculations based on OECD (2023), OECD Economic Outlook: Statistics and Projections (database), June; Guillemette, Y. and D. Turner (2018), "The Long View: Scenarios for the World Economy to 2060", OECD Economic Policy Paper No. 22., OECD; and European Commission (2024), "The 2024 Ageing Report - Economic and budgetary projections for the 28 EU Member States (2022-2070)" Directorate-General for Economic and Financial Affairs.

StatLink https://stat.link/d5oevt

Box 2.2. Quantifying the impact of selected policy recommendations

Table 2.3 presents estimates of the fiscal impacts of key reforms recommended in this Survey. Additional expenditures arise from strengthening childcare services and increasing green investment, while revenues are reduced by lowering the tax wedge. Meanwhile the proposals to increase taxation plus the recommended pension reform are expected to improve the fiscal balance. The quantification is merely indicative and does not account for behavioural responses.

In addition, tax revenues would increase by 0.2% of GDP by 2030 due to dynamic effects of reforms on GDP growth (see simulation in Box 1.2).

Table 2.3. Illustrative fiscal impact of recommended reforms

Fiscal savings (+) and costs (-), % current year GDP

	2030
Expenditure measures	**0.3**
Bolstering childcare services[1]	-0.7
Linking of retirement age to life expectancy[2]	0.3
Improving business regulations[3]	0
Boosting green investment[4]	-0.4
Improving efficiency in the health care sector[5]	0.5
Improving efficiency through expenditure reviews[6]	0.6
Revenue measures	**0.0**
Increasing recurrent taxes on immovable property[7]	0.4
Increase environmental taxes[8]	0.4
Reducing the tax wedge[9]	-0.8
Revenue gain from the recommended reform package via higher GDP[10]	**0.2**
Overall Budget impact	**0.5**

1) Bolstering childcare services: increasing spending in pre-school education to the level of Demark (1.2% of GDP).
2) Linking of retirement age to life expectancy: Increasing the retirement age by 2/3rd of the increase in life expectancy.
3) Improving business regulation: reducing by half the gap in the product market regulation index between Austria and the top 5 countries in the OECD.
4) Boosting green investment: Investment in new low-carbon electrical capacity, based on the OECD energy transition scenario (OECD, 2023[25]).
5) Improving efficiency in the health care sector: Difference between the reference scenario and the healthy-ageing scenario in the European Commission ageing report (European Commission, 2024[26]) (0.1 % of GDP). Closing the gap in spending on hospital services by half between Austria and the next highest in Europe (0.4% of GDP).
6) Improving efficiency through expenditure reviews: Annual savings at 0.13% of GDP comparable to the saving targets set in expenditure reviews in New Zealand (Treasury of New Zealand, 2023[27]). The saving programme should take place throughout 5 years.
7) Increasing recurrent taxes on immovable property: Reducing the gap in revenues as a share of GDP relative to the OECD average by half.
8) Environmental taxation: increasing the revenues from carbon pricing instruments by 0.4% of GDP – a half of the expected potential (OECD, 2023[28]).
9) Reducing the tax wedge: Decrease in the labour tax wedge by 2 p.p. equivalent to 0.8% of GDP.
10) Higher revenues due to higher GDP growth relative to baseline (see Box 1.2).
Source: OECD calculations.

Greater efforts to contain public expenditure are needed

Public expenditures in Austria are high compared to other European countries, largely reflecting a sizeable social protection system (Table 2.4). In 2022, government spending represented 53.2% of GDP against 50.5% of GDP in the Euro area. Social protection accounts for 39% of total expenditure (20.6% of GDP), including old-age spending amounting to 14.4% of GDP. Health-related expenditures account for an additional one-fifth of total expenditure (8.8 % of GDP), including spending on hospital services of 4.7% of GDP. Further population ageing will put upward pressure on these already substantial allocations. This raises the importance of ensuring that the provision of public services and the systems of transfers are efficient, particularly pensions and health care.

Table 2.4. Public social expenditures are high compared to other European countries

General government expenditure by function, % of GDP

	2022		2019	
	Austria	Euro area	Austria	Euro area
Pension expenditures	14.4	12.3	13.9	12.4
Other social protection	6.2	7.8	6.3	7.3
Hospital services	4.7	3.2	4.7	3
Other health expenditures	4.1	4.6	3.1	4
R&D and basic research	1.9	1.1	1.9	1.1
General public services	3.7	3.7	3.7	3.5
Defence, public order and safety	1.9	2.9	1.9	2.9
Economic affairs excluding transports	5.2	3.3	2.1	2
Transports	3.1	2.1	2.8	1.9
Education	4.8	4.6	4.8	4.6
Interest payments	1.1	1.8	1.6	1.7
Other	2.1	3.1	1.8	2.5
Total	*53.2*	*50.5*	*48.6*	*46.9*

Note: The functions of government follow the classification of functions of government (COFOG). Basic research and R&D expenditures have been regrouped so that the other functions exclude research-related expenditures. In 2022, subsidies for foregone revenue and short-time work are included in “Economic affairs excluding transports”.
Source: Eurostat, General government expenditure by function

Increasing the retirement age to limit the rise in pension expenditures

Expenditure on pensions is high in Austria and will continue to increase because of an ageing population. The pension system in Austria consists of a defined-benefit public scheme with an income-tested top-up for low-income pensioners. Given the parameters of today’s pension system, the ratio of pensions to GDP would increase sharply by 2070 because of changes in the age structure of the Austrian population (Table 2.5). The gradual increase of the female retirement age from 60 to 65 between 2024 and 2033, to align it with the male retirement age, will help contain the impact of ageing. In the long run, the indexation of pensions in payment to inflation will help contain the growth in expenditures relative to economic activity – which grows with productivity. This could eventually raise concerns about pension adequacy in the future, as in the past the ratio of pensions to wages has been relatively stable. Despite these features, the most recent Ageing Report from the European Commission still forecasts an increase in pension expenditures of 1.0% of GDP by 2040, and 0.4% by 2070 as the population’s age structure somewhat stabilises (European Commission, 2024[26]).

There are typically three broad dimensions which can be adjusted in order to ensure the sustainability of a defined-benefit public scheme in the long run: the contribution rate, the pension level, and the retirement

age. Because the labour tax wedge in Austria is already high in international comparison, and because the average pension is scheduled to decline relative to the average wage, age-related measures are likely to be a key tool to contain pension expenditures. In that context, there is scope to increase the normal retirement age on the one hand, and to continue narrowing the gap between the effective and the normal retirement age on the other hand.

Linking the retirement age to life expectancy would make public finances resilient to the fiscal risk related to higher-than-expected longevity. For example, the European Commission's 2024 Ageing Report estimates that an increase in life expectancy at birth of two years by 2070 would increase pension expenditures by an additional 0.7% of GDP at that horizon. Linking the retirement age to changes in life expectancy would address this risk and provide a double dividend of reducing expenditures while supporting economic growth. Nine countries in the OECD link retirement ages to life expectancy, by increasing the retirement age by either 2/3 (Finland, Netherlands, Portugal, Sweden) or 100% (Denmark, Estonia, Greece, Italy, Slovak Republic) of the increase in life expectancy (OECD, 2021[29]; OECD, 2023[30]). This linking is all the more relevant for Austria as the country is expected to have one of the lowest effective labour market exit ages in Europe starting in 2030 (European Commission, 2024[26]) and a low normal age in the future relative to other OECD countries which have already passed reforms increasing the retirement age. In addition, life expectancy after labour market exit is among the highest in the OECD today, around 3 years above the OECD average for both men and women (OECD, 2023[30]). Higher retirement ages could be combined with a reduction in the accrual rate to reduce the level of future pensions (the rate which "converts" one year of work into a fraction of earnings feeding the pension level), which is currently the second highest in the OECD.

Such adjustments to the pension system would need to ensure that the elderly have access to the labour market. Indeed, the relative employment rate at old age compared to the rest of the population is low in Austria compared to other OECD countries (see chapter 4), and there remains a large gap between the effective and the normal retirement age among men in particular. Voluntary job separations in Austria, motivated mostly by retirement and disability, are particularly high which suggests scope for further activation of the elderly labour force (OECD, 2023[31]). In line with past recommendations from previous *Economic Surveys*, Austria has made progress in limiting early retirement pathways, e.g. by abolishing deduction-free early retirement pensions starting in 2022. The government has also announced a phase out of the funding for "blocked partial retirement" whereby employees can reduce working hours by 40 to 60% five years before the normal retirement age and receive 50% of their lost wages from the Public Employment Service (but still paying social security contributions in full and not losing pension entitlements), which also funds the cost to the employer. Those supply-side efforts could be complemented, in particular by further reforming access to disability pensions.

A particular challenge for elderly employment in Austria on the demand side is that there is a large gap in the participation in job-related training between older and younger workers, which can partly reflect a wider gap in digital skills relative to other OECD countries (OECD, 2023[31]). On the employer's side, some OECD countries encourage employers to invest in training for older employees by reducing the cost of training older workers relative to other employees, complemented by additional measures such as targeted career advice and guidance services to increase the interest and motivation of older adults (OECD, 2019[32]). An interesting Austrian initiative in this area has been a joint program run by the Ministry of Labour and the Economy with the European Social fund, the *Demografieberatung Digi+*, which provides free consulting for SMEs to support them in adapting to their demographic and digitalisation challenges. Similarly, the Ministries of Labour and of Social Affairs provide free advice to people whose job is at risk due to health problems and to companies who want to promote the work ability and health of their employees, via the program *fit2work*. On the employee's side, in addition to reducing costs in general, training may have to be adapted to older workers who may benefit more from applied on-the-job training (OECD, 2023[31]). Age discrimination and negative employer attitudes towards older workers also remain a particular obstacle to old-age employment on Austria (Eurobarometer, 2019[33]; Standard, 2023[34]). Beyond anti-discrimination

legislation, some OECD countries have implemented targeted measures. For instance, in the Netherlands, through the initiative “Vacancies for all ages”, classified ads for job vacancies placed in newspapers and on the Internet are screened for age discrimination while in Poland, some firms use the logo “50+ friendly” in their job offers to attract older workers (OECD, 2019[32]).

Such adjustments to the pension system would also need to ensure that vulnerable groups are protected. The poverty rate of the elderly population in Austria is higher than the total population and the depth of poverty is among the highest in the OECD (OECD, 2021[29]). Part of the savings allowed by lower pensions and an increasing retirement age should thus be targeted towards increasing minimal pensions, e.g., by increasing the minimum income threshold currently in place and ensuring that it adjusts with the cost of living. Finally, the impact of inequalities in life expectancy is a particular challenge for pension policies. However, implementing a link to accompany increases in general life expectancy will be neutral in terms of redistribution if there is no trend in those inequalities. In Austria, as in most OECD countries, there is no clear trend in educational and occupational inequalities in life expectancy (OECD, 2023[30]).

Table 2.5. An ageing population puts pressure on public finances

Ageing report projections, 2024

Breakdown of the increase (in pps) in public pension expenditure - cumulated change from 2022	2022	2030	2040	2050	2060	2070
Public pensions, gross as % of GDP	**13.7**	**15.0**	**14.6**	**14.0**	**14.0**	**14.0**
pps change from 2022		**1.3**	**1.0**	**0.3**	**0.3**	**0.4**
Dependency ratio		3.2	6.0	7.0	8.2	8.7
Coverage ratio		-1.2	-2.7	-3.3	-3.8	-4.0
Benefit ratio		-0.5	-2.0	-3.0	-3.6	-3.9
Interaction effect (residual)		-0.2	-0.4	-0.4	-0.5	-0.5

Note: The public pensions to GDP ratio is decomposed as the product of the dependency ratio (65+ divided by working-age population), the coverage ratio (number of pensioners among the 65+ population), and the benefit ratio (the average pension relative to GDP per working age population). The long-term projections by the European Commission are based on commonly agreed methodologies and assumptions for macroeconomic projections, and a “no-policy-change” scenario. In particular, the extension of the female retirement age between 2024 and 2033 is included in the projections of ageing expenditures for Austria, as well as the increase in pensions in payment in line with inflation.
Source: European Commission (2024): “The 2024 Ageing Report. Economic and Budgetary Projections for the EU Member States (2022-2070)”.

Containing the increase in health care expenditures

Containing health care expenditures can be helped by greater attention to preventative measures and alongside efficiency gains in health care services themselves. Ageing is likely to also put additional pressure on health care expenditures, but those are harder to target with parametric reforms compared to pensions. There is room to improve health care spending efficiency. Austria’s health care system performs relatively well but is costly and too hospital-centric. The health status of the population is high, population coverage for core services is universal, and Austrians report high satisfaction with the availability of quality health care and low levels of unmet medical needs (OECD, 2021[35]). Still, despite significant public resources invested in health care, the country’s outcomes on key health performance indicators such as life expectancy, or treatable and preventable mortality rates, are often below best performers. Austria has recently agreed on a healthcare reform to increase efficiency while providing substantial investments in dedicated areas such as outpatient care and digitalisation. However, there is still room for more efficiency improvements via additional investment in preventive care and a continuing shift from hospital to ambulatory and primary care services.

Reducing the occurrence of chronic conditions

Health care costs are heavily burdened by behavioural risk factors. Around 40% of all deaths recorded in Austria in 2019 can be attributed to risk factors such as alcohol consumption, tobacco smoking, dietary risks, and low physical activity.

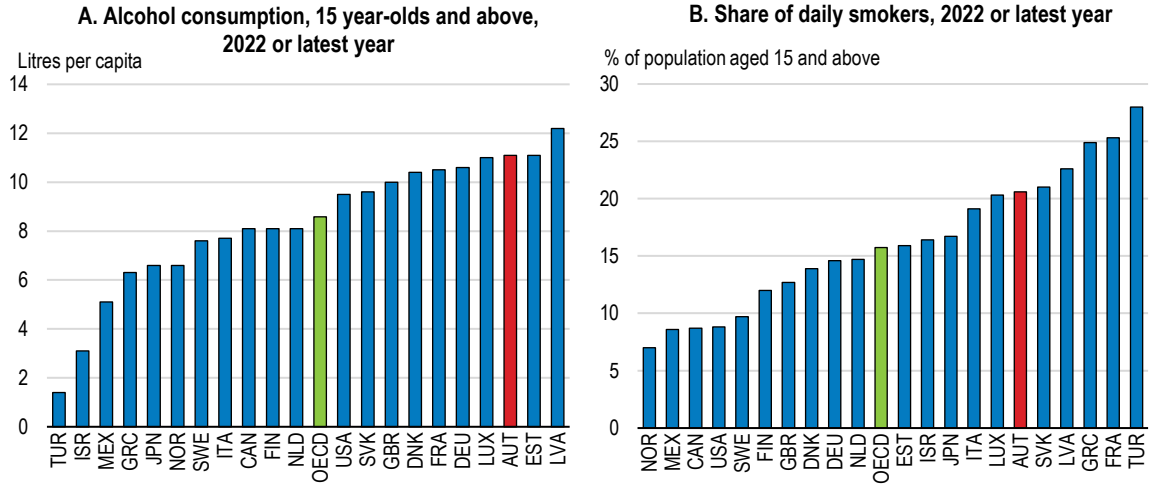
A comprehensive strategy, including higher excise taxes on alcohol, should be put in place to reduce alcohol consumption. The impact of alcohol consumption on health and the economy is higher in Austria than in the average OECD country. Austria has among the highest alcohol consumption per capita in the OECD (Figure 2.10, Panel A), reducing life expectancy by one year and healthy life expectancy by 1.5 years. As a consequence it induces more than 3.5% of total health expenditure and is expected to contribute to an additional fiscal pressure of 0.8 percentage points of GDP in the next thirty years, and to reduce GDP by 2% (OECD, 2021[36]). Public policy can be effective in tackling the harm of alcohol use. Minimum unit price (MUP) and higher taxes, along with restrictions on opening hours, are the most efficient tools to reduce consumption and have a significant impact on disability-adjusted life years. Despite that, Austria has implemented fewer WHO's recommended pricing measures compared to other OECD countries. The excise taxes on alcohol other than wine are far below the OECD average. Minimum unit prices could be instituted taking the example of Canada where several provinces have implemented such measures. Simulations from the OECD suggest that a tax increase resulting in a 10% price increase, along with the institution of a minimum unit price above the current cheapest segment of the market, would lead to a reduction in alcohol-related health expenditure by 13% (OECD, 2021[36]).

The high prevalence of smoking could also be counteracted with a comprehensive package including higher taxes on tobacco. Austria has a high prevalence of smoking compared to other OECD countries (Figure 2.10, Panel B). One in five Austrians smoke daily or almost daily (Gesundheit Österreich, 2023[37]). In the latest edition of the Global Burden of Disease project, 16.1% of deaths from any cause and 27.7% of cancer deaths were attributed to tobacco use in 2019 (against 15.8% and 27.0% respectively in OECD countries on average). Public expenditure on smoking-attributable diseases has been estimated to 0.2% of GDP while the cost of premature mortality has been estimated to account for 0.6% to 2.8% of GDP (GHK, 2012[38]) (Pock et al., 2018[39]). The price of tobacco consumption in Austria is also low: in 2023, excise taxes and VAT accounted for 77% of the price of a 20-cigarette pack against 81%, on average in Europe; while in 2020 the cost of cigarettes as a share of GDP per capita was among the lowest in the OECD (Hoffer, 2023[40]). Research indicates that increasing tobacco prices is the single most effective and cost-effective measure for reducing tobacco use (WHO, 2021[41]). In particular higher prices are found to be effective in dissuading smoking among younger cohorts (Palali and van Ours, 2019[42]). This is particularly important as Austria had the highest shares of daily smokers of age 15-24 in the EU in 2019 according to the European Health Interview Survey, although smoking among young people has decreased by more than half since 2002. Some recent studies suggest that the elasticity of consumption to tobacco prices has been stable or growing recently, and has been estimated at -0.7%, in line with other European countries (Felsinger and Groman, 2022[43]; Yeh et al., 2017[44]; Kohler, Vinci and Mattli, 2023[45]). Increasing tobacco prices in Austria so that the price of a cigarette pack increases by 20% and match the price in Germany (from EUR 5.15 to EUR 6.18) would thus induce a reduction of consumption by 15%. The 2022 amendment to the Tobacco Tax Act goes in the right direction by steadily increasing the taxation of tobacco products between 2023 and 2026, which would effectively increase the cost of a pack of 20 cigarettes by roughly 5%. It also increases the minimum excise tax rate, which should effectively target price-sensitive consumers. More generally, an increase in tobacco prices will be more effective as part of a comprehensive policy package, since complementary policies can help reinforce the effect of prices on tobacco consumption in addition to their direct effect. For example, the WHO, as part of the MPOWER package, encourages the deployment of a package which combines higher taxes on tobacco with the implementation of smoke-free environments, support for tobacco cessation, adequate information campaigns, and bans on tobacco promotion (WHO, 2008[46]). A policy package implemented in France where an increase of 40% combined with plain packaging, a yearly cessation campaign, and the

reimbursement of nicotine replacement products, has been assessed to have a large return: an investment of EUR 1 would reduce health expenditures by EUR 4, along with a major impact on labour force participation (Devaux et al., 2023[47]). The most recent analysis by the WHO suggests that Austria is performing well on the various dimensions of the MPOWER package, but there is room to extend the coverage of smoke-free laws and reduce the promotion of tobacco in addition to increasing tobacco prices (WHO, 2023[48]).

Strategies implemented to reduce carbon emissions will have significant co-benefits for health as Austrians are highly exposed to local air pollution. Epidemiological studies have established that exposure to non-exhaust emissions of particulate matters (PM) is associated with a variety of adverse health outcomes (OECD, 2020[49]). The population in Austria is more exposed to a high level of fine particulates than the average OECD country (OECD, 2023[50]). Overall, premature deaths from outdoor air pollution have been estimated to induce a welfare cost representing the equivalent of 4.5% of GDP for the country every year compared to 3.6 % in the OECD, based on estimates of the value of statistical lives (OECD, 2017[51]). In addition to adverse health outcomes, air pollution has large negative impacts on labour productivity because of absenteeism at work and a reduction in individuals' cognitive and physical capabilities. Recent OECD estimates suggest that a 1µg/m3 increase in PM2.5 concentration causes a 0.8% reduction in real GDP. As a reference, in 2019, the average exposure in Austria was 11.6 µg/m3, in line with the Euro area average (12.2), but above neighbouring countries like Germany (10.8) or Switzerland (9.6) and significantly above Scandinavian countries like Finland (5.5) or Sweden (6.1). Ninety-five per cent of this impact is due to reductions in output per worker (Dechezleprêtre, Rivers and Stadler, 2019[52]). Emissions of PM2.5 and nitrogen dioxide are driven significantly by energy use in residential and commercial buildings, and road transport. Chapter 5 in this *Economic Survey* proposes policies to reduce greenhouse gas emissions in those sectors, where the co-benefits in terms of air pollution (e.g. by more efficient use of energy in buildings and transport) will thus be significant.

Figure 2.10. Tobacco and alcohol consumption are high



Note: In Panel A, alcohol consumption is defined as annual sales of pure alcohol in litres per person aged 15 years and older. In Panel B, daily smokers are defined as the population aged 15 years and over who are reporting to smoke every day. Unweighted average of 37 countries in Panel A and 35 countries in Panel B for the OECD aggregate.
Source: OECD (2023), OECD Health Statistics (database).

StatLink https://stat.link/tbv49i

Shifting health services away from hospitals and reinforcing primary care

Reducing reliance on hospital services and bolstering primary care is a key avenue for improving Austria's health care system. Austria spends substantially more than most countries on hospital inpatient care (Figure 2.11 and (OECD/European Observatory on Health Systems and Policies, 2021[53])). The average length of stay at hospitals is high relative to other OECD countries, which is also reflected in a large relative number of beds and a low occupancy rate. Avoidable hospitalisations due to chronic conditions are also significantly higher than other developed countries while the share of ambulatory services is lower than most (OECD, 2021[35]). In contrast, spending on prevention and primary care is lower than the OECD average. The share of generalist medical practitioners has decreased by more than 15% since 2000, a faster reduction than other OECD countries, and the number of general practitioners per capita is now among the lowest in the EU (OECD, 2020[54]). Austria does not feature a significant gatekeeping role for primary care and secondary care can be accessed fairly openly which may explain part of the imbalance in expenditure (Hoffmann et al., 2019[55]).

Austria has been improving primary care delivery, but more could be done. Reform has included the 2017 Primary Care Act which promoted a shift from solo practices to group practices. In addition, Austria's Resilience and Recovery Program (RRP) includes primary care initiatives, including the establishment of new multi-professional primary health care units (PVEs). The recent Primary Care Act, passed in July 2023, adequately facilitate the creation of PVEs in particular by cancelling the veto power of the medical associations for new installations. Finally, the adoption of a new health care package in November 2023 for the period 2024-2028 also goes in the right direction by providing EUR 14 billion for health and care reform. The comprehensive reform focusses on selected areas such as strengthening the outpatient sector by e.g. additional positions for contracted physicians in primary care; structural reforms in hospitals to promote day clinics and specialised outpatient hospital departments; digitalisation and telemedicine; health promotion and prevention as well as vaccinations; measures regarding health work force and patient navigation; and additional funding for nursing and long-term care. Additional steps should be considered, including:

- More effectively guiding patients to the best point of service, e.g. through digital tools. Some countries have also reinforced further the role of general practitioners as gatekeepers to secondary care services – through a referral system and incentivised individual registration of a primary care provider.
- Greater use of digitalisation and telemedicine. The proportion of primary care physician offices using electronic medical records is relatively low, and telemedicine consultations have increased less than other OECD countries during the Covid period (OECD, 2021[35]). The additional funds included in the new reform package for the digitalisation of the health system are welcome in this context.
- Wider roles for pharmacists and nurses. During the pandemic, Austrian pharmacists were temporarily granted wider scope to prescribe a wider range of drugs and to extend prescriptions given by doctors. Consideration should be given to making this permanent. In addition, nurses' involvement in health promotion and prevention is currently low relative to other OECD countries. In Canada, registered nurses and nurse navigators have an important role in improving co-ordination and continuity of care in the MyHealthTeam model of primary health care. In other OECD countries, such as Estonia, Ireland, Mexico, Sweden and the United Kingdom, registered nurses are also allowed to prescribe medication (OECD, 2020[54]). The Recovery and Resilience Plan and the new reform provide steps in the right direction by funding local community nurses, qualified health and nursing staff who would be central contact persons responsible for coordinating various services, and broadening the responsibilities of non-medical professionals.

In addition to health care, long-term care (LTC) public expenditures are increasing and their growth is expected to continue due to demographic trends, mostly because population ageing increases the size of

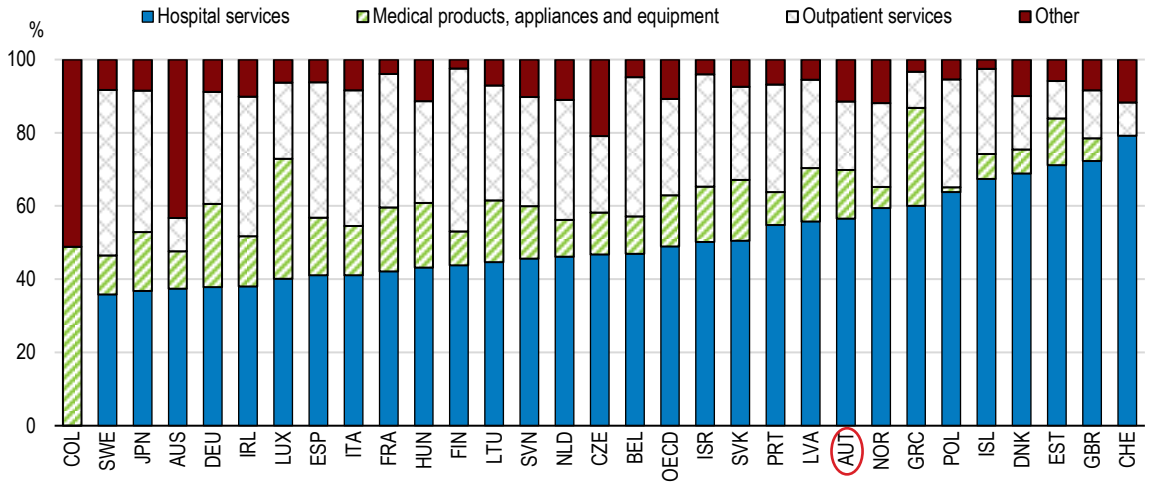
the dependent population. For example, the latest estimations from the Ageing Working Group of the European Commission suggest that public expenditure on LTC is likely to double in Austria over the next 50 years from 1.6% of GDP in 2019 to 3.1% of GDP in 2070 (Famira-Mühlberger and Trukeschitz, 2023[56]; European Commission, 2024[26]). The current LTC system in Austria combines a system of universal cash benefits and the provision of in-kind services at home or in residences. A large share of the population, around twice the average in other EU countries, is covered by cash benefits which can be used to purchase LTC services at home or in institutions. Those benefits represented around half of total public expenditure on LTC in 2019 (Trukeschitz, Österle and Schneider, 2022[57]). On the other hand, only one-fifth of the dependent population is also covered by in-kind care at home or in institutions compared to two-fifths in the EU on average (European Commission, 2021[58]). These services and in-kind benefits are the responsibility of the federal states for planning and financing, and typically subject to co-payments, while municipalities also contribute to implementation. The main cash benefit is the federal long-term care allowance *Bundespflegegeld* which provides a non-means tested monthly benefit according to seven different levels depending on care needs. A means-tested benefit is provided to support the employment of formal carers for full-time care ("*24-Stunden-Betreuung*"). Additional benefits are provided to support informal care. For example, a "care-leave benefit" (*Pflegekarenzgeld*) is available for caring relatives and a fixed "relatives' bonus" (*Angerhörigenbonus*) has been created in 2023.

Austria has started to address some of the challenges faced by its LTC system. Despite a generous and broad cash benefit system compared to other European countries, those benefits do not cover the full cost LTC services for households (European Commission, 2021[59]), which can explain a large reliance on informal work. Indeed, a large majority of people in need of LTC live in private homes, and Austria has one of the largest share of informal carers among people over 50 years old (OECD, 2023[60]), which can represent an additional constraint on the employment of the elderly. In 2017, more than half of LTC in private homes was provided through informal care only (European Commission, 2021[59]) and an estimate from 2018 suggests that around half of informal carers would be theoretically available to participate in the labour market (Nagl-Cupal et al., 2018[61]). The current system faces additional challenges which may eventually put pressure on fiscal policy and economic growth. In addition to the fragmented nature of the LTC system in line with the broader healthcare system as discussed in the next paragraph, LTC faces specific staff shortages (as in other countries), lags behind in terms of digitalisation, and suffers from a lack of systematic, high-quality data e.g. on private spending or the funding of nursing (Rechnugshof Österreich, 2023[62]; Trukeschitz, Österle and Schneider, 2022[57]). Recent reforms have underlined the importance of adapting the LTC system to future challenges for the government. In particular, in 2020 the Ministry of Social Affairs set up a task force for care reform, and a large reform package was adopted in July 2022 which included measures to make training more attractive for nursing and care work, better conditions for LTC workers (including a wage bonus and additional paid leave), and larger benefits for dependents and their carers.

Improved coordination on healthcare and long-term care between the federal states could provide additional efficiency gains and help contain fiscal pressures. As in many countries, the health care system has a complex governance structure. The federal government is responsible for regulating social health insurance and most areas of health care provision. The nine federal states regulate hospital care in their jurisdictions, and are responsible for implementation, organisation and financing of inpatient and outpatient care in hospitals, as well as hospital investment (OECD/European Observatory on Health Systems and Policies, 2021[53]). In long term care, even within the federal states, the control, responsibility and service provision are divided among several legal entities while the definition of care quality can differ widely across borders, and the definitions and targets of LTC processes and outcomes could be harmonised (Rappold et al., 2021[63]; Rechnungshof Österreich, 2020[64]; European Commission, 2021[59]). This fragmentation has the potential to limit incentives to look for efficiency in joint provision (Fiskalrat, 2023[65]). In addition, the funding for inpatient care in the Länder via the fiscal equalisation system is mainly based on negotiations rather than a risk or needs-based allocation formula which may also hamper efficiency.

Figure 2.11. Austria's health system is hospital-centric

Public health expenditure decomposition by function of government, 2019



Note: Unweighted average of 30 countries for the OECD aggregate.
Source: OECD (2023), OECD Annual National Accounts Statistics (database).

StatLink https://stat.link/mtopy6

Improving spending efficiency through spending reviews

Spending reviews can be an effective mechanism for identifying opportunities for efficiency, cost savings, and reallocation of resources (Doherty and Sayegh, 2022[66]). Austria initiated a series of spending reviews as part of the 2017 Intergovernmental Fiscal Relations Act and introduced a roadmap for targeted spending reviews on the green and digital transformations as a priority area within the national Recovery and Resilience Plan in 2021. The reviews are conducted by the Ministry of Finance with thirteen reviews conducted to date. The reviews and the advancements introduced with the 2021 RRP are welcome, but the process could be further improved in terms of coverage, transparency and implementation.

The current round of spending reviews has so far only considered activities that, in total, account for around 5% of government expenditure. Each review has focused on a certain ministry or a specific expenditure programme representing only a small share of spending. Through the RRP, Austria shifted the focus of Spending Reviews to green expenditures, which make up around 10% of current budget. While this increase in coverage is welcome, greater potential savings could be achieved by reviewing more significant areas of government spending. In Slovakia and the Netherlands, targeted reviews are conducted, with the focus shifting annually to different areas. This dynamic approach ensures that a significant portion of expenditures is scrutinised, potentially leading to substantial savings. For example, Slovakia achieved savings of approximately 8% from the total expenditure reviewed, indicating the effectiveness of targeted reviews (Doherty and Sayegh, 2022[66]). For example, spending reviews completed just in the year 2020 identified potential savings amounting to 1.2% of GDP in public employment and wages, defence, and IT spending (OECD, 2022[67]). In the Netherlands and the United Kingdom, the spending reviews process began as comprehensive reviews and they were adopted again following the Global Financial Crisis, respectively in 2010 and 2011. More generally, comprehensive reviews have been used as effective tools in the times where fiscal consolidation is needed, with a whole-of government approach (Elva, Elcoli and Bosch, 2020[68]).

In addition, the spending reviews in Austria currently lack a direct integration into the budget process. While some spending review results have been used internally by line ministries, they did not have a direct role in shaping annual or multi-annual budget decisions so far (OECD, 2020[69]). Commitment to including results of green spending reviews into the annual climate supplement to the budget is a welcome initiative to achieve greater coherence between spending reviews and budgetary decisions (BMF, 2024[70]). However, creating a clear path from spending reviews to the budget is important for effectiveness. In Australia, the outcomes of strategic spending reviews are considered by the budget Expenditure Review Committee as part of the annual budget process. The United Kingdom's spending review process is undertaken periodically and used as the basis for formulating medium-term expenditure plans for government agencies over a multiyear period (Doherty and Sayegh, 2022[66]). This integration enhances the relevance and impact of spending reviews on fiscal decision-making. In this regard, setting clear strategic objectives at the start of the process is important to ensure that the spending reviews are aligned with medium-term fiscal objectives and deliver tangible results. For example, New Zealand, integrates saving targets into its spending reviews before the budgeting process begins. Ministries then conduct spending reviews to identify opportunities for achieving these savings targets, ensuring that expenditures are focused on areas of the highest priority and efficiency (Government of New Zealand, 2023[71]; Treasury of New Zealand, 2023[27]). Transparency around the spending reviews in Austria can be further improved. Full reports of the three spending review modules conducted within the framework of the national Recovery and Resilience Plan were immediately published on a dedicated webpage. This represents a significant advancement in terms of transparency as out of eight spending reviews that were conducted between 2017 and 2021, only two reports were made publicly available online in 2022. Terms of references, interim and final reports including implementation report data, should be made available online for all spending reviews completed. The amount of reallocation or savings made based on the findings of the Spending Reviews should also be publicly disclosed (Tryggvadottir, 2022[72]).

Another area with potential efficiency gains for public expenditure is Austria's complex system of fiscal federalism. State and local governments have significant responsibilities and are in charge of most of the expenditure on housing and education. However, they have almost no autonomy on funding. Put another way, Austria has one of the largest vertical fiscal imbalances between revenue and expenditure in the OECD (OECD, 2021[73]). Local governments rely on transfers from the central government and these transfers are allocated via a population key, which barely reflects the actual needs and costs for local governments of their specific responsibilities (Bauer et al., 2010[74]; Schratzenstaller, 2015[75]). Some progress has recently been made to increase targeting in the recent fiscal equalisation agreement negotiated at the end of 2023. In particular, the agreement included the establishment of a "Future Fund" endowed with EUR 1.1 billion with specified targets to be reached in the areas of childcare, housing, and climate protection. Still, this represents a small share of local governments' revenues and no consequences are foreseen in case of missing targets. Overall, local governments do not have strong incentives to provide public services at the lowest cost.

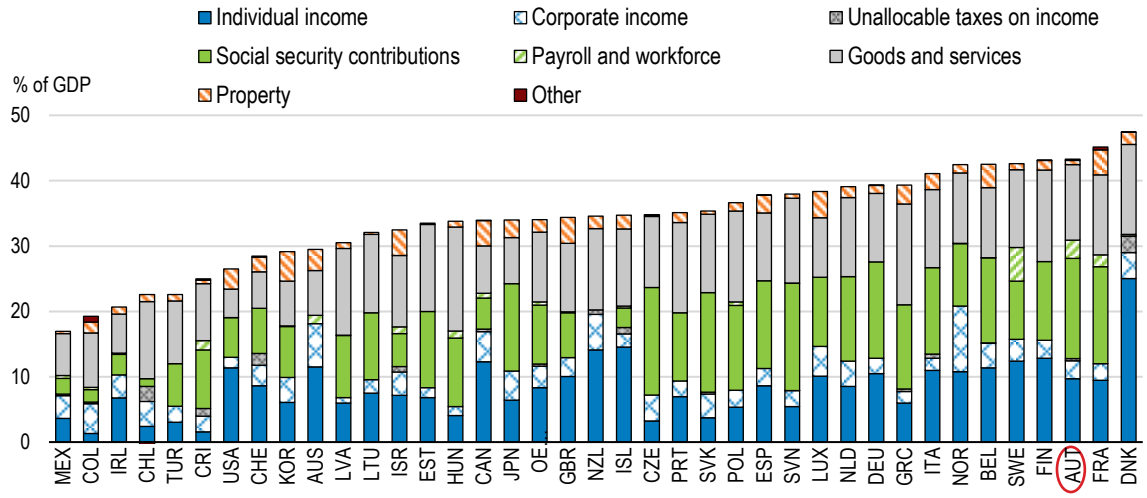
Shifting taxation away from labour towards property taxation would support growth

A more growth-friendly tax system could potentially contribute to the medium-term consolidation and the long-term sustainability of public finances. Tax revenues as a share of GDP are the third highest in the OECD, and a large share of government revenues is derived from the taxation of labour income and a relatively low share from the taxation of consumption and property (Figure 2.12). As a consequence, labour tax wedges are high including for low-income workers where labour demand is highly responsive to labour costs (L'Horty, Martin and Mayer, 2019[76]). The eco-social tax reform, which is introducing gradually increasing carbon prices on sectors not covered by the European Emissions Trading System between 2022 and 2025, will improve the mix of government revenues by reducing both the household income tax for lower-income brackets and the corporate income tax (Box 2.3). This shift towards a tax structure which

is more conducive to sustainable and inclusive economic growth is welcome and should be pursued. Higher carbon prices (see Chapter 5) and a further shift away from labour taxation via a reduction in the tax wedge for low income earners (see Chapter 4), towards a higher reliance on the recurrent taxation of immovable property, and on inheritance and gift taxes, would also support growth while reducing inequality (Akgun, Cournède and Fournier, 2017[77]).

Figure 2.12. Government revenues are high and rely heavily on levies on labour income

Decomposition of tax revenue, 2021



Note: Taxes on income include taxes on profits and capital gains. Unallocable taxes on income refer to receipts that cannot be identified appropriately as income taxes from individuals and corporate enterprises.
Source: OECD (2024), OECD Revenue Statistics, OECD countries: Comparative tables (database).

StatLink https://stat.link/ose0xi

Box 2.3. Austria's eco-social tax reform

The eco-social tax reform prices non-ETS emissions starting in 2022

The eco-social tax reform combines a broadening of carbon pricing with tax reductions and other benefits for households and businesses. Pricing is extended beyond the sectors covered by the EU Emissions Trading System. The sectors covered include buildings, transport, agriculture, waste and small industrial plants. It also covers most fossil fuel energy sources: gasoline, diesel, heating oil, natural gas, liquefied gas, coal and kerosene. The tax is paid by the providers of the fuel (the producer or the entity responsible for bringing the fuel in the country).

The pricing mechanism is being phased in gradually. Between 2022 and 2025, the price per CO2 equivalent ton of emissions is fixed according to an increasing schedule. In addition, in 2022 and 2023 there were simplified reporting requirements. The original plan scheduled an increase from EUR 30 per ton in 2022 to EUR 35 in 2023, EUR 45 in 2024, and EUR 55 in 2025. However, the reform included a snapback mechanism allowing the scheduled increase to be halved in case of high energy prices. The fixed price for 2023 was thus EUR 32.5 per ton. In the third phase, trading certificates will be exchanged on a national market.

The national market could be integrated in the EU ETS 2 scheduled in the EU Fit-for-55 package which would create an emissions trading system in 2027 for sectors not covered by the current ETS (and thus in the scope of the eco-social tax reform) in particular for the transport and buildings sector.

Exemptions to the new carbon price include installations already subject to the EU-ETS and small emitters (less than 1 ton of CO2 equivalent in a year). Relief of a fraction of the additional costs induced by carbon pricing is provided to specific sectors with the goal of mitigating competitiveness threats and the potential for carbon leakage in the sectors of agriculture and forestry, energy, and industry.

The eco-social tax reform includes various measures designed to recycle the additional tax revenues and to provide relief to vulnerable groups

Support measures for companies and households are an important part of the global eco-social tax reform. These include:

- reduction in personal income tax rates in the second and third income brackets;
- reduction in the corporate income tax rate from 25% in 2022 to 24% in 2023 and 23% in 2024;
- a tax-exempt "climate bonus". The bonus provides a lump sum amount of between EUR 110 and EUR 220 to individuals residing in Austria for more than 183 days (children receive half the amount). The amount is adjusted in four categories depending on the location a person's place of residence, based on the availability of public transport.

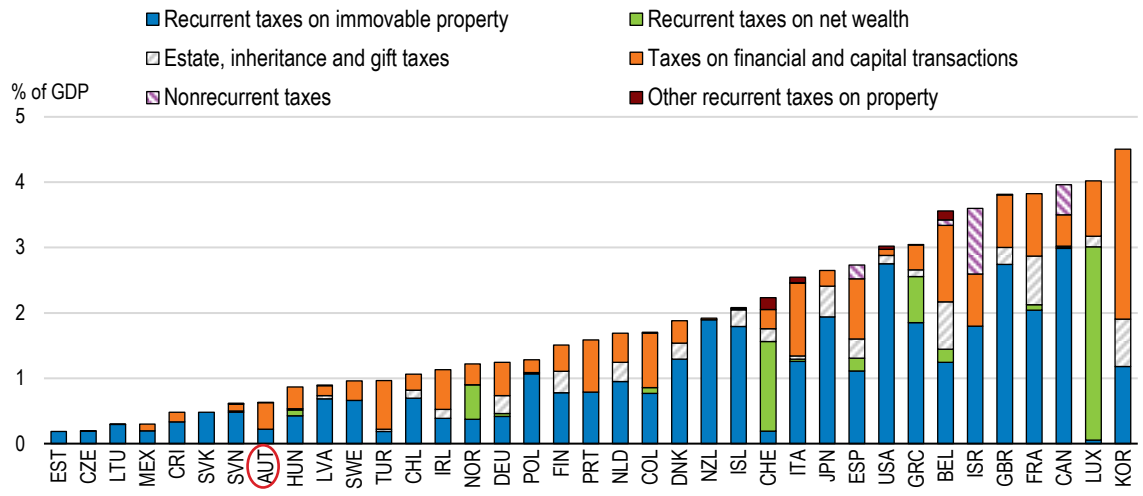
Note: in 2022, the formula for the climate bonus was adjusted to respond to the increase in energy prices. The climate bonus was uprated to EUR 250 and combined with an "anti-inflation" bonus of EUR 250.
Source: (BMF, 2022[78]), BMK, Federal Chancellery

Raising recurrent taxation on immovable property, reducing transaction taxes

Austria could consider reducing the taxation of property transactions and increasing recurrent taxes on immovable property. Austria taxes property at low levels, mostly through transaction taxes. The taxation of property is among the lowest in the OECD, with revenues equivalent to around 0.6% of GDP as of 2021 against 1.9% in OECD countries on average. Most of the revenue is raised through a 3.5% tax on real estate transactions (Figure 2.13). Municipalities levy a recurrent property tax but this is based on outdated valuations, which severely limit the revenues it generates: in 2016, the European Commission had estimated that a shift from cadastral values to market values would multiply those tax revenues by a factor of 4 (European Commission, 2018[79]). As a consequence, recurrent taxes on immovable property represent only 0.2% of GDP against 1.1% on average in the OECD. Recurrent taxation on immovable property has attractive features, including that the tax base is (by definition) immobile, the tax is transparent, and, if levied at the local level, can improve government accountability (OECD, 2022[80]). Empirically, previous OECD analyses have suggested that they are among the taxes the least harmful to growth (Akgun, Cournède and Fournier, 2017[77]; Arnold et al., 2011[81]). In contrast, transaction taxes in general are highly distortive. In particular, such taxation can reduce residential and labour mobility (O'Sullivan, Sexton and Sheffrin, 1995[82]; Causa and Pichelmann, 2020[83]). Empirical evidence generally finds that transaction taxes reduce prices and transaction volumes (OECD, 2022[80]).

Figure 2.13. Property taxation in Austria is low, and relies mostly on inefficient transaction taxes

Decomposition of tax revenue on property, 2021 or latest year available



Source: OECD (2023), OECD Revenue Statistics, OECD countries: Comparative tables (database).

StatLink https://stat.link/hyek2a

A regular update of property values should be introduced. Property values used for the local recurrent property tax base have not been updated in Austria since the 1980s. The adequate valuation of property is particularly salient in Austria as the inheritance tax was deemed unconstitutional in 2007 due to the outdated valuation of real estate assets compared to financial assets; while outdated cadastral values are one of the main source of low property tax revenues at the local level. Regular updating of property values is feasible, as demonstrated by practices in a number of other countries. For instance, Hungary, Korea, Mexico, and the Netherlands update property valuations every year. Australia, Japan, New Zealand and Portugal update every three years; in Chile every four years; in Lithuania every five years (OECD, 2021[84]). The International Association of Assessing Officers recommends that revaluations take place at least every 6 years (IAAO, 2017[85]).

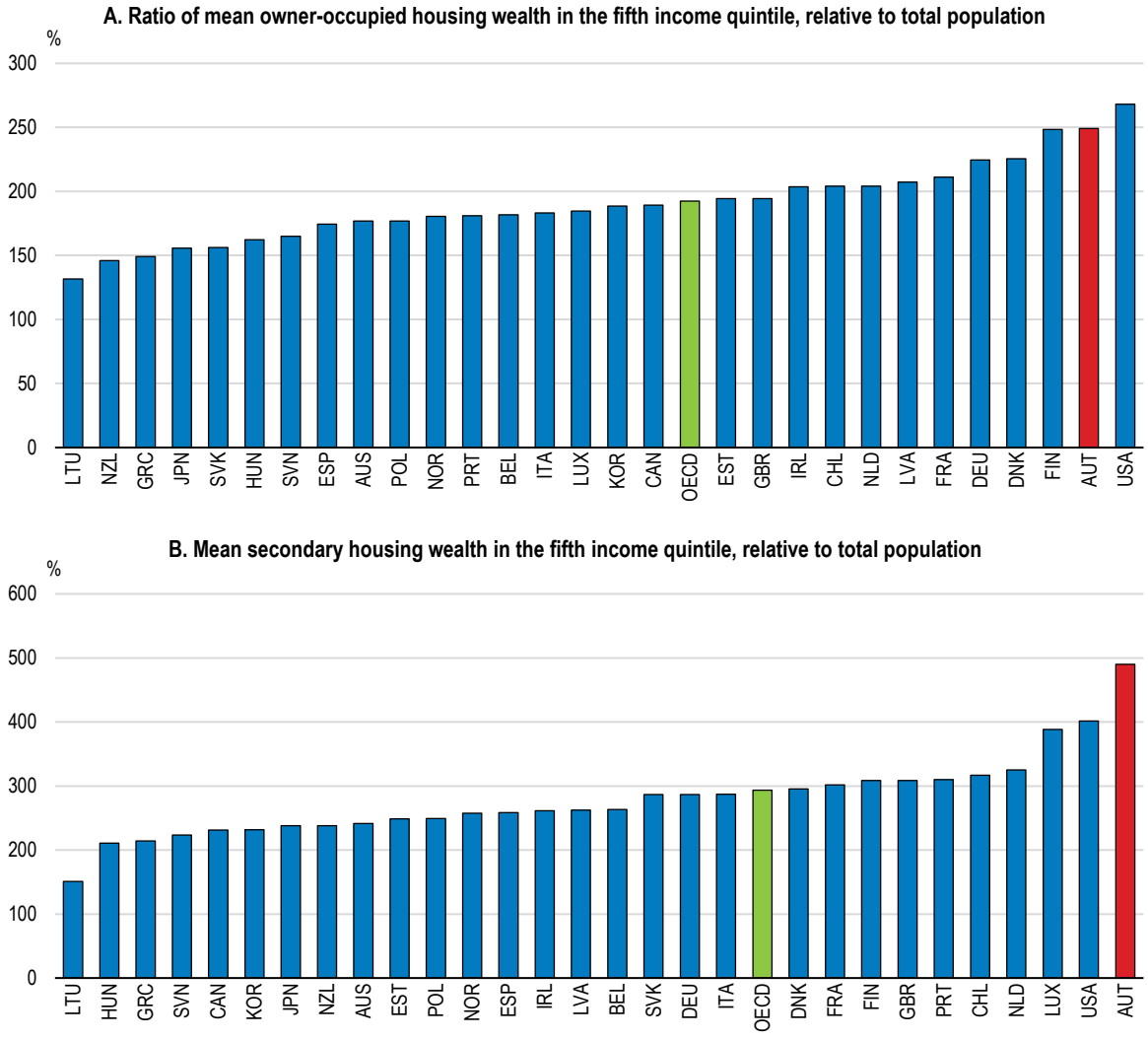
Property valuation should make full use of digital technologies. For instance, consideration should be given to computer assisted mass appraisal (CAMA, (McCluskey et al., 2012[86])), in which a group of properties are jointly appraised following standardised procedures and testing (OECD, 2021[84]). Similarly, data from digital platforms advertising properties for sale (e.g. Zillow in the United States, SeLoger in France) can be exploited to generate property valuations. Indexation via a construction price index, a house price index, the consumer price index, or a combination thereof, can help update property values between market updates.

Close attention is needed to ensure the acceptability of increased recurrent property taxation. This should include:

- Gradual phase-in. A tax shift away from transaction and towards more recurrent property taxation may raise concerns among those property owners who paid transaction taxes and should be implemented gradually. For instance, a gradual shift is being implemented in the Australian Capital Territory (ACT) where the property transfer tax is being phased out over a 20-year period, while broadening the base and increasing the rates of the recurrent tax on unimproved immovable property (Breunig et al., 2020[87]; OECD, 2022[80]).
- Embedding regular valuations in a wider tax reform, as for instance was done in Denmark and Ireland (Box 2.4).

- Careful design to prevent regressivity and liquidity constraints. Recurrent property taxation can be designed to ensure more progressivity and alleviate liquidity issues, e.g. by allowing for the payment in instalments and for tax deferrals, and by implementing relief using a limited flat rate exemption for all taxpayers (OECD, 2022[80]; Joumard, Pisu and Bloch, 2012[88]). Eventually, the positive redistributive impact of property taxation could be relatively higher in countries such as Austria, where housing wealth is more concentrated. Average wealth in owner-occupied housing is 4.6 times higher in the fifth income quintile than in the first quintile, against 3.6 in the OECD on average (Figure 2.14, (OECD, 2022[80])) while the relative and absolute gap in secondary real estate wealth is even larger.

Figure 2.14. Housing wealth is concentrated in the top income quintile



Note: Income quintiles are calculated on household non-equivalised disposable income or gross income depending on data availability. Wealth values are expressed in 2015 USD by, first, expressing values in prices of the same year (2015) through consumer price indices and, second, by converting national values into PPP USD. See the source for more details on the methodology.
Source: OECD Wealth Distribution Database; and OECD (2022), Housing Taxation in OECD Countries, OECD Tax Policy Studies, No. 29.

StatLink https://stat.link/28tga3

Box 2.4. Recent reforms updating cadastral values for recurrent property taxation

Denmark

Denmark froze property values for the purposes of property taxation in 2002, which contributed to booming housing prices and a fall in the effective rate of property taxation. These tax savings were shown to be unequally distributed across regions. In 2017, a property tax reform included updating of property values every second year. Given the nearly two decade-long tax freeze, the reassessments were expected to significantly raise property tax obligations.

To cushion the increased property tax liabilities, the government combined the property revaluation with other property tax reforms. The statutory property tax rate was lowered from 1% to 0.6% and a surtax aimed at high-value properties was applied above a value threshold. In addition, homeowners whose overall property taxes increased with the new system were compensated through a tax rebate in 2021 and will have the option to defer the future increase in recurrent property tax liabilities until the sale of the property.

Ireland

Following the introduction of the Local Property Tax in 2013, property values for tax purposes were due to be revalued in 2016. However, revaluation was delayed, property values were outdated and properties that had been built since 2013 were not subject to the tax. A reform in 2021 cut tax rates, broadened the base, required taxpayers to update their self-assessed property valuation and included previously-exempt housing (built since 2013).

The reform is expected to decrease or leave property tax liabilities unchanged for the majority of taxpayers. Around one third of the taxpayers are expected to face an increase in their recurrent property tax burden of up to EUR 100 (USD 118) per year while only 3% should face an increase of more than EUR 100. To support lower-income households, the reform also increased the income threshold below which taxpayers are eligible for property tax deferral and lowered the interest charged on deferred tax payments from 4% to 3%.

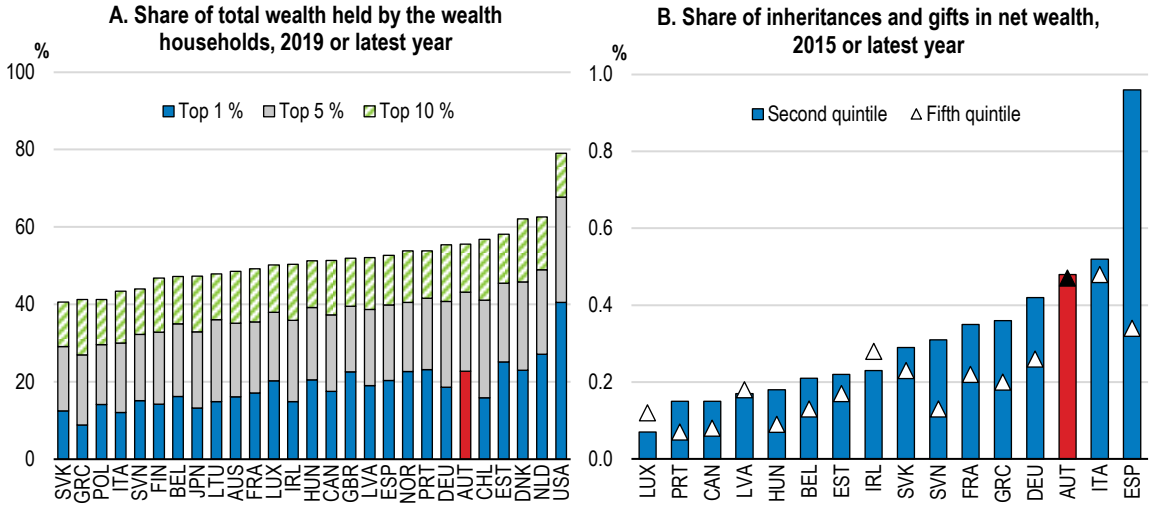
Source: (OECD, 2022[80])

Introducing a tax on intergenerational transfers

The distribution of wealth is highly unequal in Austria, and a relatively large share of wealth is inherited. Wealth is highly concentrated at the top of the distribution relative to other countries. According to the latest available data, around 56% of household wealth was held by the top 10% (Figure 2.15, Panel A, and Balestra and Tonkin (2018[89])). Wealth inequality is among the highest in Europe, and the mean-to-median net wealth ratio is the fifth highest in the OECD (Eurofound, 2021[90]; OECD, 2023[91]). Furthermore, a large share of household wealth is inherited, which may contribute to wealth inequalities. The number of households receiving inheritances or gifts is high in Austria relative to other OECD countries, and the average value of those transfers is the highest among countries with available data (Balestra and Tonkin, 2018[89]; OECD, 2021[92]). Inheritances and gifts represent around half of mean net wealth for Austrian households, double the share in other OECD countries (Figure 2.15, Panel B). In addition, the relative frequency and levels of inheritances received by the wealthiest are higher than in most OECD countries (Figure 2.16). This could potentially contribute to low social mobility in Austria. Evidence suggests that socio-economic outcomes in the country carry over strongly from one generation to the next: more than elsewhere, fathers' earnings are a strong predictor of the earnings of their prime-age children (Förster and Königs, 2020[93]). At the same time, empirical data from the Household Finance and Consumption Survey and the OECD's Risks that Matter survey suggest that the majority of the population in Austria is in favour

of higher taxation of wealth to reduce inequalities, regardless of the income and wealth situation of their households (Fessler, Lindner and Schürz, 2023[94]), and that in general the rich should be taxed more to support the poor (OECD, 2022[95]).

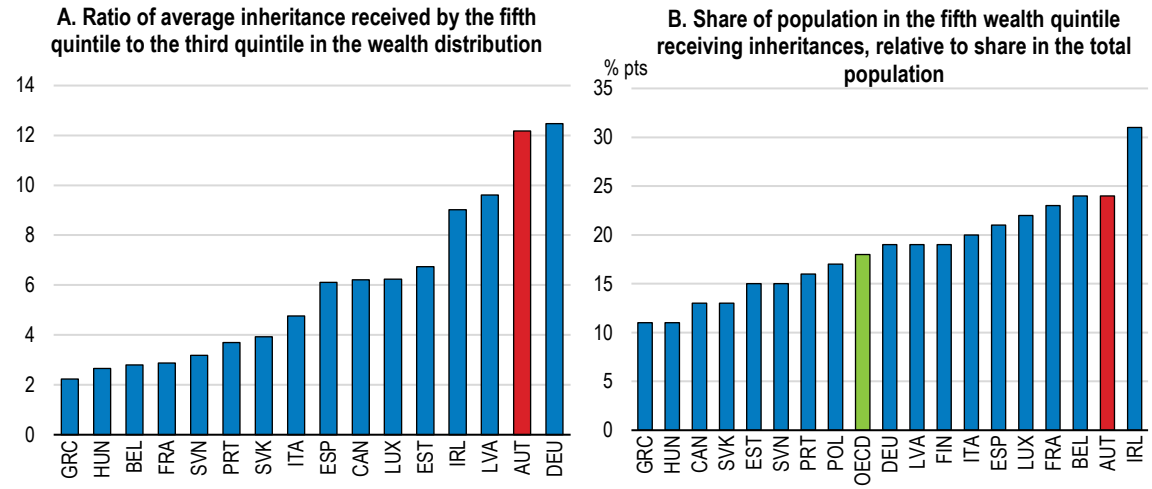
Figure 2.15. Austria's wealth is highly concentrated and a large share is inherited



Note: See Balestra and Tonkin (2018) for details on how the value of inheritances is computed in Panel B.
Source: OECD Wealth Distribution Database; and OECD (2021), Inheritance Taxation in OECD Countries, OECD Tax Policy Studies, No. 28.

StatLink https://stat.link/h0r6q4

Figure 2.16. Inheritance is concentrated among the wealthy



Note: Data on inheritances include substantial gifts where a gift is defined as a transfer of assets made during the life of a donor, not connected to the death of that person. Data refer to 2015 or latest year. In Panel B, the OECD aggregate refers to the unweighted average of 18 countries.
Source: OECD (2021), Inheritance Taxation in OECD Countries, OECD Tax Policy Studies, No. 28.

StatLink https://stat.link/ctomsn

Introducing a tax on intergenerational transfers should be considered. While two-thirds of OECD countries levy wealth transfer taxes, Austria does not tax gifts, inheritances or estates directly although transfers of immovable property through inheritances are still subject to the real estate transaction tax mentioned above (OECD, 2021[92]). A well-designed taxation of intergenerational transfers can improve distributional outcomes and enhance both horizontal and vertical equity (Elinder, Erixson and Waldenström, 2018[96]). Such taxes also have more limited effects on savings than other taxes levied on wealthy taxpayers (Advani and Tarrant, 2021[97]), and positive effects on heirs' labour supply and savings (OECD, 2021[92]). The taxation of intergenerational transfers could become more relevant as there will be a growing number of wealth transfers as the population ages (Crowe et al., 2022[98]). Finally, the taxation of intergenerational transfers has a number of administrative advantages compared to other forms of wealth taxation as they are levied when property changes hands and needs to be appraised**.** However, the taxation of inheritances should not be seen as a significant way to directly raise revenue. In countries that still levy taxes on intergenerational wealth transfers, those taxes raise negligible revenue, representing around 0.2% of GDP on average in the OECD.

A new tax on intergenerational transfers needs to be based on fair valuations and to be designed to support progressivity and reduce potential hardships. Similarly to property taxation, the appropriate valuation of assets will be important, especially given the history of inheritance tax in Austria. In addition to the updated valuation of real estate assets discussed above, asset values should be based on fair market values as much as possible. Exempting small inheritances – via a lifetime transfer threshold adjusted with inflation - and setting a progressive tax rate schedule would support the redistributive impact of the tax. Payments in instalments and deferrals under certain conditions should be allowed in order to overcome liquidity issues and potential hardships linked to the one-off transfer of illiquid assets (OECD, 2021[92]). Similarly, this tax should be levied on recipients, not donors, which would promote equality of opportunity in particular if the tax applies to lifetime transfers.

Careful design and international cooperation would limit the impact of tax avoidance and tax evasion responses to the taxation of intergenerational transfers. The taxation of mobile capital is subject to tax planning, and exemptions to the taxation of intergenerational transfers can create opportunities for avoidance – although behavioural responses tend to be lower compared to other forms of net wealth taxes (Schratzenstaller, 2023[99]). Exemptions and reliefs for specific assets (such as the main residence, or business assets) should be limited and carefully designed. A low-rate inheritance tax (and allowing tax payments in instalments, as mentioned above) would significantly reduce the need to exempt or provide significant relief for illiquid assets, and thus reduce avoidance opportunities (Dherbécourt et al., 2021[100]; OECD, 2021[92]). A tax on lifetime wealth transfers like Ireland's Capital Acquisitions Tax, including inter vivos transfers, would support horizontal and vertical equity while reducing tax avoidance opportunities. The taxation of wealth transfers is also subject to international tax evasion. In particular, financial assets are highly mobile and low barriers to cross-border capital transfers between many countries have allowed taxpayers to hold their capital offshore without declaring it to their tax authorities. However, information exchange agreements as well as further international cooperation on the exchange of information on request, and the automatic exchange of information, reduce opportunities for tax evasion (O'Reilly, Parra Ramirez and Stemmer, 2019[101]).

Recommendations

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Ensuring macroeconomic stability and rebuilding fiscal buffers	
Growth is expected to be below potential in 2024 while monetary policy remains tight. In parallel, the public deficit is only expected to slowly diminish over the next years slightly below 3%, and public debt is at historically high levels.	**Maintain a stable public deficit in the short term, while demand is weak and monetary policy is contractionary.** **Introduce a stronger medium-term plan to reduce the deficit and the debt level as the economy picks up.**
The increase in imported inflation over the past year has put pressure on the collective bargaining system which uses the average previous-year CPI inflation as a reference, as wages did not compensate for the loss in purchasing power in 2023, while current increases will increase labour costs significantly.	**Consider a measure of core inflation to be used as reference in wage negotiations when the economy normalises.**
There are risks of further trade disruptions and additional spikes in energy and food prices.	Collect data and monitor supply-chain risks. Ensure that gas storage continues to be at capacity. Make sure that future support against rising prices is targeted and preserve price signals for energy.
Private indebtedness is low but the share of new loans with variable interest rates is high.	Monitor closely the vulnerability of households and companies to variable interest rate loans.
Address fiscal pressure on expenditures	
Expenditure on health, long-term care and pensions is projected to rise by around 5.8 percentage points of GDP by 2060 based on current policies. Without measures to reduce or offset these costs, the debt-GDP ratio will potentially be on an unsustainable trajectory. Austria is expected to have one of the lowest effective labour market exit age in Europe starting in 2030 and life expectancy after labour market exit is among the highest in the OECD. There is a large gap in the participation in job-related training between older and younger workers.	**Ensure the long-term sustainability of the pension system, e.g. by linking the retirement age to life expectancy.** Reduce early retirement pathways by further reforming the access to disability pensions, improving prevention and rehabilitation measures, and enhancing incentives to continue working at an older age while ensuring good working conditions. Improve the employability of the elderly population in particular by reducing the costs of training for both employers and employees and monitor age discrimination. **Strengthen preventive measures for chronic health conditions to reduce health expenditure, continuing a package of measures targeting alcohol and tobacco consumption, including higher taxes.**
Austria spends substantially more than most countries on hospital inpatient care. In contrast, spending on prevention and primary care is lower than the OECD average. The number of general practitioners per capita is now among the lowest in the EU.	**Shift health services away from hospital care by strengthening outpatient care to ensure the long-term fiscal sustainability of the healthcare system.** Reinforce further the role of primary healthcare and the use of digital tools to guide patients to the best point of service. Expand the functions of pharmacists and nurses. Improve coordination on health care between the federal states and the central government.
The scope of spending reviews is narrow, they lack direct integration in the budget process, and transparency is limited.	**Implement comprehensive spending reviews and integrate the results in the annual and medium-term budget processes.**
Make the tax system more growth-friendly	
Austria taxes property at low levels, mostly through transaction taxes. Recurrent taxes on immovable property have attractive features and are among the taxes the least harmful to growth. In contrast, transaction taxes in general are highly distortive. The labour tax wedge remains high in Austria compared to other OECD countries and represents a barrier to higher employment of low-wage employees.	**Shift the taxation from labour to other bases, including higher carbon taxation and the recurrent taxation of immovable property.** **Introduce a regular update of property values.** For immovable property, reduce taxation on transactions and increase recurrent property taxation, with a gradual phase-in and designed to prevent regressivity.
Wealth is highly concentrated at the top of the distribution relative to other OECD countries. A relatively large share of wealth is inherited, which potentially hinders inclusive growth.	Consider a tax on intergenerational transfers based on fair valuation of assets, taxing the recipient above a lifetime threshold under a progressive tax schedule, and with limited exemptions.

References

Advani, A. and H. Tarrant (2021), "Behavioural responses to a wealth tax", *Fiscal Studies*, Vol. 42/3-4, pp. 509-537, https://doi.org/10.1111/1475-5890.12283. [97]

Akgun, O., B. Cournède and J. Fournier (2017), "The effects of the tax mix on inequality and growth", *OECD Economics Department Working Papers*, No. 1447, OECD Publishing, Paris, https://doi.org/10.1787/c57eaa14-en. [77]

Arce, O. et al. (2023), "More jobs but fewer working hours", *The ECB blog*, https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog230607~9d31b379c8.en.html. [8]

Arnold, J. et al. (2011), "Tax Policy for Economic Recovery and Growth", *The Economic Journal*, Vol. 121/550, pp. F59-F80, https://doi.org/10.1111/j.1468-0297.2010.02415.x. [81]

Balestra, C. and R. Tonkin (2018), "Inequalities in household wealth across OECD countries: Evidence from the OECD Wealth Distribution Database", *OECD Statistics Working Papers*, No. 2018/01, OECD Publishing, Paris, https://doi.org/10.1787/7e1bf673-en. [89]

Battistini, N. and J. Gareis (2023), "Excess savings: To spend or not to spend", *The ECB blog*, https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog231102~66a04caa1e.en.html. [13]

Battistini, N., V. Nino and J. Gareis (2023), "The consumption impulse from pandemic savings – does the composition matter?", *ECB Economic Bulletin*, Vol. 4, https://ideas.repec.org/a/ecb/ecbbox/202300041.html. [14]

Bauer, H. et al. (2010), "Grundsätzliche Reform des Finanzausgleichs: Verstärkte Aufgabenorientierung", *KDZ Research Report*, https://www.kdz.eu/de/wissen/studien/grundsaetzliche-reform-des-finanzausgleichs-verstaerkte-aufgabenorientierung. [74]

Bittschi, B. and B. Meyer (2023), "Improvement in Relative Unit Labour Costs in 2022", *WIFO Reports on Austria* 14, https://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=en&reserve-mode=active&content-id=1530300275417&publikation_id=71176&detail-view=yes. [3]

BMF (2024), *Klima- und Umweltschutz 2024*, https://service.bmf.gv.at/Budget/Budgets/2024/beilagen/Klima-_und_Umweltschutz_2024.pdf. [70]

BMF (2022), "Initial information on the 2022 national emissions certificates trading law (NEHG 2022)", https://www.bmf.gv.at/en/topics/Climate-policy/initial_nehg_2022_en.html. [78]

Breunig, R. et al. (2020), "Analysis of the Impacts and Outcomes of the ACT tax reform", *Tax and Transfer Policy Institute*, https://taxpolicy.crawford.anu.edu.au/sites/default/files/uploads/taxstudies_crawford_anu_edu_au/2021-02/final_report_natsem_ttpi_2020.pdf. [87]

Causa, O. and J. Pichelmann (2020), "Should I stay or should I go? Housing and residential mobility across OECD countries", *OECD Economics Department Working Papers*, No. 1626, OECD Publishing, Paris, https://doi.org/10.1787/d91329c2-en. [83]

Crowe, D. et al. (2022), "Population ageing and government revenue: Expected trends and policy considerations to boost revenue", *OECD Economics Department Working Papers*, No. 1737, OECD Publishing, Paris, https://doi.org/10.1787/9ce9e8e3-en. [98]

Dechezleprêtre, A., N. Rivers and B. Stadler (2019), "The economic cost of air pollution: Evidence from Europe", *OECD Economics Department Working Papers*, No. 1584, OECD Publishing, Paris, https://doi.org/10.1787/56119490-en. [52]

Devaux, M. et al. (2023), "Évaluation du programme national de lutte contre le tabagisme en France", *Documents de travail de l'OCDE sur la santé*, No. 155, Éditions OCDE, Paris, https://doi.org/10.1787/b656e9ac-fr. [47]

Dherbécourt, C. et al. (2021), "Rethinking Inheritance", *Les notes du conseil d'analyse économique* 69, https://www.cae-eco.fr/staticfiles/pdf/cae-note069-en.pdf. [100]

Doherty, L. and A. Sayegh (2022), "How to Design and Institutionalize Spending Reviews", *IMF How To Notes* 2022 (004). [66]

Elinder, M., O. Erixson and D. Waldenström (2018), "Inheritance and wealth inequality: Evidence from population registers", *Journal of Public Economics*, Vol. 165, pp. 17-30, https://doi.org/10.1016/j.jpubeco.2018.06.012. [96]

Elva, B., R. Elcoli and X. Bosch (2020), *Spending reviews: some insights from practitioners*, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission. [68]

Eurobarometer (2019), *Discrimination in the European Union*, https://europa.eu/eurobarometer/api/deliverable/download/file?deliverableId=71144. [33]

Eurofound (2021), "Wealth distribution and social mobility", *Publications Office of the European Union, Luxembourg.*, https://www.eurofound.europa.eu/publications/report/2021/wealth-distribution-and-social-mobility. [90]

European Commission (2024), "2024 Ageing Report. Economic and Budgetary Projections for the EU Member States (2022-2070)", *European Commission Institutional Papers 279*, https://economy-finance.ec.europa.eu/publications/2024-ageing-report-economic-and-budgetary-projections-eu-member-states-2022-2070_en. [26]

European Commission (2021), "Long-term care report: Trends, challenges and opportunities in an ageing society. Volume II, Country profile: Austria", *Directorate-General for Employment, Social Affairs and Inclusion*, https://data.europa.eu/doi/10.2767/183997. [59]

European Commission (2021), "The 2021 Ageing Report: Economic and Budgetary Projections for the EU Member States (2019-2070)", *European Commission Institutional Papers 148*, https://economy-finance.ec.europa.eu/publications/2021-ageing-report-economic-and-budgetary-projections-eu-member-states-2019-2070_en. [58]

European Commission (2018), "Country Report Austria 2018", https://commission.europa.eu/system/files/2018-03/2018-european-semester-country-report-austria-en.pdf. [79]

Famira-Mühlberger, U. and B. Trukeschitz (2023), "Zur öffentlichen Finanzierung der Langzeitpflege in Österreich", *WIFO-Monatsberichte*, https://ideas.repec.org/a/wfo/monber/y2023i12p857-868.html. [56]

Felbermayr, G., B. Bittschi and J. Baumgartner (2023), "Collective Bargaining in Times of High Inflation", *WIFO Monatsberichte* 9, https://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=en&content-id=1530300275417&publikation_id=71135&detail-view=yes. [18]

Felsinger, R. and E. Groman (2022), "Price Policy and Taxation as Effective Strategies for Tobacco Control", *Frontiers in Public Health*, Vol. 10, https://doi.org/10.3389/fpubh.2022.851740. [43]

Fessler, P., P. Lindner and M. Schürz (2023), "Eurosystem Household Finance and Consumption Survey 2021: First results for Austria", *OeNB Reports*, Vol. 2, https://www.hfcs.at/en/results-tables/hfcs-2021.html. [94]

Fiskalrat (2023), "Recommendations from June 2023", https://fiskalrat.at/publikationen/berichte/empfehlungen-zur-fiskalpolitik-uebersicht.html. [65]

Förster, M. and S. Königs (2020), "Promoting social mobility in Austria", *OECD Social, Employment and Migration Working Papers*, No. 251, OECD Publishing, Paris, https://doi.org/10.1787/1e0efdcc-en. [93]

Fritzer, F., L. Reiss and M. Schneider (2023), "What's driving inflation in Austria? Energy imports, profits or wages?", https://t.co/9RkHXlg5FD. [12]

Gesundheit Österreich (2023), "Repräsentativerhebung zu Konsum- und Verhaltensweisen mit Suchtpotenzial". [37]

GHK (2012), "A study on liability and the health costs of smoking", *European Commission Directorate General for Health and Food Safety*, https://health.ec.europa.eu/system/files/2016-11/tobacco_liability_final_en_0.pdf. [38]

Government of New Zealand (2023), *Baseline savings - agency breakdown*, https://www.beehive.govt.nz/sites/default/files/2023-08/Baseline%20savings%20-%20agency%20breakdown.pdf. [71]

Hemmerlé, Y. et al. (2023), "Aiming better: Government support for households and firms during the energy crisis", *OECD Economic Policy Papers*, No. 32, OECD Publishing, Paris, https://doi.org/10.1787/839e3ae1-en. [1]

Hoffer, A. (2023), "Cigarette Taxes in Europe", *Tax Foundation*, https://taxfoundation.org/data/all/eu/cigarette-tax-europe-2023/. [40]

Hoffmann, K. et al. (2019), "The influence of general practitioners on access points to health care in a system without gatekeeping", *Croatian Medical Journal*, Vol. 60/4, pp. 316-324, https://doi.org/10.3325/cmj.2019.60.316. [55]

IAAO (2017), "Standard on Mass Appraisal of Real Property", https://www.iaao.org/media/standards/StandardOnMassAppraisal.pdf. [85]

IHS (2023), "Prognose der österreichischen Wirtschaft 2023–2027", https://irihs.ihs.ac.at/id/eprint/6617/. [10]

Joumard, I., M. Pisu and D. Bloch (2012), "Tackling income inequality: The role of taxes and transfers", *OECD Journal: Economic Studies*, https://doi.org/10.1787/eco_studies-2012-5k95xd6l65lt. [88]

Kohler, A., L. Vinci and R. Mattli (2023), "Cross-country and panel data estimates of the price elasticity of demand for cigarettes in Europe", *BMJ Open*, Vol. 13/6, p. e069970, https://doi.org/10.1136/bmjopen-2022-069970. [45]

L'Horty, Y., P. Martin and T. Mayer (2019), "The French Policy of Payroll Tax Reductions", *Les notes du conseil d'analyse économique*, https://www.cae-eco.fr/Baisses-de-charges-stop-ou-encore. [76]

McCluskey, W. et al. (2012), *Computer Assisted Mass Appraisal And The Property Tax*, Wiley, https://doi.org/10.1002/9781118454343.ch14. [86]

Mesch, M. (2015), "Benya-Formel gleich produktivitätsorientierte Lohnpolitik", *Wirtschaft und Gesellschaft*, https://wug.akwien.at/WUG_Archiv/2015_41_4/2015_41_4_0593.pdf. [17]

Moser, M. et al. (2023), "Economic outlook for Austria from 2023 to 2026", *OeNB Report*, Vol. 7, https://www.oenb.at/en/Publications/Economics/reports/2023/oenb-report-2023-7--economic-outlook-for-austria/oenb-report-2023-7--economic-outlook-for-austria-html.html. [2]

Nagl-Cupal, M. et al. (2018), "Studie zur Situation pflegender Angehöriger in Österreich", https://broschuerenservice.sozialministerium.at/Home/Download?publicationId=664. [61]

O'Reilly, P., K. Parra Ramirez and M. Stemmer (2019), "Exchange of information and bank deposits in international financial centres", *OECD Taxation Working Papers*, No. 46, OECD Publishing, Paris, https://doi.org/10.1787/025bfebe-en. [101]

O'Sullivan, A., T. Sexton and S. Sheffrin (1995), "Property Taxes, Mobility, and Home Ownership", *Journal of Urban Economics*, Vol. 37/1, pp. 107-129, https://doi.org/10.1006/juec.1995.1007. [82]

Oberhofer, H. et al. (2024), "FIW Jahresgutachten 2024 – Die österreichische Außenwirtschaft", *FIW Research Centre International Economics*, https://www.fiw.ac.at/en/publications/fiw-jahresgutachten-2024/. [4]

OECD (2023), *Economic Policy Reforms 2023: Going for Growth*, OECD Publishing, Paris, https://doi.org/10.1787/9953de23-en. [50]

OECD (2023), *Health at a Glance 2023: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/7a7afb35-en. [60]

OECD (2023), *Long-term scenarios: incorporating the energy transition*, https://www.oecd-ilibrary.org/economics/long-term-scenarios-incorporating-the-energy-transition_153ab87c-en. [25]

OECD (2023), *Net Energy Tax Revenues and Reform Potential*, https://stats.oecd.org/Index.aspx?DataSetCode=REVPOT. [28]

OECD (2023), *OECD Employment Outlook 2023: Artificial Intelligence and the Labour Market*, OECD Publishing, Paris, https://doi.org/10.1787/08785bba-en. [7]

OECD (2023), *Pensions at a Glance 2023: OECD and G20 Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/678055dd-en. [30]

OECD (2023), *Retaining Talent at All Ages*, Ageing and Employment Policies, OECD Publishing, Paris, https://doi.org/10.1787/00dbdd06-en. [31]

OECD (2023), "Wealth Distribution Database", https://stats.oecd.org/Index.aspx?DataSetCode=WEALTH. [91]

OECD (2022), *Housing Taxation in OECD Countries*, OECD Tax Policy Studies, No. 29, OECD Publishing, Paris, https://doi.org/10.1787/03dfe007-en. [80]

OECD (2022), *OECD Economic Surveys: Slovak Republic 2022*, OECD Publishing, Paris, https://doi.org/10.1787/78ef10f8-en. [67]

OECD (2022), "Risks That Matter Survey - Austria", https://www.oecd.org/austria/RTM2022-Austria-en.pdf. [95]

OECD (2021), *Fiscal Federalism 2022: Making Decentralisation Work*, OECD Publishing, Paris, https://doi.org/10.1787/201c75b6-en. [73]

OECD (2021), *Health at a Glance 2021: OECD Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/ae3016b9-en. [35]

OECD (2021), *Inheritance Taxation in OECD Countries*, OECD Tax Policy Studies, No. 28, OECD Publishing, Paris, https://doi.org/10.1787/e2879a7d-en. [92]

OECD (2021), *Making Property Tax Reform Happen in China: A Review of Property Tax Design and Reform Experiences in OECD Countries*, OECD Fiscal Federalism Studies, OECD Publishing, Paris, https://doi.org/10.1787/bd0fbae3-en. [84]

OECD (2021), *Pensions at a Glance 2021: OECD and G20 Indicators*, OECD Publishing, Paris, https://doi.org/10.1787/ca401ebd-en. [29]

OECD (2021), *Preventing Harmful Alcohol Use*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/6e4b4ffb-en. [36]

OECD (2020), *Non-exhaust Particulate Emissions from Road Transport: An Ignored Environmental Policy Challenge*, OECD Publishing, Paris, https://doi.org/10.1787/4a4dc6ca-en. [49]

OECD (2020), *OECD Spending Review Survey*, OECD, Paris, https://qdd.oecd.org/subject.aspx?Subject=GOV_SP_REV. [69]

OECD (2020), *Realising the Potential of Primary Health Care*, OECD Health Policy Studies, OECD Publishing, Paris, https://doi.org/10.1787/a92adee4-en. [54]

OECD (2019), *Negotiating Our Way Up: Collective Bargaining in a Changing World of Work*, OECD Publishing, Paris, https://doi.org/10.1787/1fd2da34-en. [16]

OECD (2019), "Recent improvements to the public finance block of the OECD's long-term global model", *OECD Economics Department Working Papers*, Vol. No. 1581/OECD Publishing, Paris, https://doi.org/10.1787/4f07fb8d-en. [24]

OECD (2019), "Working Better with Age", *Ageing and Employment Policies*, Vol. OECD Publishing, Paris, https://doi.org/10.1787/c4d4f66a-en. [32]

OECD (2017), *Green Growth Indicators 2017*, OECD Green Growth Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264268586-en. [51]

OECD/European Observatory on Health Systems and Policies (2021), *Austria: Country Health Profile 2021*, State of Health in the EU, OECD Publishing, Paris, https://doi.org/10.1787/d4349682-en. [53]

OeNB (2023), "Facts on Austria and its banks", https://www.oenb.at/en/Publications/Financial-Market/Facts-on-Austria-and-Its-Banks.html. [22]

OeNB (2023), “Financial Stability Report”, Vol. 46, https://www.oenb.at/en/Publications.html. [23]

OeNB (2023), “Monetary Policy and the Economy”, *Quar terly Review of Economic Policy* Q2 – Q3/23, https://www.oenb.at/dam/jcr:b4e0b61c-5a8e-42d3-ae73-22428236b1c8/MOP-q2-q3-23.pdf. [11]

OeNB (2023), *Property market review - 1Q-2Q/2023*, Oesterreichische Nationalbank, https://www.oenb.at/en/Publications/Economics/property-market-review.html. [20]

OeNB (2023), *Umfrage über das Kreditgeschäft (Bank Lending Survey) - Oktober 2023*, Oesterreichische Nationalbank, https://www.oenb.at/Geldpolitik/Erhebungen/umfrage-ueber-das-kreditgeschaeft.html. [19]

Palali, A. and J. van Ours (2019), “The impact of tobacco control policies on smoking initiation in eleven European countries”, *The European Journal of Health Economics*, Vol. 20/9, pp. 1287-1301, https://doi.org/10.1007/s10198-019-01090-x. [42]

Peto, R., J. Boreham and A. Lopez (2012), “Mortality From Smoking In Developed Countries, 1950-2010”, https://www.ctsu.ox.ac.uk/research/mortality-from-smoking-in-developed-countries-1950-2005-or-later. [102]

Pock, M. et al. (2018), “Volkswirtschaftliche Effekte des Rauchens - Ein Update”, *IHS Research Report*, https://irihs.ihs.ac.at/id/eprint/4772/. [39]

Rappold, E. et al. (2021), “Taskforce Pflege: Begleitung des Prozesses zur Erarbeitung von Zielsetzungen, Maßnahmen und Strukturen”, https://www.sozialministerium.at/Services/Neuigkeiten-und-Termine/Archiv-2021/Februar-2021/Taskforce-Pflege--Ergebnisbericht.html. [63]

Rechnugshof Österreich (2023), “Pfege in Österreich und Pfege in Österreich und in Oberösterreich und Wien; Follow–up–Überprüfung”, https://www.rechnungshof.gv.at/rh/home/home/home_7/2023_Bund_Ooe_Wien_Pflege_in_Oesterreich_FuP.pdf. [62]

Rechnungshof Österreich (2020), “Pfege in Österreich”, https://www.rechnungshof.gv.at/rh/home/home/004.682_Pflege_Oesterreich.pdf. [64]

Schneider, M. and R. Sellner (2021), “Private consumption and savings during the COVID-19 pandemic in Austria”, *Monetary policy and The Economy* Q4, https://ideas.repec.org/a/onb/oenbmp/y2022iq4-21b2.html. [15]

Schratzenstaller, M. (2023), “Behavioral Responses to Inheritance Taxation. A Review of the Empirical Literature”, *WIFO Working Papers* 668, https://ideas.repec.org/p/wfo/wpaper/y2023i668.html. [99]

Schratzenstaller, M. (2015), “Reforming Austrian Fiscal Federalism:”, in *Austrian Federalism in Comparative Perspective*, The University of New Orleans Press, https://doi.org/10.2307/j.ctt1n2txpf.8. [75]

Sebbesen, A. et al. (2023), “Schwache Konjunkturdynamik in den Bundesländern”, *WIFO - Die Wirtschaft in den Bundesländern* 1, https://www.wifo.ac.at/news/schwache_konjunkturdynamik_in_den_bundeslaendern. [6]

Standard (2023), *AMS-Experiment: So stark werden Ältere am Jobmarkt diskriminiert*, https://www.derstandard.at/story/3000000192462/ams-experiment-liess-testen-wie-stark-aeltere-am-jobmarkt-diskriminiert-werden?ref=rss. [34]

Stefan Schiman-Vukan and S. Ederer (2023), "Purchasing Power Increases After Mild Recession: Economic Outlook for 2023 and 2024", *WIFO Reports on Austria* 16, https://www.wifo.ac.at/en/news/purchasing_power_increases_after_mild_recession. [5]

Stiglbauer, A. (2023), "Wages, inflation and a negative supply shock", *Monetary Policy and the Economy* Q4/22-Q1/23, https://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy.html. [9]

Treasury of New Zealand (2023), *Pre-election economic and fiscal update 2023*, https://www.treasury.govt.nz/sites/default/files/2023-09/prefu23.pdf. [27]

Trukeschitz, B., A. Österle and U. Schneider (2022), "Austria's Long-Term Care System: Challenges and Policy Responses", *Journal of Long Term Care*, pp. 88-101, https://doi.org/10.31389/jltc.112. [57]

Tryggvadottir, Á. (2022), "OECD Best Practices for Spending Reviews", *OECD Journal on Budgeting*, https://doi.org/10.1787/90f9002c-en. [72]

Valderrama, L. et al. (2023), "European Housing Markets at a Turning Point – Risks, Household and Bank Vulnerabilities, and Policy Options", *IMF Working Paper* 76, https://www.imf.org/en/Publications/WP/Issues/2023/03/24/European-Housing-Markets-at-a-Turning-Point-Risks-Household-and-Bank-Vulnerabilities-and-531349. [21]

WHO (2023), "Country Profile: Austria", *WHO report on the global tobacco epidemic, 2023*, https://cdn.who.int/media/docs/default-source/country-profiles/tobacco/gtcr-2023/tobacco-2023-aut.pdf. [48]

WHO (2021), "WHO report on the global tobacco epidemic 2021: addressing new and emerging products", https://www.who.int/publications/i/item/9789240032095. [41]

WHO (2008), "MPOWER: A Policy Package to Reverse the Tobacco Epidemic", https://www.afro.who.int/sites/default/files/2017-06/mpower_english.pdf. [46]

Yeh, C. et al. (2017), "The effects of a rise in cigarette price on cigarette consumption, tobacco taxation revenues, and of smoking-related deaths in 28 EU countries-- applying threshold regression modelling", *BMC Public Health*, Vol. 17/1, https://doi.org/10.1186/s12889-017-4685-x. [44]

3 Raising productivity to improve living standards

Trend productivity growth remains below par

Similar to many other advanced economies, Austria's productivity growth has been slowing. Between 2015 and 2019, Austria's hourly labour productivity grew by only 0.6% per year. Multifactor productivity (MFP) growth, which reflects innovation and improvement in resource allocation, halved from 0.8% between 1996 and 2005 to 0.4% between 2015 and 2019. Overall productivity growth is damped by weak productivity growth in services sectors (OECD, 2019[1]). In these sectors, the misallocation is substantially higher compared to manufacturing, possibly due to higher regulation and less exposure to international competition (OeNB, 2023[2]).

Figure 3.1. Firm entry and exit rates are low

Birth and death rate of enterprises, business economy, 2019



Source: Eurostat (2023), Business demography by size class and NACE Rev. 2 activity (2004-2020).

StatLink https://stat.link/ce89sv

Exceptionally low rates of firm entry and exit suggest less efficient resource allocation (Figure 3.1). Low entry and exit may reflect weak competition, which would imply that businesses have reduced incentives to strive for efficiency and to innovate (OECD, 2024[3]). Evidence from Austria finds that average annual

productivity growth among younger firms was 0.66 percentage points higher than among older firms (Peneder, 2021[4]). However, the share of young companies in Austria has been steadily decreasing and by 2020, it had dropped to 3.8%, falling significantly behind some European countries (Austrian Productivity Board, 2023[5]). The room to improve productivity through efficient resource allocation is substantial, particularly for services. Empirical evidence suggests that moving the Austrian economy up to US allocative efficiency would increase multifactor productivity by up to 50% (OeNB, 2023[2]).

Past Economic Surveys underlined several policies that can help businesses strengthen productivity, particularly through supporting digitalisation, easing regulation for businesses and strengthening the insolvency regime. Progress on these issues is reported below, followed by a special focus on what Austria can do to further stimulate innovation and promote more transparency in government actions.

Shortfalls in internet speed and access still hinder digitalisation

Access to fast broadband remains a weak point in Austria's digital infrastructure. Less than 40% of Austrian households have a contracted internet speed of at least 100 Megabytes per second (Mbps) (OECD, 2023[6]). Moreover, the difference in download speeds over fixed networks between rural and urban areas is among the highest in the OECD (Caldas, Veneri and Marshalian, 2023[7]). A mountainous topography and low population density in some regions discourage installation by private-sector telecom companies. Indeed, in a recent survey of telecom companies the "low number of customers that could be reached" was flagged as the most common obstacle to provide network services (WIFO, 2022[8]).

Policy campaigns to strengthen broadband are under way and have contributed to the gradual adoption of more capable technologies and higher bandwidths. Austria's 2030 broadband strategy, 'Broadband Austria 2030', plans for public investments in areas of low density and higher incentives for private investment. Funds totalling EUR 1.4 billion, available until 2026 directed for the expansion of the communications infrastructure in Austria as part of the so-called "Zweite Breitbandmilliarde", should help to connect rural areas. Connectivity is also addressed in the Austrian Recovery and Resilience Plan, which aims to allocate almost EUR 900 million to support the deployment of gigabit-capable access networks. The significant investments in this area should be underpinned by cost-benefit analysis. The Austrian authorities also established a state-owned infrastructure company in multiple Länder, which builds fibre networks in rural areas and then leases them to network operators.

Plans to expand broadband should include easing regulations relating to infrastructure deployment alongside innovative policy instruments. According to the STRI indicator (Services Trade Restrictiveness Index), the restrictions on infrastructure and connectivity in Austria are high compared to other OECD countries (OECD, 2023[9]). Decentralised procedures for granting permits have been slowing down network deployment, and some network providers reported that some municipalities remain reluctant to issue permits to deploy 5G base stations (EC, 2022[10]). Consideration should also be given to innovative policy instruments to expand broadband. For example, reverse auctions have been used in the United States to finance high-speed broadband networks in rural and remote areas (OECD, 2021[11]). In Germany, customer demand aggregation has been used to encourage infrastructure rollout to rural and remote areas (OECD, 2021[11]). Experience in some OECD countries shows that innovative hybrid approaches using satellite broadband technologies can also improve access in rural and remote areas (OECD, 2017[12]).

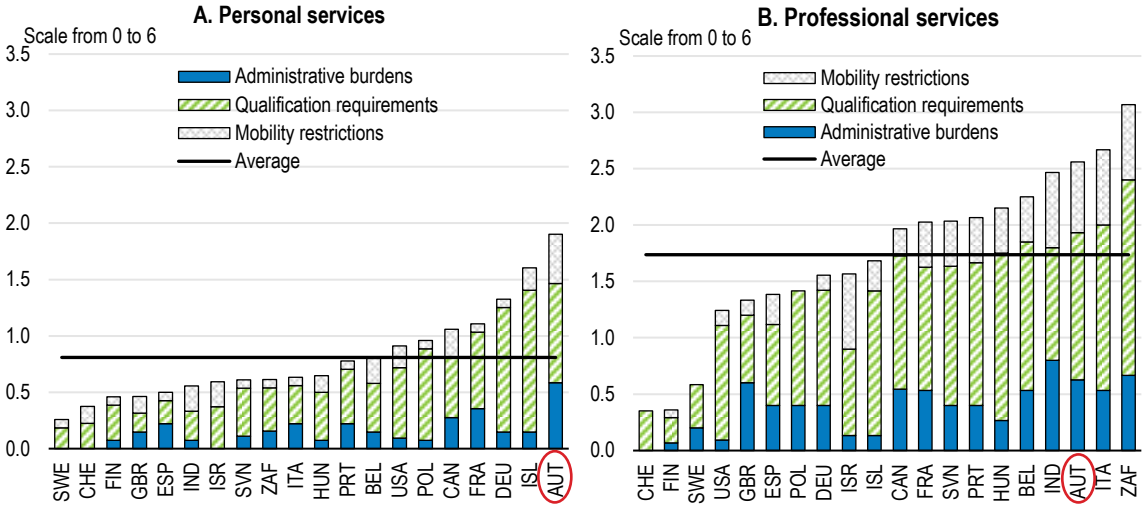
Scope remains to ease business regulation

Past Surveys have underscored scope for more pro-competitive reforms in business regulation. Indeed, product market regulation settings in Austria are slightly stricter compared to other OECD countries (OECD, 2018[13]), regulatory barriers to enter Austria's services sectors are relatively high (Figure 3.2). (Bambalaite, Nicoletti and Rueden, 2020[14]). A large number of professions are regulated and some professional chambers have overly strong steerage on licencing requirements and on what tasks are

exclusively performed. Regulation of architectural and engineering services is much more restrictive than in other OECD countries. The manager as well as the majority of board members of an engineering company must be licensed professionals, foreign engineers have to take a local examination, and commercial presence in Austria is required to provide engineering services (OECD, 2022[15]). Easing entry requirements into certain professional services can help significantly boost the productivity growth of service sectors directly, and of other sectors relying on them indirectly (Bambalaite, Nicoletti and Rueden, 2020[14]).

Figure 3.2. There is room to reduce regulation and promote competition

Occupational entry regulations (OER) indicator, 2020



Note: In Panel A, 0 indicating the most competition-friendly regulatory regime and 6 the least competition-friendly. Regulations for Canada and US represent the unweighted average of province/state level regulations.
Source: Von Rueden, C. and I. Bambalaite (2020), "Measuring occupational entry regulations: A new OECD approach", OECD Economics Department Working Papers, No. 1606.

StatLink https://stat.link/ieflym

Attention to the insolvency regime is still needed

Efficient insolvency frameworks support business dynamism and productivity gains by facilitating a timely exit of non-viable low productivity companies. The share of those companies that, instead of exiting the market or being restructured, manage to continue operating over an extended period (the so-called "zombie firms"), was falling prior to the pandemic in Austria and has typically been low in international comparison (OeNB, 2021[16]; IMF, 2023[17]). However, the OECD Insolvency Indicator, which summarises the most relevant features of insolvency frameworks for resource reallocation and productivity growth, suggests that there is still room to improve the insolvency regime (André, 2022[18]).

Austria can further simplify and speed up its insolvency framework. According to the OECD insolvency indicator, the degree of court involvement is relatively high compared to other countries (André, 2022[18]). Some OECD countries have simplified their insolvency framework to reduce complexity and costs, as well as incentivise creditors and debtors to reach voluntary agreements for small companies. For example, in the United States, 80% of restructuring plans were approved by all classes of creditors during the first seven months of a new restructuring procedure for SMEs being in place (White, 2021[19]; André, 2022[18]).

In Colombia, SMEs can access simplified restructuring and liquidation procedures using mediation, with about 90% of the objections settled during the mediation meetings (André, 2022[18]).

Table 3.1. Past OECD recommendations on increasing productivity and business dynamism

Recommendations in previous Surveys	Actions taken since previous Survey (Dec 2021)
Increase access to high-quality internet throughout the country and achieve the national and EU goal of Gigabit connectivity for all households by 2030.	The Austrian Recovery and Resilience Plan includes almost EUR 900 million to support deployment of gigabit-capable access networks. The regional state-owned infrastructure company - Niederösterreichische Glasfaserinfrastruktur - builds fiber networks in rural areas and then leases them to network operators. New funds have been directed for the expansion of the communications infrastructure in Austria as part of the so-called "Breitbandmilliarde" to help to connect rural areas.
Reduce regulatory barriers in entering market services without undermining their quality and skill standards.	No action taken
Continue reducing regulatory barriers for start-ups	'Once-only' reform, whereby businesses will only have to report certain data once rather than repeated reporting to different regulatory departments. Start-up package reform shall facilitate setting up new companies. In 2024, Austria introduced the Flexible Company - "Flexible Kapitalgesellschaft" as a new legal form of corporation specially oriented to the needs of startups.

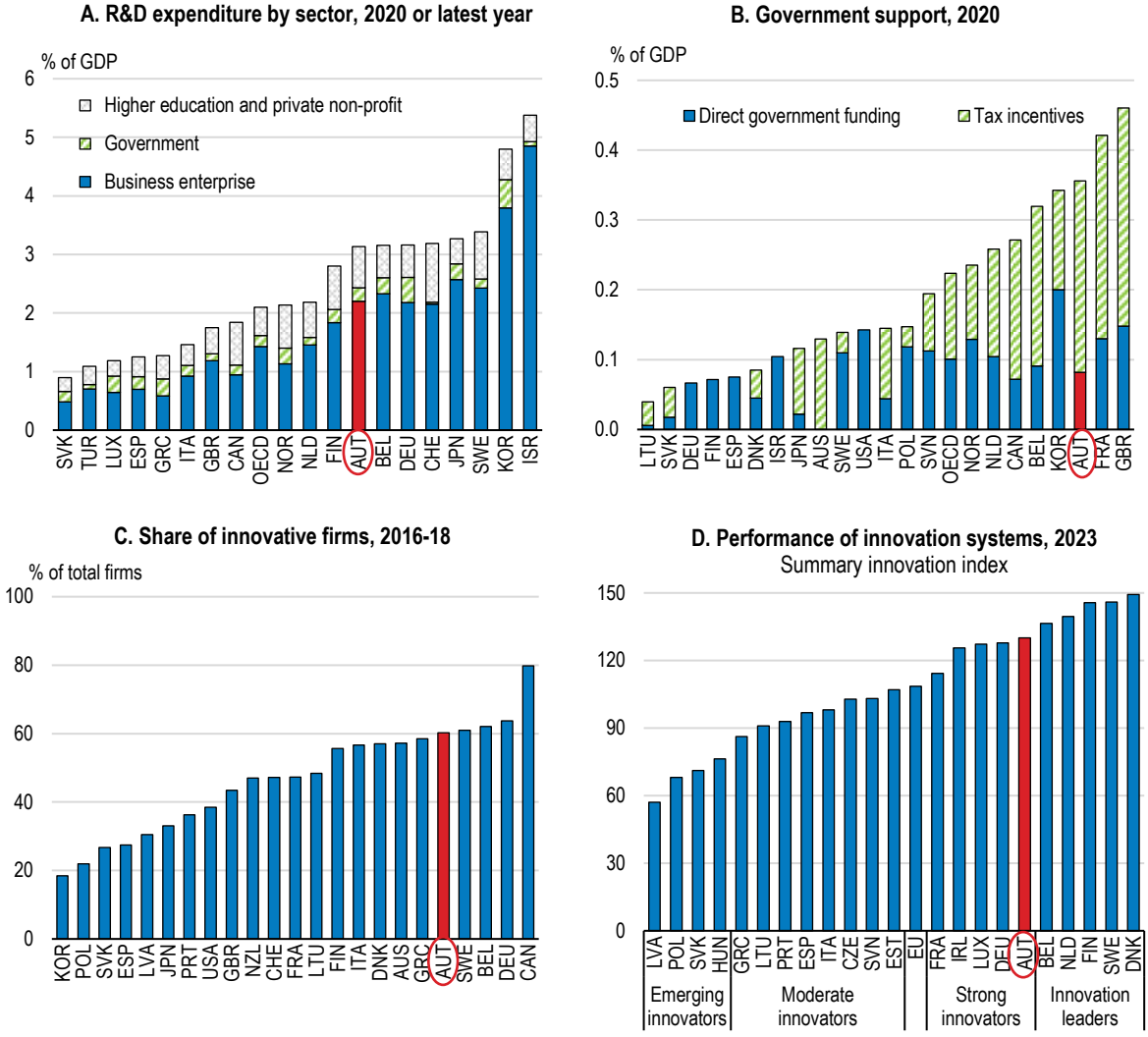
Enhancing innovation

Innovation, including the invention of new technologies, as well as novel business practices, such as the organisation of production and firm operation, are crucial drivers of productivity growth (OECD, 2024[3]; Baily, 2023[20]). Innovation requires successful collaboration between the various players of the innovation system, including firms and researchers, which can be facilitated and spurred by government support and coordination efforts.

In Austria, the government provides substantial tax and spending incentives for the private sector to innovate. This contributes to the country's high ranking in terms of total gross domestic R&D expenditures relative to GDP (Figure 3.3, Panel A). Government support includes direct government funding such as funding via the General Programme of the Austrian Research Promotion Agency (FFG), and tax incentives such as the research premium - a tax credit as reimbursement for 14% of firms' entire research expenditures. Tax measures account for most of the support in financial terms (Figure 3.3, Panel B). Almost half of the innovative companies in Austria receive government funding (OECD, 2022[21]). In addition to tax and spending support, Austria uses public procurement to promote innovation activity.

Government expenditure on tertiary education providers is also internationally high with strong incentives to collaborate with businesses (Box 3.1). Furthermore, the transfer of knowledge and technology from research institutes to firms has received positive assessments, with high mobility between the two sectors and strong knowledge absorption by firms (OECD, 2019[22]). University-business and international collaboration in research, which is an important channel of technology transfer, rank above the OECD average (Global Innovation Index, 2022[23]; European innovation scoreboard, 2023[24]).

Figure 3.3. Austria provides substantial government support for innovation



Note: In Panel A, unweighted average of available 30 countries for the OECD aggregate. In Panel B, data on subnational tax support are only available for Canada, Hungary and Japan. In Panel C, innovative firms refer to those reporting one or more innovations in the reference period. In Panel D, the innovation index is a composite indicator of 32 indicators in 12 innovation dimensions across four types of activities: framework conditions, investments, innovation activities and impacts. All performance scores are relative to that of the EU in 2016. The black lines show the threshold values between the performance groups, where the threshold values of 70%, 100%, and 125%, when using the latest 2023 data, have been adjusted upward by multiplying with 1.085 to reflect the performance increase of the EU between 2016 and 2023 as the graph shows performance scores relative to the EU in 2016.

Source: OECD (2023), OECD Research and Development Statistics (database); OECD (2021), OECD Economic Outlook: Statistics and Projections (database); OECD R&D Tax Incentives database, November 2023; OECD Business innovation statistics and indicators (https://www.oecd.org/sti/inno-stats.htm); and European Commission (2023), European Innovation Scoreboard 2023.

StatLink https://stat.link/lxn9sj

Box 3.1. Promoting collaboration between business and the research community in Austria

Collaboration in Austria between the research institutions, the public sector, and the business sector has been assessed favourably (Ecker, 2019[25]; EC, 2023[26]). There are specific provisions in the design of the R&D tax credit, which favours science-industry collaboration. Instruments to promote the mutual transfer of knowledge include:

- **Long-term science-industry co-operation schemes**, including:

(i) The COMET Competence Centre Programme, which funds centres and networks for cooperation between science and industry. The available evidence shows that COMET Centres make a significant contribution to the expertise and innovative output of the companies involved (Dinges, 2015[27]).

(ii) The Christian Doppler Research Association, which funds industry-relevant fundamental research at universities.

(iii) The BRIDGE programme, which supports small consortia in application-oriented basic research. Evaluations show that the BRIDGE programme contributes to closing the funding gap between basic and applied research (Kaufmann P., 2018[28]).

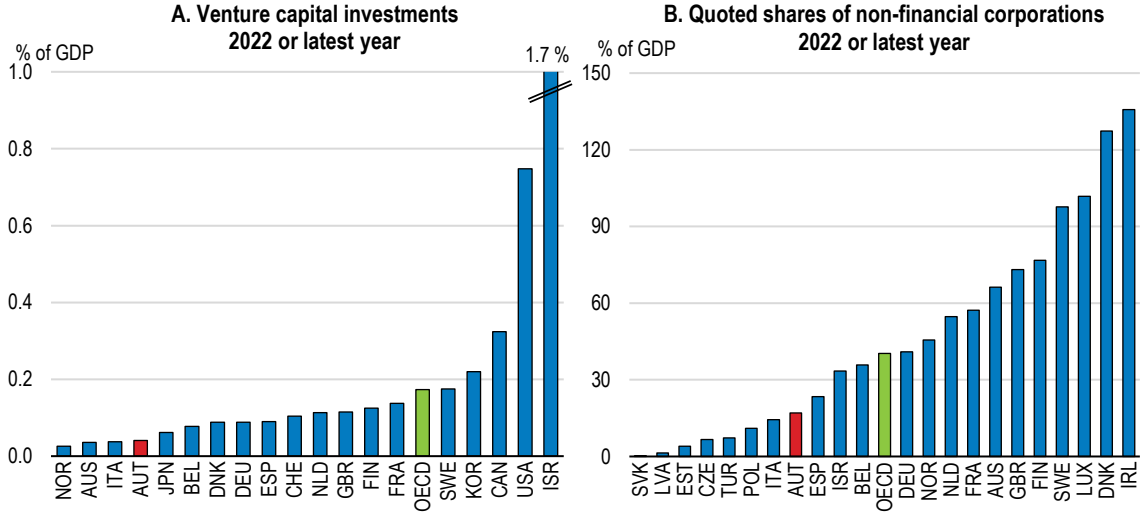
- **The Innovation Voucher**, which supports SMEs to enlist the services of research institutions (support up to EUR 10 000 is available). Evidence showed that nearly 70% of companies that use the Innovation Voucher are newcomers to research funding (Ecker, 2019[25]).
- **Performance-based funding**, Funding of universities is based on performance agreements, which include universities engaging in research in cooperation with businesses. The share of higher education institutions' funding subject to reaching performance targets is 95%, one of the highest in the OECD (OECD, 2019[22]).

A Task Force at the federal level and specific stakeholder advisory boards at an agency- or programme level were established to reduce overlaps between the respective funding programmes/initiatives.

The strong government support for innovation is not only seen in the overall spending on R&D, but also in innovation activity. More than 60% of Austrian firms with at least 10 employees engage in some kind of innovation activity (Figure 3.3, Panel C). Business innovation in Austria is characterised by high levels of R&D across all industries, including in the manufacturing sectors that have low R&D intensities globally (OECD, 2018[29]). In addition, other innovation outcomes including the share of technological equipment and intellectual property in GDP and the percentage of R&D employees are well above the OECD average (Austria R&T Report, 2022[30]). Among EU countries, Austria is considered a strong innovator according to the European Innovation Scoreboard ranking. However, its performance has slowed down in recent years and lags behind innovation leaders such as Sweden, Finland, and the Netherlands (Figure 3.3, Panel D).

Despite an overall favourable situation, Austria's innovation policy can be improved, in particular support for business financing. A key barrier hindering firms' innovation performance is the shortage of risk capital, including angel funding and formal venture capital. The funding of companies in Austria is heavily concentrated towards bank loans, while equity financing is low in international comparison (Figure 3.4). Empirical research confirms that ensuring easier access to equity capital is essential for innovation, especially for young firms. Access to equity capital is also associated with higher MFP growth for firms below the productivity frontier (Andrews, Adalet McGowan and Millot, 2017[31]) (OECD, 2024[3]; Corrado et al., 2021[32]). OECD research confirms that the productivity of Austrian companies would benefit from increasing the availability of venture capital (Sorbe et al., 2019[33]).

Figure 3.4. Venture capital investment and corporate equity financing could be developed further



Note: In Panel A, venture capital (VC) is private equity capital provided to young enterprises not quoted on a stock market. Data for Israel and Japan refer to 2021. Unweighted average of 32 countries for the OECD aggregate. In Panel B, the ratio is calculated by dividing consolidated stock on listed shares of non-financial corporations by nominal GDP. Data for Israel and Türkiye refer to 2021. Unweighted average of 27 countries for the OECD aggregate.
Source: OECD (2023), OECD Enterprise Statistics (database); and OECD Financial Balance Sheets - Consolidated - SNA2008 (database).

StatLink https://stat.link/bw7gaj

Austria could remove distortions in corporate taxation which disincentivise investment financed by equity. In particular, one way forward is harmonising the tax treatment of equity and debt. As in many countries, companies tend to favour debt financing, principally because debt interest payments can be deducted from the corporate income tax base. As part of the implementation of the EU anti-tax avoidance directive, Austria already applies an interest limitation rule since 2021 which limits the deductibility of borrowing costs at 30% of taxable income. In addition, Austria has some specific risk-capital measures to access equity more easily for startups. Still, some countries have implemented more structural reforms to address the debt bias. Several OECD countries, including Belgium, Italy and Latvia, have introduced a corporate income tax allowance for equity financing (ACE), with the aim of aligning the tax treatment of equity- and debt-financed investment, and increase equity financing. In theory, removing the debt bias through ACE would remove the distortion created by corporate taxation on the level of investment. Empirical research suggests that a notional interest deduction on equity can indeed have a positive effect of equity expansion (Breyer, 2021[34]). However, specifying the allowance rate in practice can add some complexity. A simpler way to remove the investment distortion and the debt bias would be to allow for the full expensing of all investments and end the tax deductibility of interest payments (IFS, 2023[35]). An important consideration is that accelerated depreciation (including full expensing) will be less affected by the Global Minimum Tax since the GloBE Rules are designed to avoid imposing additional top-up tax as a result of differences in the timing of taxes paid (OECD, 2022[36]). In addition, introducing tax incentives for investors to encourage investments in certain equity instruments such as angel investment can be considered. The UK offers exemptions from capital gains tax to equity investors in small private companies who maintain their holding for at least three years.

Increased use of state-backed “funds of funds” should be considered. These funds support financing, for instance in the form of loans or guarantees, taking equity stakes to leverage private sector investment, typically targeting start-ups and SMEs. The National Foundation for Research, Technology and Development in Austria provides budgets for R&D-initiatives. In 2023 EUR 140 million were distributed to

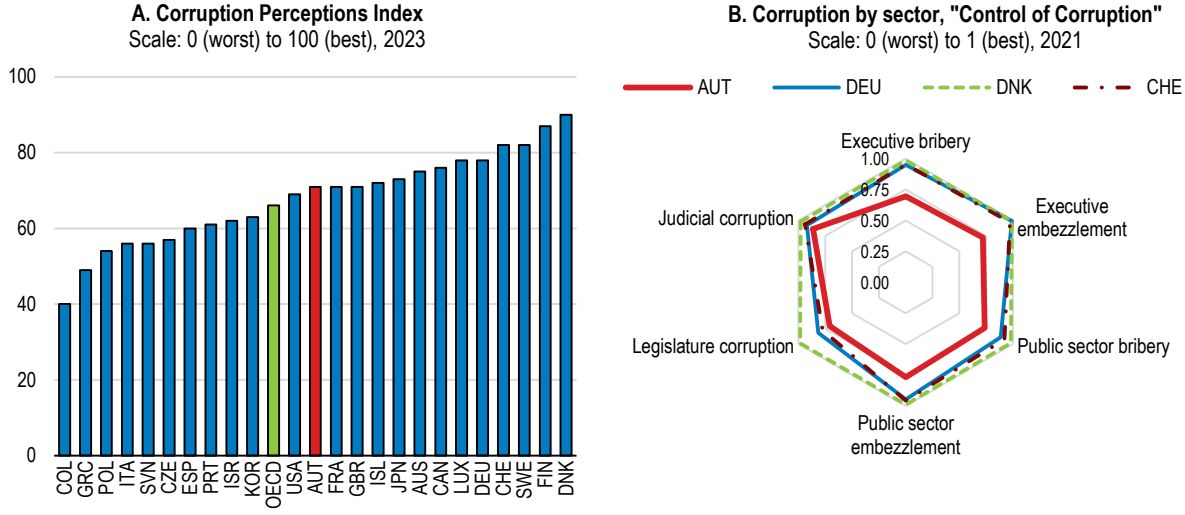
six beneficiary federal research funding institutions. In June 2023 a new state-financed venture capital fund (aws Gründungsfonds II: "Startup Fund") was established with a duration of min. 10 years. The Ministry of Labour and Economy provides up to EUR 72 million for investments in young, innovative companies in the start-up and growth phase based in Austria. The Fund is intended to leverage private investments of up to EUR 500 million. However, this funding remains relatively small in scale. For example, in Sweden, much larger fund-of-funds activity driven by pension funds has been responsible for equity market expansion, and drives significant investments in SMEs with strong growth potential (OECD, 2018[29]). Similarly, in France, the equity capital initiative offers quasi-equity in the form of participative loans. The fund is financed via insurance companies and institutional investors, and the French government guarantees losses of up to 30% of the fund's assets (Breyer, 2021[34]). Other countries, such as Denmark and Canada, have co-investment via "funds-of-funds" (OECD, 2020[37]).

The support for innovation in Austria could also shift towards societal and mission-oriented targets. These mission-oriented targets are defined as a coordinated package of policy and regulatory measures tailored specifically to mobilise science, technology and innovation in order to address well-defined objectives related to a societal challenge, in a defined timeframe. The current challenges such as climate change or frontier technologies such as AI require better strategic orientation and holistic co-ordination of research and innovation interventions (OECD, 2021[38]). While Austria's expenditure on R&D is one of the highest in the OECD, its share of mission-oriented research is relatively small and amounts to only 4% of overall research spending (WIFO, 2022[39]). Mission-oriented research requires a thematically dedicated funding flow, while the funding in Austria is dominated by mostly non-targeted institutional funding and tax support. For example, the share of government R&D spent on environmentally related research or frontier technologies such as AI are below the OECD average (Austria R&T Report, 2022[30]).

Promoting transparency in government action

Austria lags behind best performing countries in terms of the perception of corruption and on some indicators of policies to control corruption (Figure 3.5). Corruption perception has been increasing and in 2022 the country fell out of the world top 20 countries with the lowest corruption perception for the first time since 2014. In 2023, Austria has gained two places in the Transparency International index and the country is now in 20th place in the international rankings. However, with 71 points, Austria remains at the same level as last year. The country has recently witnessed a surge in the number of high-profile political scandals involving former ministers. Almost 60% of the citizens now think that corruption is widespread in Austria (Eurobarometer, 2023[40]). Moreover, trust in the national government is one of the lowest in the OECD: only around 25% Austrians trust the national government compared to 41% in the average OECD country.

Figure 3.5. There is room to better combat corruption



Note: Panel B shows sector-based subcomponents of the "Control of Corruption" indicator by the Varieties of Democracy Project.
Source: Panel A: Transparency International; and Panel B: Varieties of Democracy Project, V-Dem Dataset v12.

StatLink https://stat.link/8fa2ky

Austria should continue to promote openness and transparency, which are key ingredients that not only help mitigate corruption risks but also improve efficiency and ultimately contribute to public trust. In 2021, almost two thirds of Austrians demanded more transparency in government action (SORA, 2021[41]). In this regard it is welcome that Austria in January passed a freedom of information law, which guarantees the general right to access documents, in line with the standards of the Council of Europe Convention on Access to Official Documents. The draft had experienced repeated delays and reluctance from public authorities, particularly at the regional and local level (GRECO, 2022[42]). The implementation of the new law in practice remains to be assessed.

The government should also encourage more transparency in the lobbying process, allowing for more public scrutiny. In Austria, transparency measures related to lobbying are applicable to all branches of government and lobbyists' registration is mandatory. However, the lobbying register only makes public a list of entities and individuals. More details on meetings and consultations with lobbyists could be disclosed (GRECO, 2022[42]). Transparency on political finance could also be strengthened. Political parties in Austria report on their sources of financing. However, most OECD countries also require the publication of information about itemised expenditures and reporting on campaign finances (OECD, 2021[43]).

Austria has taken some steps to improve the enforcement of corruption offences. In 2023, the Austrian Parliament adopted the "Corruption Criminal Law Amendment Act 2023", which, among other amendments, has increased sanctions, in particular for cases involving bribes of high value. The upcoming Phase 4 evaluation of Austria by the OECD Working Group on Bribery, scheduled for October 2024, will include an assessment of these recent reforms and make recommendations on Austria's implementation of the OECD Anti-Bribery Convention and related instruments.

In terms of institutional framework, there is potential to enhance the independence and autonomy of the prosecution services. The public prosecution offices are organised into a hierarchical structure, ultimately subordinated to the Federal Minister of Justice who has the power to give binding instructions in individual cases (Federal Ministry for Constitutional Affairs, 2018[44]). In line with the European Commission recommendation, establishing a Federal Prosecutor's Office independent from the Ministry of Justice

would help strengthen the independence and autonomy of the justice system (EC, 2023[45]). The authorities have already set up a working group in 2021 to propose a model for an independent prosecution service, which covers inter alia the questions of independence, reporting system, instructions, and tasks of an independent Prosecutor General. No measures have been approved so far to address this recommendation.

Efforts to effectively reduce the risks of conflicts of interest for members of Parliament can be strengthened. Members of Parliament are currently not obliged to publicly declare their assets, interests, debts, liabilities, or any other economic interests, including company investments. Introducing effective rules on assets and interests' declaration for Members of Parliament, including effective monitoring and sanctioning mechanisms in line with EC recommendations, will help to reduce the risks of conflict of interests (EC, 2023[45]; EC, 2022[46]).

In terms of money laundering, Austria was found to have achieved good results in the investigation and prosecution of persons financing terrorism, in the implementation of targeted financial sanction related to proliferation financing, and in international cooperation (IMF, 2020[47]). The Register of Beneficial Owners of Companies, Other Legal Entities and Trusts contributes to entity transparency and allows competent authorities to have timely access to information. Still, Austria's large financial sector has important cross-border linkages, and the significant exposure to Central, Eastern, and Southeastern Europe requires constant attention in this area. The authorities should continue to focus on cross-border risks with effective implementation of customer due diligence obligations, in particular for higher risk activities and categories of clients, to ensure that financial integrity risks are mitigated (IMF, 2020[47]).

Table 3.2. Recommendations on raising productivity

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Fostering digitalisation	
Austria's economy is above the EU average in terms of digitalisation. However, it lags behind in the coverage of high-speed internet, particularly in rural areas.	Continue to expand high-speed broadband networks in rural and remote areas. Reduce barriers to broadband deployment to make investments easier and cheaper for private communication operators.
Promoting competition	
Regulatory barriers in services are among the strictest in the OECD and slow down productivity.	**Ease regulation of services, particularly the strict entry requirements into certain professional services.**
The insolvency frameworks still lag behind other countries in the speed of the initiation and resolution of proceedings.	Further simplify and speed up its insolvency framework.
Enhancing innovation	
Business financing is heavily concentrated towards bank loans, while equity financing is low. In addition, there is little use of risk capital, including angel funding and formal venture capital.	Remove debt bias in financing by balancing the tax treatment of debt and equity financing.
Promoting transparency	
Public perception of corruption has worsened and trust in the national government is one of the lowest in the OECD.	**Encourage more transparency in lobbying, including through more provisions allowing public scrutiny.** **Strengthen the independence of the Prosecution Office in line with European and international standards on the independence and autonomy of the prosecution.**

References

André, C. (2022), *Enhancing insolvency frameworks to support economic renewal*, OECD Publishing, Paris, https://doi.org/10.1787/8ef45b50-en. [18]

Andrews, D., M. Adalet McGowan and V. Millot (2017), "Confronting the zombies : Policies for productivity revival", *OECD Economic Policy Papers*, No. 21, OECD Publishing, Paris, https://doi.org/10.1787/f14fd801-en. [31]

Austria R&T Report (2022), *Austrian Research and Technology Report 2022*. [30]

Austrian Productivity Board (2023), "Productivity report 2023: Austria's sustainable competitiveness" Vienna, June 2023, https://www.produktivitaetsrat.at/en. [5]

Baily, M. (2023), "Lessons from a Career in Productivity Research: Some Answers, A Glimpse of the Future, and Much Left to Learn", *International Productivity Monitor*, Vol. 44, pp. 120-149, http://www.csls.ca/ipm/44/IPM_44_Baily.pdf. [20]

Bambalaite, I., G. Nicoletti and C. Rueden (2020), *Occupational entry regulations and their effects on productivity in services: Firm-level evidence*, https://doi.org/10.1787/c8b88d8b-en. [14]

Breyer, P. (2021), *Corporate equity finance in Austria –impediments and possible improvements*, http://file:///C:/Users/machlica_g/Downloads/05_mop_q3_21_Corporate-equity-finance-in-Austria%20(1).pdf. [34]

Caldas, P., P. Veneri and M. Marshalian (2023), *Assessing spatial disparities in Internet quality using speed tests*, https://doi.org/10.1787/77c42f5e-en. [7]

Corrado, C. et al. (2021), "New evidence on intangibles, diffusion and productivity", *OECD Science, Technology and Industry Working Papers*, No. 2021/10, OECD Publishing, Paris, https://doi.org/10.1787/de0378f3-en. [32]

Dinges, M. (2015), *Wirkungsanalyse 2015 des österreichischen Kompetenzzentrenprogramms COMET*. [27]

EC (2023), *2023 Rule of Law Report*, European Commision, Brussels, https://commission.europa.eu/document/download/8f5af879-8756-44af-9641-2c07310a2426_en?filename=46_1_52626_coun_chap_austria_en.pdf. [45]

EC (2023), *European Innovation Scoreboard*, European Commision, https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-at.pdf. [26]

EC (2022), *2022 Rule of Law Report*, European Commision, Bruselss, https://commission.europa.eu/document/download/4ec31ca9-6deb-4dff-a05f-ce1bebb81bb4_en?filename=46_1_194005_coun_chap_austria_en.pdf. [46]

EC (2022), *Digital Economy and Society Index (DESI)*, https://digital-strategy.ec.europa.eu/en/policies/desi-austria. [10]

Ecker, B. (2019), *Case study on the Policy mix for science-industry knowledge transfer in Austria: Contribution to the OECD TIP Knowledge Transfer and Policies project*, https://stip.oecd.org/assets/TKKT/CaseStudies/1.pdf. [25]

Eurobarometer (2023), *European Commision*, https://europa.eu/eurobarometer/surveys/detail/2968. [40]

European innovation scoreboard (2023), *European innovation scoreboard*, https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en. [24]

Federal Ministry for Constitutional Affairs (2018), *The Austrian Judicial System*, https://www.justiz.gv.at/file/8ab4ac8322985dd501229d51f74800f7.de.0/cover_und%20text_the%20austrian%20judicial%20system_neu.pdf?forcedownload=true. [44]

Global Innovation Index (2022), *Global Innovation Index 2022*, https://www.globalinnovationindex.org/Home. [23]

GRECO (2022), *Evaluation report - Austria*, The Group of States against Corruption (GRECO), https://www.coe.int/en/web/human-rights-rule-of-law/-/greco-publication-of-5th-round-evaluation-report-on-austria. [42]

IFS (2023), "Full expensing and the corporation tax base", *IFS Green Budget - Chapter 10*, https://ifs.org.uk/sites/default/files/2023-10/Full-expensing-and-the-corporation-tax-base.pdf. [35]

IMF (2023), *The Rise of the Walking Dead: Zombie Firms Around the World*, International Monetary Fund, https://doi.org/10.5089/9798400246890.001. [17]

IMF (2020), *Austria, Anti-money laundering and combating the financing of terorism*, https://www.imf.org/en/Publications/CR/Issues/2020/03/03/Austria-Publication-of-Financial-Sector-Assessment-Program-Documentation-Technical-Note-on-49240. [47]

Kaufmann P., G. (2018), *Evaluierung des BRIDGE Programms für den Zeitraum 2009 - 2016*, Wien. [28]

OECD (2024), "Public Policies for Stronger Productivity Growth", *forthcoming*. [3]

OECD (2023), *Broadband Portal*, https://www.oecd.org/sti/broadband/broadband-statistics/. [6]

OECD (2023), *Services Trade restrictiveness*, https://sim.oecd.org/. [9]

OECD (2022), *Business innovation statistics and indicators*, https://www.oecd.org/innovation/inno-stats.htm. [21]

OECD (2022), *OECD Services Trade Restrictiveness Index (STRI) - Austria*, https://www.oecd.org/trade/topics/services-trade/documents/oecd-stri-country-note-aut.pdf. [15]

OECD (2022), *Tax Incentives and the Global Minimum Corporate Tax: Reconsidering Tax Incentives after the GloBE Rules*, OECD Publishing, Paris, https://doi.org/10.1787/25d30b96-en. [36]

OECD (2021), *Bridging connectivity divides*, https://goingdigital.oecd.org/data/notes/No_16_ToolkitNote_ConnectivityDivides.pdf. [11]

OECD (2021), *Lobbying in the 21st Century: Transparency, Integrity and Access*, OECD Publishing, Paris,, https://www.oecd-ilibrary.org/docserver/c6d8eff8-en.pdf?expires=1696619316&id=id&accname=ocid84004878&checksum=AB1A7AE6043AF3BC6B1BD6CF9FF2CC47. [43]

OECD (2021), "The design and implementation of mission-oriented innovation policies: A new systemic policy approach to address societal challenges", *OECD Science, Technology, and Industry* No. 100, https://www.oecd-ilibrary.org/docserver/3f6c76a4-en.pdf?expires=1697116816&id=id&accname=ocid84004878&checksum=34C1932722063C6277DB42BF5B887994. [38]

OECD (2020), *Financing SMEs and Entrepreneurs 2020*, OECD Publishing, Paris. [37]

OECD (2019), *Productivity insights*, https://www.oecd.org/austria/oecd-productivity-insights-austria.pdf. [1]

OECD (2019), *University-Industry Collaboration : New Evidence and Policy Options*, OECD Publishing, https://doi.org/10.1787/e9c1e648-en. [22]

OECD (2018), *Indicators of Product Market Regulation*, https://issuu.com/oecd.publishing/docs/austria_country_note_-_tot_final?fr=sYzE2MzkzNTk1MQ. [13]

OECD (2018), *OECD Reviews of Innovation Policy: Austria 2018*, OECD Publishing, Paris, https://doi.org/10.1787/9789264309470-en. [29]

OECD (2017), "The evolving role of satellite networks in rural and remote broadband access", *OECD Digital Economy Papers*, No. 264, OECD Publishing, Paris, https://doi.org/10.1787/7610090d-en. [12]

OeNB (2023), "Resource Misallocation and TFP Gap Development in Austria", *WORKING PAPER 246*, https://www.oenb.at/dam/jcr:b8670478-d500-4ac3-9c89-06d9fd13cf44/WP-246.pdf. [2]

OeNB (2021), *The share of zombie firms among Austrian nonfinancial companies*, Oesterreichische National Bank, https://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy.html. [16]

Peneder, M. (2021), "Entwicklung der Produktivität österreichischer Unternehmen von 2008 bis 2018. Auswertung von Mikrodaten für Österreich im Rahmen von Multiprod 2.0", *WIFO*, https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=68026&mime_type=application/pdf. [4]

SORA (2021), *SORA*, https://www.sora.at/fileadmin/downloads/projekte/2021_SORA_Praesentation-Demokratie-Monitor-2021.pdf. [41]

Sorbe, S. et al. (2019), "Digital Dividend: Policies to Harness the Productivity Potential of Digital Technologies", *OECD Economic Policy Papers*, No. 26, OECD Publishing, Paris, https://doi.org/10.1787/273176bc-en. [33]

White, C. (2021), *Small Business Reorganization*, https://www.justice.gov/ust/page/file/1350736/download. [19]

WIFO (2022), *Digitalisation in Austria: Progress, Broadband*, https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=69730&mime_type=application/pdf. [8]

WIFO (2022), "Finanzierung von FTI-politischen Missionen in Österreich", *WIFO, RESEARCH BRIEFS,*, Vol. 15/2022, https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=69662&mime_type=application/pdf. [39]

4 Addressing labour market challenges for sustainable and inclusive growth

Barriers to economic opportunities persist for particular groups

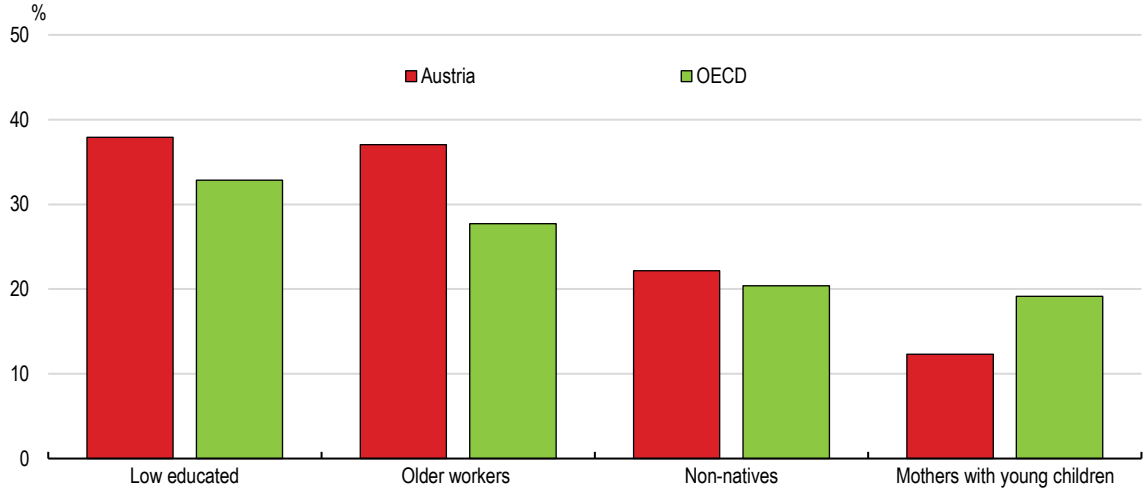
Labour market developments have been positive in recent years, with low unemployment and labour force participation at historically high levels (Chapter 2). The average annual gross earnings of full-time employees, around USD 50 thousands (on a purchasing power parity basis), is among the highest across the OECD. Furthermore, income inequality is relatively low due to substantial redistribution through public transfers (Causa, Browne and Vindics, 2019[1]; Rocha-Akis et al., 2023[2]). The poverty rate is well below many other OECD countries.

However, employment and earnings of women, the elderly and disadvantaged groups continue to lag. The labour-market engagement of women of childbearing age is weak. This contributes to a high incidence of part-time work among women, and comparatively large gender gaps in pay and retirement income. The employment rate of older workers (between 55 and 64 years of age) is lower than the OECD average (Figure 4.1). Employment gaps also exist for disadvantaged groups, such as the low educated and migrants, particularly non-EU migrants. The poverty rate of migrants is three times higher than that of the native-born population and is well above the OECD average (OECD/European Commission, 2023[3]).

Evidence points to Austria having strong intergenerational persistence in socio-economic outcomes, which may be amplifying disadvantages. Research suggests that in Austria it would take at least 5 generations for those born in low-income families to approach the mean income in their society (compared with 4.5 generations in the OECD, on average) (OECD, 2018[4]). For Austria, growing up in socio-economic disadvantage has only a limited impact on the probability of later employment, but considerable effects on later earnings and health. Employed men and women who had the most disadvantaged childhoods (bottom quintile on the Index of Childhood Socio-Economic Status) earn 23% and 15% less, respectively, than those with more favourable childhoods (third quintile on the Index of Childhood Socio-Economic Status), in large part because of differences in hourly wages and occupations. They also report worse health, equivalent to the loss of two- to two-and-a-half-week per year in time lived in full health (OECD, 2023[5]). This persistence likely contributes to Austria's relatively high concentration of wealth (Balestra and Tonkin (2018[6]); Chapter 2).

Figure 4.1. Labour market outcomes are weak for particular groups

Difference between the group employment rate and the employment rate among 25-54 year-old, in 2022



Note: Panel A: employment gap defined as the difference between the employment rate of prime-age men (aged 25-54) and that of the group, expressed as a percentage of the employment rate of prime-age men; OECD figures are unweighted averages of countries for which data are available. "Mothers with young children" refer to working-age women with at least one child aged 0-14; "non-natives" refer to all foreign-born people with no regards to nationality; "older workers" refer to those aged 55-64; "low educated" refers to those aged 25-64 with education below upper secondary.
Source: OECD calculations based on OECD Employment database, OECD International Migration database, and OECD Education Database and OECD Family database (https://www.oecd.org/els/family/database.htm).

StatLink https://stat.link/4nwo0a

Past Economic Surveys have recommended a number of policy actions that would help narrow gender gaps and improve outcomes for vulnerable groups. These include in particular changes to policy settings as regards the labour tax wedge, parental leave, childcare services, and the public employment service. Progress on these issues is reported below, followed by a special focus on what Austria can do to further improve skills to promote inclusiveness.

Tax wedges for low-income earners should be reduced further

Austria's average tax wedge is the fourth highest in the OECD, reflecting high levels of social security contributions (OECD, 2023[7]). Of greatest concern, the wedge is large for low-income workers (OECD, 2023[8]), dissuading both demand and supply in this segment of the labour market (L'Horty, Martin and Mayer, 2019[9]). Moreover, the tax system dissuades shifting from part-time to full-time work (increasing hours worked from 50% to 100% of full-time employment): almost 40% of additional earnings are lost to either higher taxes or lower benefits. Participation tax rates, i.e., the share of additional gross earnings lost to either higher taxes or lower benefits when a jobless person takes up employment, are also relatively high, about 80% of earnings are lost to higher taxes, lower benefits and net childcare costs when a parent with young children takes up full-time employment and uses full-time centre-based childcare, the third highest proportion in the OECD.

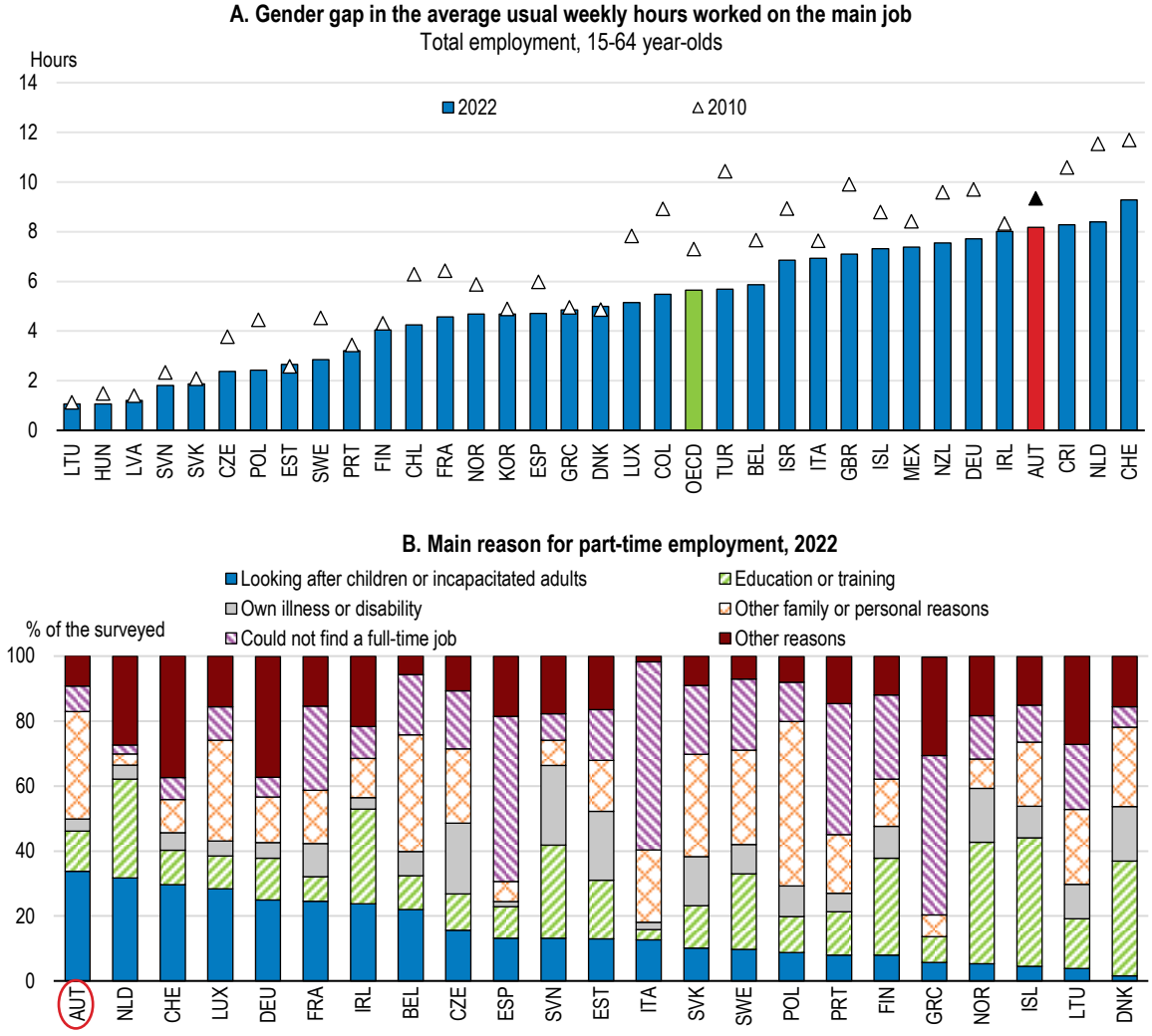
Several steps to reduce the tax wedge have been taken recently. The eco-social tax reform (Box 2.3) includes reductions in personal income tax rates and health insurance contributions for low and medium incomes. At the same time the tax allowance per child - "Familienbonus Plus" - has increased, although this increase has the greatest relief effect in the middle- and high-income segments (Rocha-Akis et al., 2023[2]). For low-income earners, a specifically designated "Kindermehrbetrag" applies instead. In addition, the government has introduced annual indexation of personal income tax brackets to inflation, starting in 2023. This will reduce the upward pressure on the tax wedge over time. This reform is particularly relevant

given the recent high-inflation environment. Despite these positive steps, there is room to shift the tax burden away from labour to more growth-friendly taxes, particularly for low-income earners (see Chapter 2).

Labour force participation of mothers should be further encouraged

Despite improvements in recent years, gender gaps in labour market outcomes remain sizeable. Compared with other countries, Austria's women spend relatively large amounts of time on unpaid care and housework. Correspondingly, they spend about eight fewer hours per week in paid work compared with men; the OECD average is five hours (Figure 4.2). In 2020, almost half of the employed women (compared to just 15% of men) were in non-standard working arrangement such as part-time work. Austrian women earn about 12% less than men, measured at median earnings for full-time workers, slightly above the OECD average (OECD, 2023[10]).

Figure 4.2. Despite improvements, women still spend significantly fewer hours per week in paid work than men



Note: In Panel A, latest data for Czechia refers to 2021.
Source: OECD (2024), OECD Labour Force Statistics (database); and Eurostat (2024), Main reason for part-time employment - Distributions by sex and age (%).

These labour market gaps are for the most part explained by an exceptionally large long-run child penalty of more than 50% compared to the pre-birth earnings trajectory, whereas fathers' earnings are unaffected (Kleven and Landais, 2019[11]). Looking after a child is the main reason for part-time employment for more women than any other OECD country (Figure 4.2). On the other hand, only around 6% of men are employed part-time due to childcare while around 20% of men work part-time due to training (Statistik Austria, 2023[12]). In Austria preferences and social norms regarding the family-career choices of men and women can have large effects on gender inequality (Kleven and Landais, 2019[11]; Kleven et al., 2021[13]). Nevertheless, there is a room to strengthen incentives for parents to share caring responsibilities.

Assessments in the previous *Economic Survey of Austria* recommended a more balanced use of parental leave between mothers and fathers (OECD, 2021[14]). Policies encouraging fathers' uptake of paternity and parental leave could not only weaken gender norms in the labour market but also potentially improve family wellbeing by strengthening father-child relationships (Tamm, 2019[15]; OECD, 2023[16]). Austria has been taking steps in this direction. Since 2019, fathers have been legally entitled to a month of paternity leave. Since 2017, those parents who claim the childcare allowance in equal parts receive a bonus of EUR 500. Austria offers additional weeks of paid leave if both parents use a minimum portion of the family entitlement. Paid parental leave effectively reserved to fathers in Austria is 13 weeks, above the OECD average of 10.4 weeks (OECD, 2022[17]).

Parental leave is fully shareable between parents. However, still only around 4% of Austrian fathers take parental leave, compared to around 50% in Luxembourg, Iceland, or Sweden (OECD, 2022[17]). Some OECD countries have recently strengthened incentives for paternity leave: for example, Japan and Korea have introduced around one year of non-transferable paid parental leave for each parent. In addition to parental leave, Austria needs to address disincentives within the tax and benefit system (see discussion above) and on childcare accessibility, in particular by removing conditions (e.g. related to parents' employment status) for the allocation of childcare places, and improving the quality and opening hours of childcare facilities (see below).

Changes in the family benefit system or childcare accessibility can be complemented with budget and regulatory policies that have an impact on gender disparities in the supply and allocation of labour. In this regard, Austria has already introduced a number of measures that integrate gender equality assessments into budgetary decision making, specifically identifying budgetary measures that have an impact on gender gaps and barriers. Progress on gender budgeting in Austria is one of the highest among OECD countries in terms of introducing measures that expose gender inequalities and promote budget measures that will be effective at closing gender gaps (OECD, 2023[18]). In particular, progress has been made in the area of accountability and transparency, including regular reporting to parliament and parliamentary committee hearings on gender budgeting.

Public employment services can be further strengthened

Past *Surveys* have assessed much of Austria's policy for the unemployed as being reasonably effective in ensuring financial security while also encouraging employment. Unemployment insurance provides benefits at almost 60% of previous income for 20 weeks (OECD, 2020[19]), although inflation in recent years has reduced the disposable income of the unemployed. Persons in low-income households who are not entitled to insurance-based benefits may qualify for means-tested non-contributory minimum income benefits. Austria's spending on activation policies per unemployed is close to the OECD average. More than one-third of registered unemployed participate in active labour market policy programmes, which is more than in most other OECD countries (OECD, 2024[20]).

However, evidence from Austria shows that there is room to strengthen the public employment services (PES), which are responsible for delivering activation policies. Research shows that lower caseloads in public employment offices mean that the unemployed have more meetings with caseworkers, more job offers, and more program assignments. This more intensive counselling has shortened time spent in unemployment episodes (Böheim, Eppel and Mahringer, 2023[21]). In 2023 the Austrian PES has started a new process "ORG Neu" (Organisation new), which allows more targeted activation and assistance for the unemployed. Federal States where this new organisation has been already implemented have lowered long-term unemployment significantly.

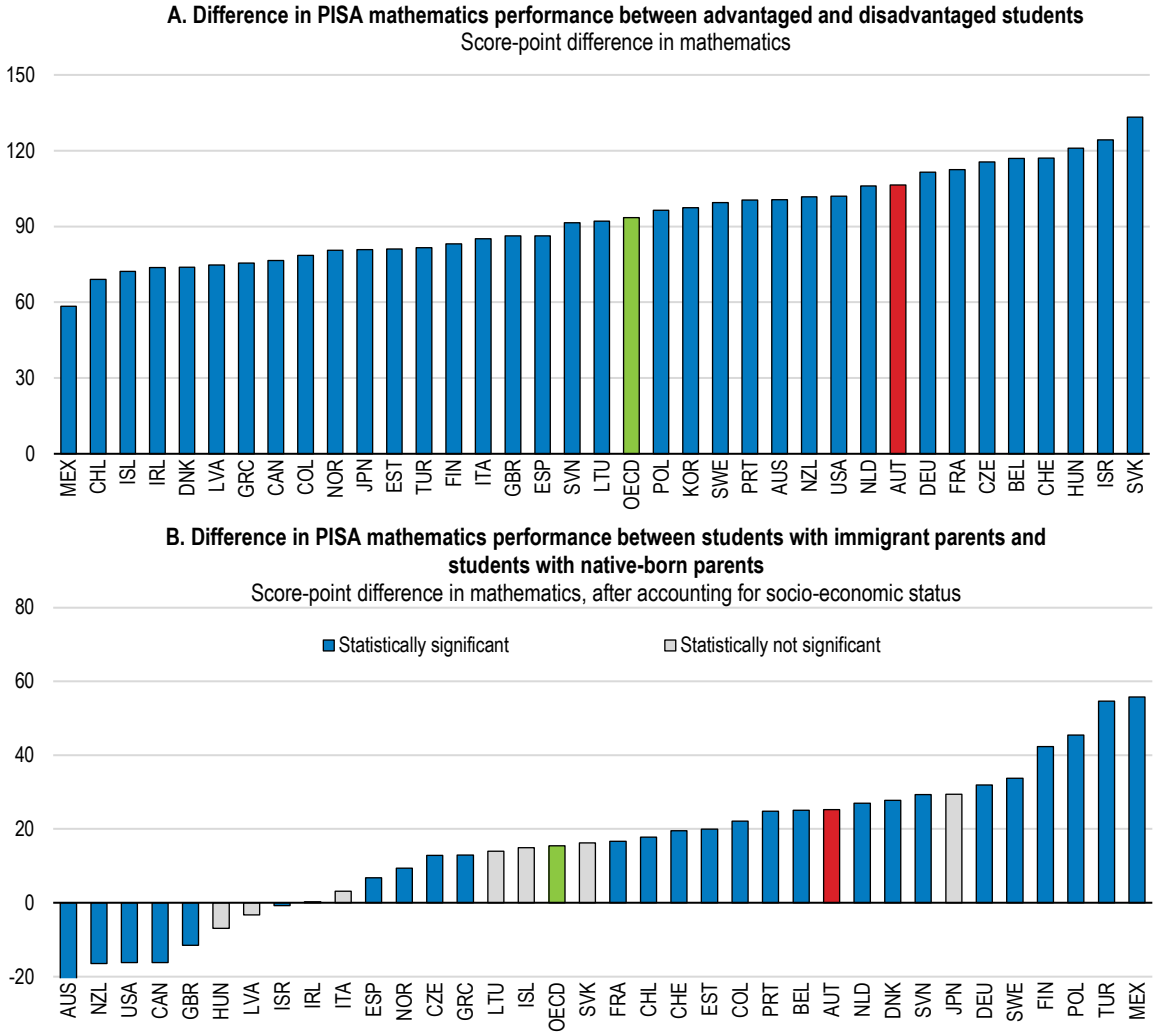
Table 4.1. Past OECD recommendations on improving social and labour market outcomes

Recommendations in in previous Survey	Actions taken since previous Survey (Dec 2021)
Continue to reduce the employment cost and employee tax burden for those in low-skill, low-wage jobs.	The eco-social tax reform was introduced in 2022, which includes reduction of personal income tax rates, a reduction of health insurance contributions for low and medium incomes, and an increase of the tax-deductible amount per child - "Family Bonus Plus".
Encourage the balanced use of parental leaves between parents to promote a more equal sharing of paid and unpaid work.	No action taken
Help the long-term unemployed to start their own business in new market niches, drawing on ongoing pilot experiments.	The "Springboard" programme targeting the long-term unemployed was extended in 2022. The programme has been mainly used to provide recruitment incentives, as well as in-work benefits for older people and people with disabilities ('Kombilohn'), and supports employment in social enterprises.

Improving skills to support inclusiveness

The Austrian school system generally delivers good education outcomes, but there is room to improve inclusiveness. The proportion of the population with at least upper secondary education is 85%, above the OECD average (80%). Although the new 2022 PISA results were down compared to 2018 in mathematics, and about the same as in 2018 in reading and science, learning outcomes for 15-year-old students as measured by PISA are still above the OECD average. However, there are large differences between students' outcomes depending on their socio–economic status (Figure 4.3). The difference between advantaged and disadvantaged students in reading is 106 points, which corresponds to more than five years of schooling. Segregation between schools on the basis of socio-economic status and migrant background is becoming more widespread (Breit, 2018[22]). Although the share of young people who are not in employment nor in education is lower than in the OECD (10.5% compared with 14.7%, as of 2022), many in this group are from migrant backgrounds. The early school leavers were 3.5 times higher among migrants compared to the native-born (OECD, 2020[19]).

Figure 4.3. Socio-economic status is a strong predictor of school outcomes



Note: In Panel A, a socio-economically advantaged (disadvantaged) student is a student in the top (bottom) quarter of ESCS (the PISA index of economic, social and cultural status.) in his or her own country. In Panel B, a positive score indicates better performance for students with native-born parents than students with immigrant parents.
Source: OECD (2023), PISA 2022 Results (Volume I): The State of Learning and Equity in Education (Table I.2 and Table I.4).

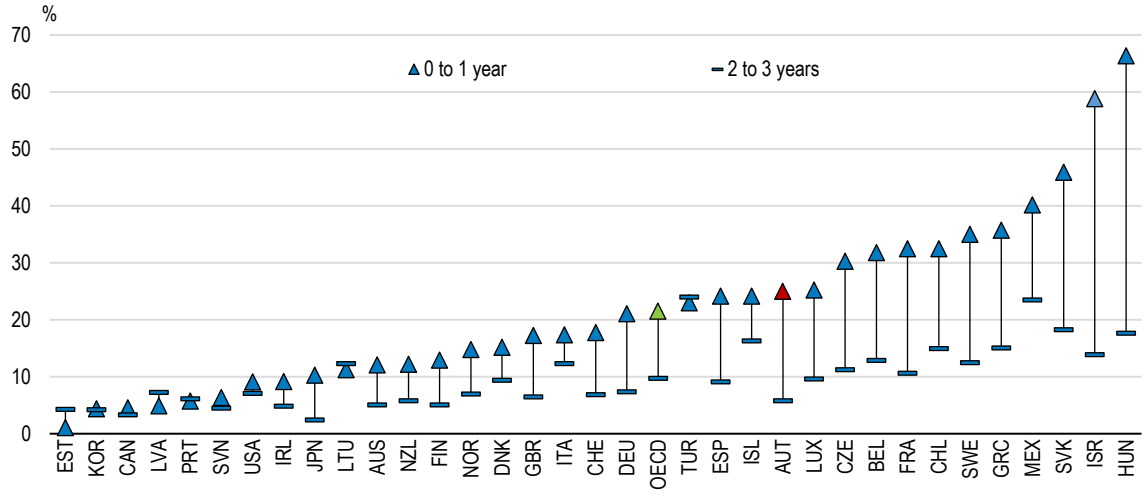
StatLink https://stat.link/0rlpiv

Reducing education and skills gaps should start early on

Greater participation of disadvantaged children in early childhood education and care (ECEC) can help improve both efficiency and equity in education. Experience in other OECD countries confirms that child development can be significantly improved through participation in early childhood education (OECD, 2018[23]). Indeed, data indicate that children who attend preschool education are less likely to become low-performing students in most OECD member countries, with the impact in Austria being relatively large (Figure 4.4). Other evidence for Austria points to positive effects of preschool attendance on later educational attainment, on the probability of working full time, and on hourly wages. In particular, disadvantaged groups such as native-born descendants of immigrants or people with less educated parents benefit more (Fessler and Schneebaum, 2019[24]).

Figure 4.4. Students who attended preschool education are less likely to become poor performers

Proportion of low performers among 15-year-old students according to the number of years spent in early childhood education, 2015



Source: OECD PISA online education database.

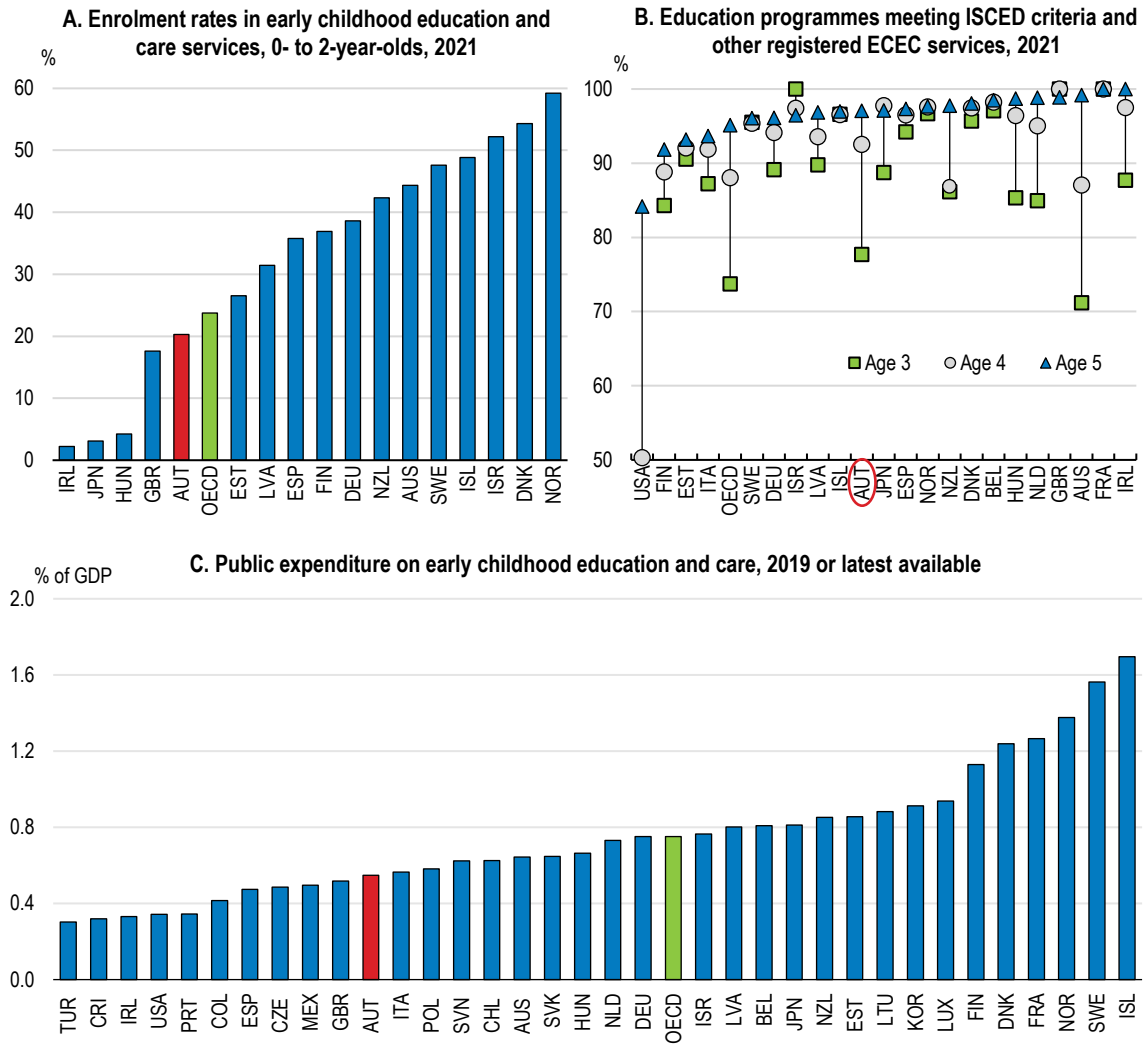
StatLink https://stat.link/vzpio9

Austria has been successfully expanding early childhood education and care services over the past decade. Compulsory education in Austria starts at the age of 5 and is free of charge. Austria also offers an unconditional entitlement to at least 20 hours a week of care for children between the ages of two and five. Enrolment rates in early childhood education of 3- to 5-year-olds is at 90%, above the OECD average (87%) and close to the EU target of 96%. However, only 20% of 0- to 2-year-old children are enrolled in early childhood education, below the OECD average (Figure 4.4). Regional variations in the coverage of ECEC facilities are large, and only the federal states of Vienna and Burgenland (37% in 2020/21) meet the Barcelona-Target of 32% (OECD, 2023[5]).

Despite these policy efforts, short supply of childcare remains the main barrier to preschool attendance. In addition, limited opening hours reduce the usefulness of the services for working parents; in some regions many facilities close as early as 2 pm. Apart from availability and affordability, cultural norms regarding childcare and maternal employment also influence the actual use of childcare services (Buber-Ennser, 2015[25]).

Austria's expenditure on ECEC is lower than the OECD average and lags well behind leading countries such as Norway, Sweden, or Denmark (OECD, 2023[26]). Those countries that have succeeded in providing affordable ECEC on a wide scale have directed substantial public resources to ECEC. Last year, the Austrian government has increased funding by more than EUR 557 million per year for the next 5 years, via the Federal-Lander-Agreement on Early Childhood Education and Care and the new Financial Equalisation Act. In addition, the Austrian Recovery Fund already allocates around EUR 28 million to expanding childcare facilities. However, estimates suggest more investments are needed. According to some recent research, increasing the participation of children below the age of 3 to the level of Denmark would require an additional spending of EUR 1.6 billion per year to reach an overall spending of around 3 billion in 2020 (Graf, 2021[27]). This expansion would require around 5 500 additional staff by 2025.

Figure 4.5. Participation in pre-school among young infants is particularly low



Note: There might be some inconsistencies in enrolment statistics. Data in Panel B come from the table B2.1 in the publication, OECD (2023), Education at a Glance 2023. For more details on data sources and methodologies, see the technical note (https://doi.org/10.1787/d7f76adc-en).
Source: OECD (2023), Education at a Glance 2023: OECD Indicators; and OECD Family Database.

StatLink https://stat.link/4p7ghq

The expansion of preschool education should continue but pay particular attention to ensuring increasing take-up among disadvantaged families. Austria so far shows very little differences in participation according to socio-economic background (OECD, 2023[28]), which is good news. However, OECD countries with higher levels of participation show wider differences (OECD, 2023[29]). This suggests that Austria's policy needs to take care to ensure these differences remain small.

Inclusive language policies are important for improving education among migrants. Research using PISA data indicates that around 80% of the score difference between immigrants and native-born in Austria (after controlling for socio-economic status) is due to language, a larger share than most OECD countries (OECD, 2023[30]). Austria has already developed a national curriculum framework for language learning in kindergarten and standards for second-language learning. In addition, there are routine language screenings in kindergarten years to help develop tailored support. These welcome measures can be further expanded. For example, in Estonia language classes are provided to all those in pre-primary school who do not speak Estonian at home. In the Netherlands, children from disadvantaged backgrounds between

the ages of two and a half and four are entitled to ten hours of language development per week, which has been assessed as highly beneficial (OECD, 2021[31]).

Ensuring equal implementation of ECEC policy over the entire territory is important in the Austrian context as evidence points to wide differences. For instance, a review of ECEC language support by the Austrian Court of Auditors found large regional differences in the depth of support, and identified a suboptimal use of federal purpose grants to achieve quality improvements (RH, 2021[32]). More generally, quality standards across all aspects of ECEC need to be harmonised across Landers. For instance, regulations for external and internal evaluations of ECEC facilities and access to results by the public varies across the country.

Reducing inequalities in primary and secondary schooling

School funding in Austria does not differentiate allocations enough according to socio-economic criteria. Overall public expenditure on primary and secondary schools is close to the OECD average as a share of GDP. The allocation of funding to schools is determined by number of students and type of schools. Only around 16% of the overall funding is earmarked for special-needs students and other education priorities such as language education.

Many OECD countries provide higher funding for disadvantaged students (OECD, 2012[33]). For example, in Chile a weighted voucher system was adopted which provides 50% more resources for students from poor socio-economic backgrounds (Elacqua, 2012[34]). Better targeting provides resources to schools to reduce class size and hire teaching assistants or social workers. For example, schools in the United Kingdom receive additional discretionary resources for every disadvantaged student they enrol in order to provide additional teaching time or specialised learning materials.

Austria should consider the introduction of “need-based financing”, which has been discussed in the country over the last decade. “Need-based financing” provides additional resources to low-achieving schools with greater needs according to socio-economic characteristics, immigrant background, and special educational needs. Experience form other OECD countries suggests that the introduction of need-based funding is an efficient and transparent way to address inequities in the provision of education (OECD, 2012[33]; Nusche et al., 2016[35]). The Netherlands, and the Swiss cantons of Bern and Zurich, have successfully introduced need-based funding.

In this regard, the federal government supports the pilot project “100 Schools – 1000 opportunities” which aims to gain a better understanding of how schools are currently dealing with special challenges – in particular, how they deploy and use resources and what this means for school quality. The evidence gathered throughout the implementation of this pilot programme will provide an opportunity to identify measures that work most effectively and to potentially scale up programmes and funding on this basis (OECD, 2023[5]).

Introducing measures to attract the best teachers to disadvantaged schools would help close gaps in educational outcomes between advantaged and disadvantaged students. Empirical research confirms that improving teacher quality can significantly reduce the achievement gap (Chetty et al., 2014[36]). In Austria’s urban areas, classrooms are becoming increasingly heterogeneous and multicultural. Survey evidence finds that only 15% of teachers in Austria feel well or very well prepared to teach in multicultural and multilingual settings (OECD, 2019[37]). Less experienced or untrained teachers in Austria more often teach in classes with more pupils with migrant backgrounds (EC, 2019[38]; OECD, 2022[39]).

Austria’s very early streaming of students is likely fuelling inequalities in education outcomes. After the completion of 4th grade (when students are around 10-11 years old), students are streamed into two tracks: the *Gymnasium* and the *Mittelschule*. Experience in other OECD countries shows that early tracking reduces opportunities for day-to-day interaction between children from different social backgrounds and creates obstacles for children from disadvantaged backgrounds to catch up with their peers from better-off families (OECD, 2020[19]). A school reform in Bavaria illustrated the consequences of early streaming.

Streaming was brought forward from grade 6 to grade 4, and research has found that this reduced performance of 15-year-old students and increased the share of very low-performing students (Piopiunik, 2014[40]).

Box 4.1. Getting strong teachers to the schools that need them most

Mechanisms attracting better teachers to disadvantaged schools generally involve additional remuneration. Experience from other countries shows that teachers' least-preferred options are schools with higher proportions of disadvantaged children and children who speak minority languages (OECD, 2005[41]; OECD, 2019[42]). Countries aiming to improve teaching quality in disadvantaged areas offer various incentives.

- In Brazil, salary premiums between 24% and 36% of the base salary are offered to teachers working in disadvantaged schools. Disadvantaged schools are categorised as being located either in rural areas or in socially vulnerable areas peripheral to a large urban centre. This measure has been found to reduce teacher turnover by 8.3 percentage points in public schools in São Paulo.
- In China, career-related incentives are used to attract teachers to remote areas. The Special Teaching Post Plan for Rural Schools is based on the recruitment of university graduates to remote areas in central and western China with large minority populations and socio-economic disadvantage. The contract is for three years, after which the teachers are asked to take a test. Those who qualify are then given the opportunity to stay and take up a tenure track position. In 2015, around 90% of the teachers who finished the three-year period stayed in their schools.
- In the UK, various monetary incentives exist to train, attract, and retain strong teachers in the most challenging areas, including reimbursement of student loans for teachers teaching certain subjects in short supply, and retention payments for mathematics teachers in challenging areas.
- Korea offers multiple incentives to candidates working in high-needs schools, such as additional salary, smaller class sizes, and additional credits towards future promotions.

Source: OECD (2022), Mending the Education Divide: Getting Strong Teachers to the Schools That Need Them Most, TALIS, OECD Publishing, Paris, https://doi.org/10.1787/92b75874-en.

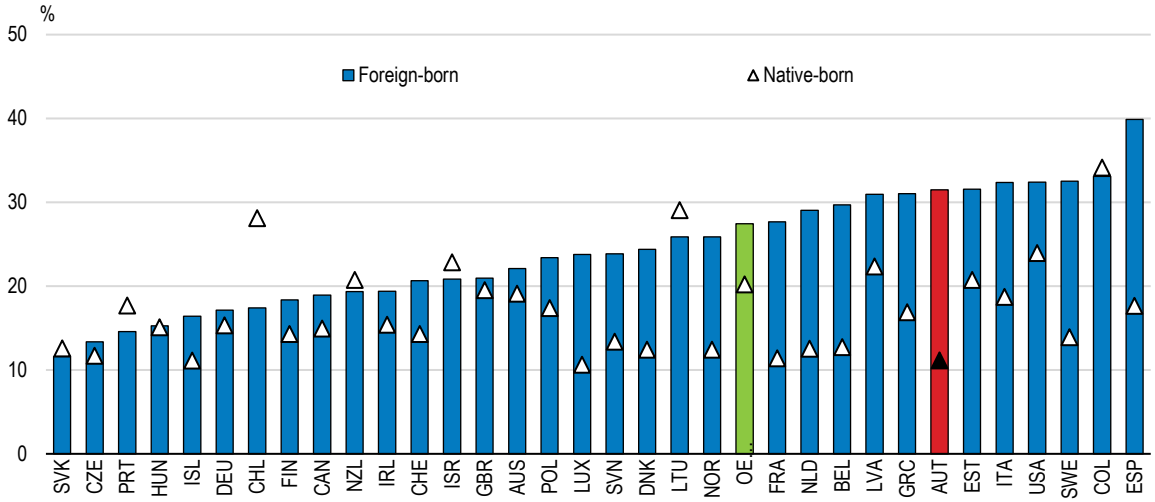
Addressing the digital skill divide is also important (Ziliana and Samantha, 2020[43]). Disadvantaged children are less likely to pursue careers in technology-intensive fields compared to more advantaged children. In Austria, the share of teachers with good ICT skills is lower in socio-economically disadvantaged schools (OECD, 2022[39]), which is likely to affect student skills in this area. Some OECD countries have been strengthening teachers' involvement in ICT learning. For example, Estonia, one of Europe's top countries when it comes to teacher involvement in ICT learning, provides training to teachers through HITSA (Hariduse Infotehnoloogia Sihtasutus), which is a non-profit organisation jointly established by the Estonian national government, the University of Tartu and Tallinn University. It aims to foster educational leaders in a digital age by helping teachers to conduct goal-oriented teaching using ICT, and formulate visions and action plans that incorporate digital tools (OECD, 2022[39]).

Improving the labour market integration of migrants

Migrants represent a substantial share of Austria's potential labour force (Angel et al., 2023[44]). The foreign-born population represents almost one-fifth of Austria's resident population, the third highest share in the OECD. Recently, the war in Ukraine has sparked a large influx of refugees. According to the latest data, almost 80 thousand Ukrainians are now living in Austria (EC, 2023[45]).

Figure 4.6. The gap of exposure to poverty between immigrant and native-born is large

Relative poverty rates, 16-year-olds and above, 2020



Note: Data are based on European Union Statistics on Income and Living Conditions (EU-SILC) and different national labour surveys (see the source for more details). Data for Israel cover populations aged 15 years and over. Data for the United States refer to amounts before deducting property tax. Data for Chile and Colombia refer to amounts before tax deductions, which were annualised based on income in the preceding month.

Source: OECD (2023), Indicators of Immigrant Integration 2023

StatLink https://stat.link/2b5kjy

Migrant employment could be strengthened further as immigrants have higher poverty rates than natives (Figure 4.6). This reflects both a lower labour market participation and a higher unemployment rate. Employment has been extremely low among some groups of migrants. For example, a survey conducted in 2017 among refugees from Syria, Afghanistan, Iraq, and Iran showed that only 17% of respondents were employed, 28% were unemployed, and 54% were inactive (Haindorfer, 2021[46]). Foreigners in Austria are also at greater risk of having to work in occupations that are below their qualification level (OECD/European Commission, 2023[3]). As part of a "Strategic action plan to combat the shortage of skilled workers", EUR 75 million has been earmarked in active labour market policy for 2024 and 2025 for an intensive program for the integration of persons entitled to asylum and subsidiary protection. For many migrants, language is a substantial barrier to labour market access in Austria. According to one survey, almost half of the people born abroad stated that insufficient German language skills are the main reason for the difficulties in finding a job (Statistics Austria, 2022[47]). Research has also found that explicit and implicit language requirements in online job vacancies were stronger than in other OECD countries (OECD, 2023[48]). Experience with asylum seekers in Austria shows that language programmes are among the most effective measures to promote the labour market integration of foreign citizens (Hofer, 2013[49]; WIFO, 2023[50]).

Austria has strengthened its language courses for migrants in recent years. Courses are provided free of charge to migrants with refugee status or beneficiaries of subsidiary protection and can be taken up by employed and non-employed persons alike. There is also a wide range of online courses and self-learning options. In addition, Austria provides vocation-specific language training courses, which is generally considered effective as it allows migrants to build work-related language skills (OECD, 2021[51]). Austria also promotes incorporated community engagement, in which, for instance, mothers can participate alongside their children to learn the German language.

Austria should further expand language courses. Access needs to be widened beyond refugees and related groups. Most OECD countries grant legal access to public language training programmes to all

legally resident foreigners. For example, in the United States, many language programmes are available to adults regardless of visa status (OECD, 2021[51]). In addition, consideration should be given to more courses that combine language learning with training for a profession. Sweden and Luxembourg, for example, combine courses and language support with studies for a profession in the adult education system or during internships or work placement (OECD, 2021[51]).

Processes for recognising foreign qualifications could also be strengthened. This would help foreigners integrate and ensure their skills are better utilised. Overqualification is almost twice as high among foreign-born workers in Austria compared to native-born workers. Around 15% of the foreign-born unemployed in a recent survey mentioned non-recognition of their educational qualifications as the biggest obstacle to finding a job (Statistics Austria, 2022[47]).

Austria, through its four regional "one-stop-shop" administrative centres, provides information on qualification recognition requirements and procedures and directs immigrants to the relevant recognition bodies. Some countries provide more comprehensive one-stop-shop services. For example, the Danish Agency for Higher Education co-ordinates the different recognition authorities, maintains an online information portal and can also provide statements of equivalence that migrant workers can then present to employers (OECD, 2017[52]). In the case of Sweden, OECD research found that the creation of the Swedish Council for Higher Education, which serves as a one-stop-shop for qualification assessment and recognition, contributed to a record-high number of requests for assessments of foreign qualifications (OECD, 2017[52]).

Bridging courses can also help migrants utilise their foreign qualifications and experience. Austria provides bridging programs mostly for regulated professions. Experience in OECD countries suggest that bridging courses combining tailored professional training with language instruction, work experience and a mentoring scheme, can provide immigrants with all the resources that they need to transfer their skills into the receiving country's labour market (OECD, 2017[52]). These integrated bridging courses are most effective when they provide easily recognised domestic qualification for employers. In 2023, around 8,000 courses in basic general skills (especially in German, Mathematics and English) for apprentices were offered to migrants as well. Furthermore seven projects were funded to prepare disadvantaged people for apprenticeship training in cooperation companies, which are also available for migrants.

Table 4.2. Recommendations on inclusiveness

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Promoting equal opportunities for everyone	
Labour market participation by women of child-bearing age remains low, reflecting little shift towards men taking a greater role in childcare. Only around 4% of Austrian fathers take parental leave.	**Further strengthen incentives for more balanced use of parental leave between mothers and fathers.**
Improving skills to support inclusiveness	
Shortages in the supply of high-quality childcare limit women's labour force participation.	**Further expand high-quality early childhood education and care services, prioritising disadvantaged families.**
The OECD's PISA shows there are still large differences between students' outcomes in Austria and these are significantly explained by socio–economic status. The gap between advantaged and disadvantaged students corresponds to more than five years of schooling.	**Provide more resources to low-achieving schools with greater needs and a large share of disadvantaged students, for instance through "need-based financing".** **Phase out early tracking; separate students into different streams later in the schooling process.**
There are big differences in school outcomes between migrant and native students and this is largely explained by language barriers. This shortfall in language skills significantly contributes to higher unemployment among migrants.	Further expand language courses in ECEC, schools and among migrants and their families. Further strengthen existing processes of recognition and validation of qualifications acquired abroad.

References

Angel, S. et al. (2023), *Aktivierbare Arbeitsmarktpotenziale und "Stille Reserven" in Österreich*, Österreichisches Institut für Wirtschaftsforschung, https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=70889&mime_type=application/pdf. [44]

Balestra, C. and R. Tonkin (2018), "Inequalities in household wealth across OECD countries: Evidence from the OECD Wealth Distribution Database", *OECD Statistics Working Papers*, No. 2018/01, OECD Publishing, Paris, https://doi.org/10.1787/7e1bf673-en. [6]

Böheim, R., R. Eppel and H. Mahringer (2023), "More Caseworkers Shorten Unemployment Durations and Save Costs", *Labour Market Res 57*, https://doi.org/10.1186/s12651-023-00357-4. [21]

Breit, S. (2018), "Nationaler Bildungsbericht Österreich 2018", Vol. Band 2. [22]

Buber-Ennser, I. (2015), *Childrearing in Austria: Work and Family Roles*, pp. 121–146, https://www.researchgate.net/publication/290496943_Childrearing_in_Austria_Work_and_family_roles. [25]

Causa, O., J. Browne and A. Vindics (2019), "Income redistribution across OECD countries: Main findings and policy implications", *OECD Economic Policy Papers*, No. 23, OECD Publishing, Paris, https://doi.org/10.1787/3b63e61c-en. [1]

Chetty, R. et al. (2014), "Where is the land of opportunity? The geography of intergenerational mobility in the US", *The Quarterly Journal of Economics*, Vol. 129/4, pp. 1553–1623. [36]

EC (2023), *Refugees from Ukraine in the EU*, https://www.consilium.europa.eu/en/infographics/ukraine-refugees-eu/. [45]

EC (2019), "Education and Training Monitor 2019 - Austria", Vol. 2, https://education.ec.europa.eu/sites/default/files/document-library-docs/et-monitor-report-2019-austria_en.pdf. [38]

Elacqua, G. (2012), "The impact of school choice and public policy on segregation: Evidence from", *International Journal of Educational Development*, Vol. Vol. 32/No. 3, pp. 444-53, https://www.sciencedirect.com/science/article/pii/S0738059311001283?via%3Dihub. [34]

Federal Chancellery (2022), *Gender Equality in Austria*, https://www.bundeskanzleramt.gv.at/dam/jcr:b85c29b1-1295-4cd4-8fc9-a293a663bc69/gender_equality_in_aut_2022.pdf. [54]

Fessler, P. and A. Schneebaum (2019), *The educational and labor market returns to preschool attendance in Austria*, https://doi.org/10.1080/00036846.2019.1584368. [24]

Graf, N. (2021), *Kosten des flächendeckenden Ausbaus der Kinderbetreuung in Österreich*, Institut fur Wirtschaftsforschung, https://ecoaustria.ac.at/wp-content/uploads/2021/11/KM-15_Ausbau-Kinderbetreuung.pdf. [27]

Haindorfer, R. (2021), *Determinanten der Arbeitsmarktintegration von Geflüchteten am Beispiel der Stadt Wien*, Verlag der Österreichischen Akademie der Wissenschaften, https://www.researchgate.net/publication/351748488_Determinanten_der_Arbeitsmarktintegration_von_Gefluchteten_am_Beispiel_der_Stadt_Wien. [46]

Hofer, K. (2013), "Without work", *Institute for qualitative work and living environment research (IQUAL) – Chamber for Workers and*. [49]

Kleven, H. and C. Landais (2019), "Child Penalties across Countries: Evidence and Explanations", *American Economic Association*, Vol. 109, pp. 122-26, https://www.aeaweb.org/articles?id=10.1257/pandp.20191078. [11]

Kleven, H. et al. (2021), "Do Family Policies Reduce Gender Inequality?", https://www.henrikkleven.com/uploads/3/7/3/1/37310663/austria_family_policy_jan2021.pdf. [13]

L'Horty, Y., P. Martin and T. Mayer (2019), "The French Policy of Payroll Tax Reductions", *French Council of Economic Analysis*, Vol. 49, https://www.cae-eco.fr/staticfiles/pdf/cae-note049-env4.pdf. [9]

Nusche, D. et al. (2016), *OECD Reviews of School Resources: Austria 2016*, OECD Reviews of School Resources, OECD Publishing, Paris, https://doi.org/10.1787/9789264256729-en. [35]

OECD (2024), *Public spending on labour markets* (indicator), https://doi.org/10.1787/911b8753-en (accessed on 12 February 2024). [20]

OECD (2023), *Childhood socio-economic disdvantaged in Austria: A snapshot of key challanges*, November 2023 N°19, https://www.oecd-ilibrary.org/docserver/c05f13f8-en.pdf?expires=1707214752&id=id&accname=ocid84004878&checksum=BCBF225A1D7ABDBCFC90425A0D98CE45. [5]

OECD (2023), *Family database: PF3.2: Enrolment in childcare and pre-school*, https://www.oecd.org/els/soc/PF3_2_Enrolment_childcare_preschool.pdf. [28]

OECD (2023), *Gender Budgeting in OECD Countries 2023*, OECD Publishing, Paris, https://doi.org/10.1787/647d546b-en. [18]

OECD (2023), *Gender wage gap*, https://data.oecd.org/earnwage/gender-wage-gap.htm. [10]

OECD (2023), *Joining Forces for Gender Equality: What is Holding us Back?*, OECD Publishing, Paris, https://doi.org/10.1787/67d48024-en. [16]

OECD (2023), *OECD Taxing Wages - Comparative tables*, https://stats.oecd.org/index.aspx?DataSetCode=AWCOMP. [8]

OECD (2023), *PF3.1: Public spending on childcare and early education*, https://www.oecd.org/els/soc/PF3_1_Public_spending_on_childcare_and_early_education.pdf. [26]

OECD (2023), *PF3.2: Enrolment in childcare and pre-schoo*, https://www.oecd.org/els/family/database.htm. [29]

OECD (2023), "PISA 2022 Results (Volume I): The State of Learning and Equity in Education, PISA", *OECD Publishing, Paris*, https://www.oecd-ilibrary.org/docserver/53f23881-en.pdf?expires=1701862825&id=id&accname=ocid84004878&checksum=8D6E501BA91BE72576F0A5B5404CBF01. [30]

OECD (2023), *Taxing Wages - Austria*, https://www.oecd.org/tax/tax-policy/taxing-wages-austria.pdf. [7]

OECD (2023), "The demand for language skills in the European labour market: Evidence from online job vacancies", *OECD Social, Employment and Migration Working Paper No. 294*, https://www.oecd.org/fr/espagne/the-demand-for-language-skills-in-the-european-labour-market-e1a5abe0-en.htm#:~:text=Across%20countries%20included%20in%20the,and%202%25%20of%20all%20vacancies. [48]

OECD (2022), *Family Database*, https://www.oecd.org/els/family/PF2-2-Use-childbirth-leave.pdf. [17]

OECD (2022), *Mending the Education Divide: Getting Strong Teachers to the Schools That Need Them Most*, TALIS, OECD Publishing, Paris, https://doi.org/10.1787/92b75874-en. [39]

OECD (2021), *Language Training for Adult Migrants*, OECD Publishing, Paris, https://www.oecd-ilibrary.org/docserver/02199d7f-en.pdf?expires=1698617924&id=id&accname=guest&checksum=4248C2BE91B3D96049F4755A7F13DD85. [51]

OECD (2021), "Make sure all children start school on an equal footing", in *Young People with Migrant Parents*, OECD Publishing, Paris, https://doi.org/10.1787/c31bb753-en. [31]

OECD (2021), *OECD Economic Surveys: Austria 2021*, OECD Publishing, Paris, https://doi.org/10.1787/eaf9ec79-en. [14]

OECD (2020), "Promoting social mobility in Austria", *OECD Social, Employment and Migration Working Papers, No. 251*, https://www.oecd.org/austria/promoting-social-mobility-in-austria-1e0efdcc-en.htm. [19]

OECD (2019), *Teachers and teaching conditions (TALIS 2018)*, https://gpseducation.oecd.org/CountryProfile?plotter=h5&primaryCountry=AUT&treshold=10&topic=TA. [37]

OECD (2019), *Working and Learning Together: Rethinking Human Resource Policies for Schools*, OECD Reviews of School Resources, OECD Publishing, Paris, https://doi.org/10.1787/b7aaf050-en. [42]

OECD (2018), *A Broken Social Elevator? How to Promote Social Mobility*, OECD Publishing, Paris, https://doi.org/10.1787/9789264301085-en. [4]

OECD (2018), *Engaging Young Children: Lessons from Research about Quality in Early Childhood Education and Care*, Starting Strong, OECD Publishing, Paris, https://doi.org/10.1787/9789264085145-en. [23]

OECD (2017), *Making Integration Work: Assessment and Recognition of Foreign Qualifications*, OECD Publishing, Paris, https://doi.org/10.1787/9789264278271-en. [52]

OECD (2012), *Equity and Quality in Education: Supporting Disadvantaged Students and Schools*, OECD Publishing, Paris, https://doi.org/10.1787/9789264130852-en. [33]

OECD (2005), *Teachers Matter: Attracting, Developing and Retaining Effective Teachers*, Education and Training Policy, OECD Publishing, Paris, https://doi.org/10.1787/9789264018044-en. [41]

OECD/European Commission (2023), "Indicators of Immigrant Integration 2023: Settling In", *OECD Publishing, Paris,*. [3]

Piopiunik, M. (2014), "The effects of early tracking on student performance: Evidence from a school reform in Bavaria", *Economics of Education Review*, Vol. 42, pp. 12-33, https://www.sciencedirect.com/science/article/pii/S0272775714000594. [40]

RH (2021), *Frühe sprachliche Förderung in Kindergärten*, https://www.rechnungshof.gv.at/rh/home/home/Fru_hsprachliche_Fo_rderung_KIGA.pdf. [32]

Rocha-Akis, S. et al. (2023), *Redistribution by the State in Austria 2019 and Developments from 2005 to 2019*, Austrian Institute of Economic Research, https://www.wifo.ac.at/jart/prj3/wifo/main.jart?rel=en&content-id=1487278189725&j-cc-node=news&j-cc-id=1697135678186. [2]

Statistics Austria (2023), *Gender pay gap remains above EU average in spite of slight decrease*, https://www.statistik.at/fileadmin/announcement/2023/03/20230303GenderStatistikEN.pdf. [53]

Statistics Austria (2022), *A quarter of migrants with difficulties in finding a*, https://www.statistik.at/fileadmin/announcement/2022/12/20221201ArbeitsmarktsituationMigrantinnenEN.pdf. [47]

Statistik Austria (2023), *Erwerbstätigkeit*, https://www.statistik.at/statistiken/bevoelkerung-und-soziales/gender-statistiken/erwerbstaetigkeit. [12]

Tamm, M. (2019), "Fathers' parental leave-taking, childcare involvement and labor market participation", *Labour Economics*, Vol. 59, pp. 184-197, https://doi.org/10.1016/j.labeco.2019.04.007. [15]

WIFO (2023), *Aktivierbare Arbeitsmarktpotenziale und "Stille Reserven" in Österreich*, https://www.wifo.ac.at/jart/prj3/wifo/resources/person_dokument/person_dokument.jart?publikationsid=70889&mime_type=application/pdf. [50]

Ziliana, S. and Z. Samantha (2020), "Digital inequality in Austria: Empirical evidence from the survey of the OECD "Programme for the International Assessment of Adult Competencies", *Technology in Society*, Vol. 63, https://doi.org/10.1016/j.techsoc.2020.101397. [43]

5 Achieving a successful green transformation in Austria

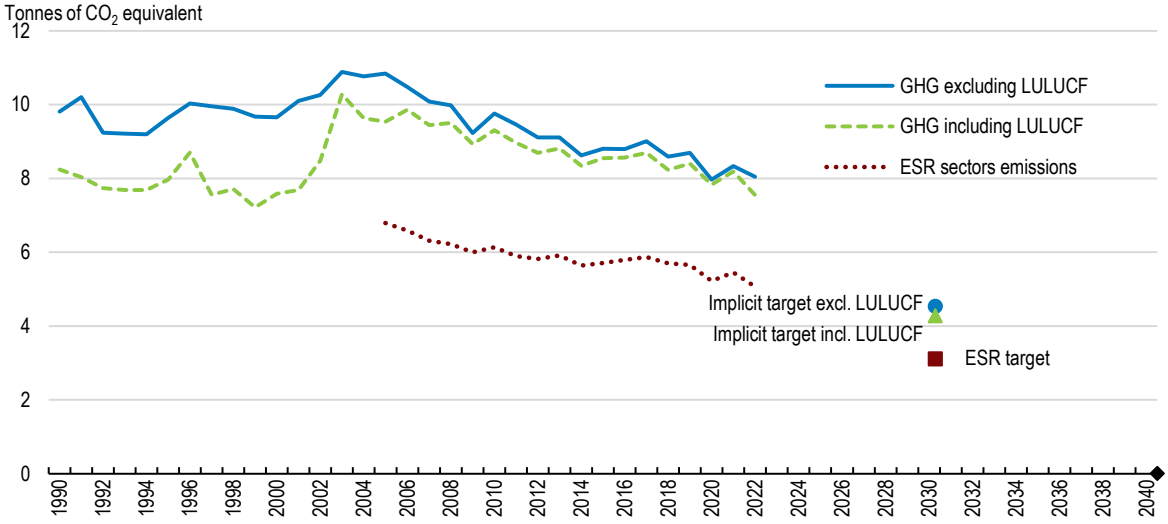
Austria has set an ambitious objective of net zero emissions by 2040. Achieving this will be challenging. While domestic energy production is largely decarbonised, the country relies on carbon-intensive gas and oil imports in particular for transport and heating use. Emissions have not decreased significantly in transportation and industrial processes; and energy consumption in buildings is comparatively high. Higher and more harmonised carbon prices across sectors will be needed. In transport, policies need to include smart urban planning, better targeted and efficient fiscal support for green travel modes, and investment in the charging infrastructure. Expanding green energy production would benefit from simpler planning procedures for renewables infrastructure investment and expanded electricity grid and storage capacity. Reducing emissions from residential heating will require support to speed up renovations and heating-system replacements, but also better regulation and standards. Austria will also need to adapt to a changing climate, in particular because a large part of the population is exposed to increasing flood risks and insurance coverage is relatively low.

Austria has set ambitious emission-reduction targets

Austria has an ambitious schedule for the reduction of greenhouse gas emissions (GHG). In particular, the government has announced a net zero objective for 2040, a decade ahead of the EU's target. Before that, as part of the Paris Agreement, the European Commission has committed to reduce emissions in 2030 by 55% relative to 1990 levels in its Nationally Determined Contribution. The EU "Fit for 55" package has also recently tightened the emissions objectives for EU countries, by demanding a reduction of 62% in emissions in the sectors covered by the EU Emissions Trading Scheme (ETS) and stricter targets for sectors covered by the Effort Sharing Regulation (ESR) including a 48% reduction in emissions in 2030 compared to 2005 levels for Austria (OECD, 2023[1]). Those objectives would imply a reduction of net emissions per capita from around 8.1 tonnes of CO_2 equivalent (tCO2e) in 2022 to approximately 4.5 in 2030 and 0 in 2040 (Figure 5.1)

Figure 5.1. Austria has set an ambitious net zero target for 2040

GHG emissions and ESR sectors emissions, per capita

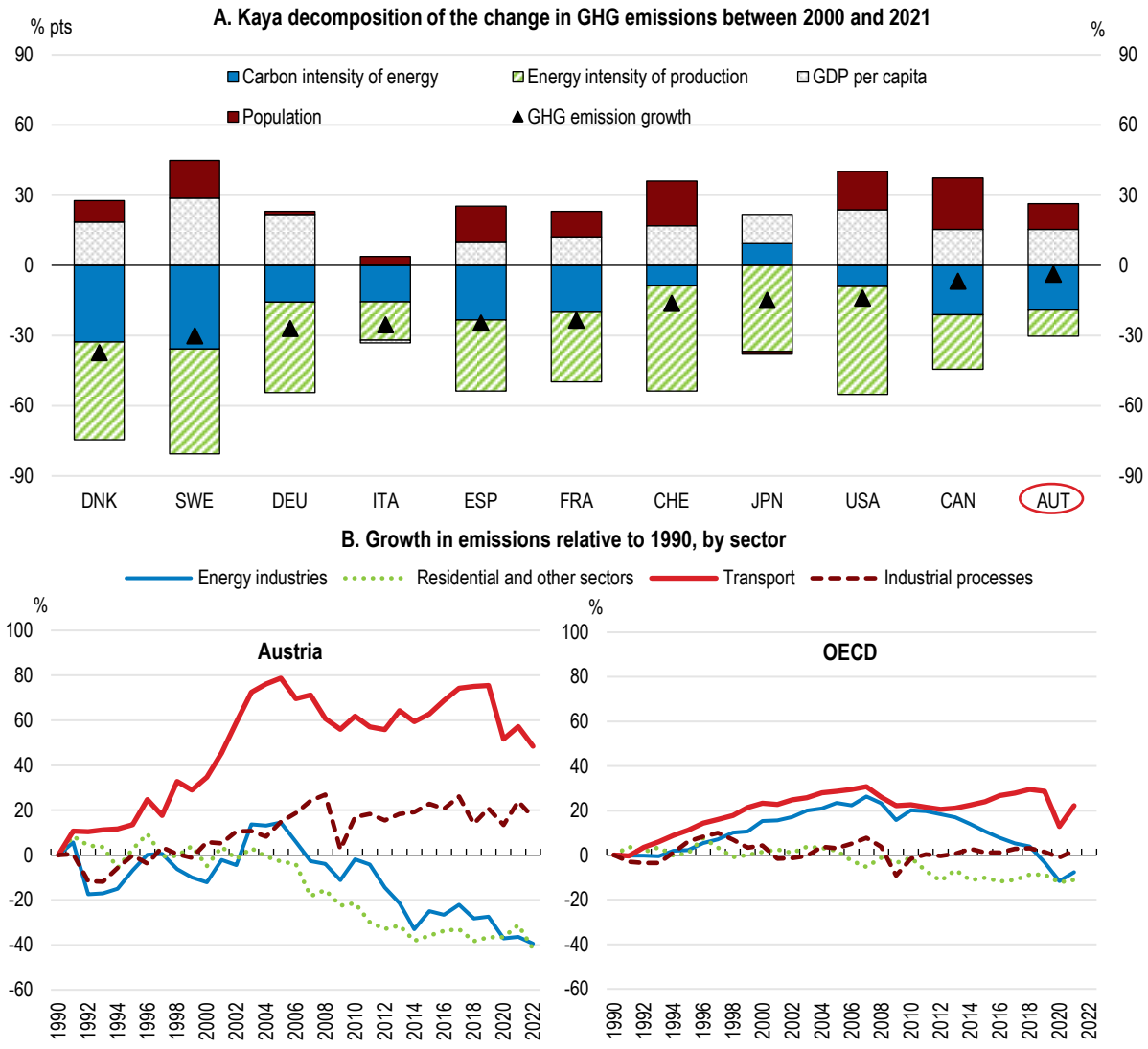


Note: The 2030 targets for total GHG emissions including and excluding LULUCF are based on IMF estimates which are presented for illustrative purposes, as the Nationally Determined Contribution in the framework of the Paris Agreement is submitted for the EU as a whole.
Source: OECD calculations based on IMF (2024), IMF Climate Change Dashboard; OECD (2024), Demography and Population Statistics (database); Austrian greenhouse gas emissions from 1990 to 2022, by CRF sector (UNFCCC); and EEA. (2022), Greenhouse gas emissions under the Effort Sharing Decision (ESD).

StatLink https://stat.link/pgxi36

Austria's emissions have decoupled from growth: for example, in 2022, GHG emissions declined by almost 6% while GDP growth reached 4.8%. In particular, Austria's carbon intensity of production has fallen over the last 20 years, but less than in other OECD members. Between 2000 and 2021, while GDP grew by 30% in real terms, emissions fell by around 4%. This mostly came from a decarbonisation of energy use, while the reduction in the energy intensity of production was limited (Figure 5.2, Panel A). The main challenges for Austria have been the rising emissions from energy use in transport and the difficulties in decarbonising industrial processes for the production of steel and cement (Figure 5.2, Panel B).

Figure 5.2. Emissions have decoupled from growth but have not fallen much in transport and industrial processes



Note: In panel A, the black triangle is the growth in total GHG emissions excluding LULUCF between 2000 and 2021. Coloured bars represent the sum of annual contributions to the change by source, approximated by the log-difference. The Kaya equation is a simple decomposition of the level of GHG emissions into emissions per unit of total primary energy supply ("carbon intensity"), energy use per unit of real GDP ("energy intensity"), real GDP per capita, and population. In panel B, the category "residential and other sectors" includes emissions from fuel combustion in households, commercial and institutional buildings, and in agriculture, forestry, fishing and fishing industries such as fish farms.
Source: OECD (2023), OECD Environment Statistics (database); Demography and Population Statistics (database); National Accounts Database; Austrian greenhouse gas emissions from 1990 to 2022, by CRF sector (UNFCCC) and IEA (2023), IEA World Balances (Energy).

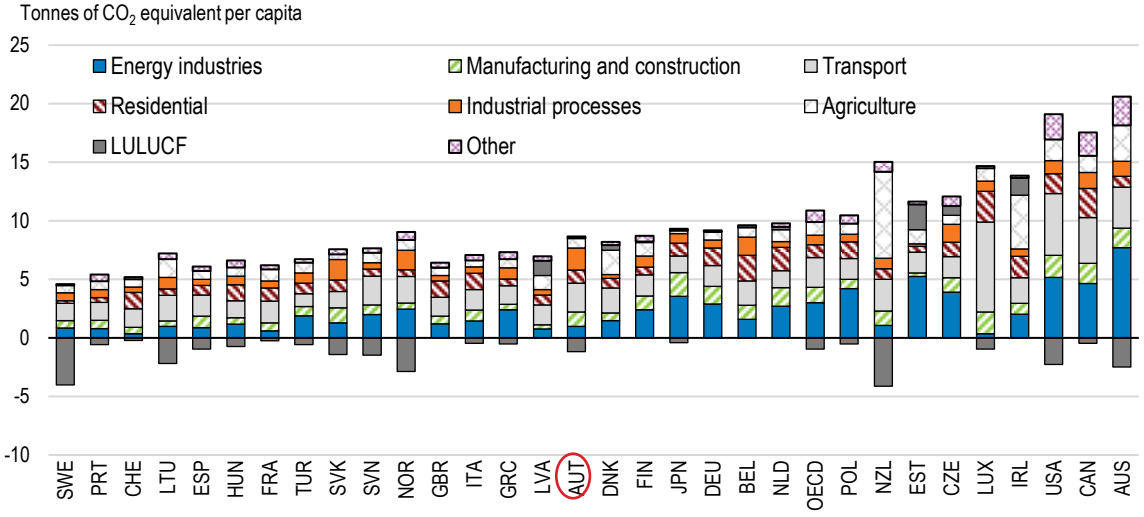
StatLink https://stat.link/s84oit

Domestic production of energy is largely decarbonised, but Austria imports three fifths of its energy needs for total final consumption, which is typically derived from oil (for transport) and natural gas (for heating and industry). Emissions from the use of energy in the transport sector – mostly from road transport – represented 28% of emissions in 2022. Industrial processes – mostly emissions linked to the production processes for iron, steel and cement – represented more than 20% of emissions (Figure 5.3). Those shares are higher than in peer countries. The remaining emissions notably include those related to the use of

energy in energy industries, manufacturing, construction and buildings, as well as agriculture, while over 2018 and 2022 land-use, land-use change and forestry (LULUCF) have sunk 4% of emissions. Based on current and announced policies, there is a large risk that Austria will not achieve its medium- and long-term targets. Projections suggest that, even with measures included in its currently discussed National Energy and Climate Plan (NECP), emissions may decrease by only 38% by 2030 relative to 2005 and by 71% by 2050 (Table 5.1).

Figure 5.3. Emissions per capita in Austria are mid-ranking among OECD countries

Level and distribution of GHG emissions by sector, 2021 (tCO2e per capita)



Note: GHG emissions include emissions from LULUCF (Land Use, Land Use Change and Forestry). The data include greenhouse gas emissions and removals taking place within national territory and offshore areas over which the country has jurisdiction.
Source: OECD calculations based on OECD (2024), OECD Environment Statistics (database) and Demography and Population Statistics (database).

StatLink https://stat.link/v9cj78

Table 5.1. Existing and scheduled measures are not sufficient to achieve Austria's emissions targets

Greenhouse Gas Emissions by sector, in million tonnes of CO2 equivalent

	GHG inventory				With existing measures		With additional measures		Transition scenario	
	1990	2005	2010	2020	2030	2050	2030	2050	2030	2050
Energy	36.4	41.6	39.1	32.4	32.1	31.3	26	14.9	20.5	4
Transport	13.8	24.6	22.2	20.7	18.9	9.1	17.1	2.8	8.6	0
Buildings	12.9	12.7	10.3	8.1	6.5	5	5.2	0.3	3.7	0.1
Agriculture	9.8	8.3	8.2	8.2	7.4	7.2	6.7	6.2	5.5	3.8
Waste management	4.7	3.6	3.2	2.3	2	1.8	2	1.8	2	1.2
Fluorinated gases	1.6	1.8	1.8	2.2	0.9	0.7	0.8	0.5	0.8	0.2
Total	**79**	**92.6**	**84.7**	**73.9**	**67.8**	**55.1**	**57.8**	**26.5**	**41.2**	**9.4**

Note: "GHG inventory" reports actual historical GHG emissions. The "With existing measures" scenario considers all policy measures implemented by 1st January 2022. The "With additional measures" scenario is based on the targets set in the country's National Economic and Climate Plan. The "Transition scenario" proposes a pathway to achieve net zero emissions in 2040.
Source: (Umweltbundesamt, 2023[2])

Notwithstanding mitigation efforts, countries, including Austria, will need to adapt to climate change. Like for the rest of Europe, Austria's average annual temperature has been rising more quickly than the world average, gaining 2°C since 1880. In the Intergovernmental Panel on Climate Change (IPCC)'s scenarios limiting global warming to 2°C, temperatures are expected to increase further by 1.0 to 1.6°C in 2100 relative to the 1995-2014 average (World Bank[3]). As a landlocked country with a continental and temperate climate, Austria will be relatively protected from the worst effects of climate change. Still, severe precipitation events have already become more frequent (OECD (2023[4])) and the intensity of heavy rains in summers and winters and subsequent floods is likely to increase, in particular in central and eastern regions.

The remainder of this chapter first considers economy-wide emission-reduction policies, including carbon pricing and green investment, along with support measures to address the socio-economic impacts of the green transformation. The chapter then examines emission mitigation strategies in key sectors: transport, buildings, energy supply, and iron and steel production. Finally, it discusses challenges in adapting to climate change.

Ensuring good policy on carbon pricing and green investment

Austria needs to increase the price of carbon further and reduce fossil fuel subsidies

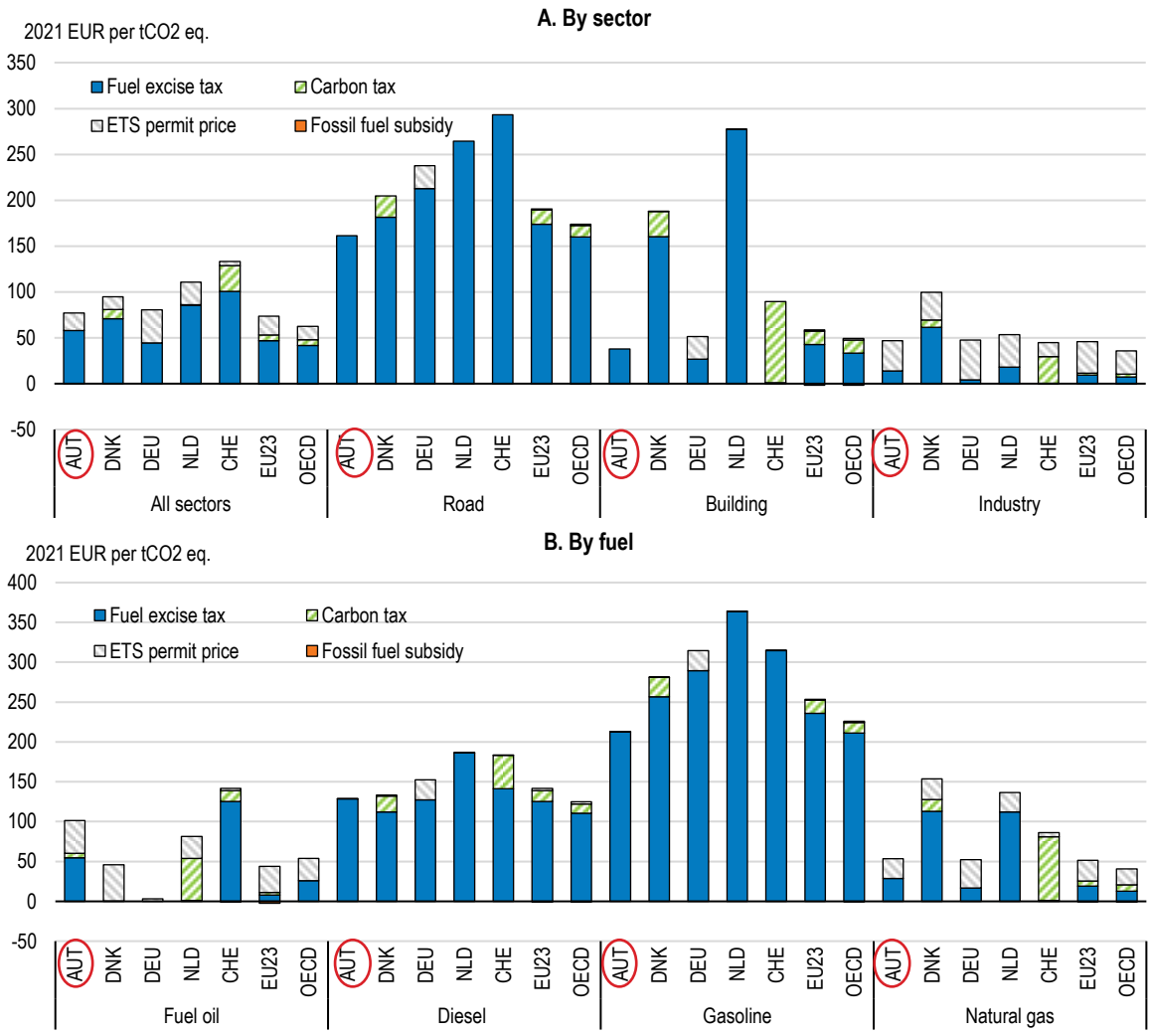
Effective carbon prices in Austria are higher than European and OECD averages, but low relative to peer countries. In addition, pricing is heterogeneous across sectors, with a significant share of emissions under-priced in some sectors with significant emissions. The net effective carbon price in Austria aligns with European averages for sectors under the European ETS, such as industry and power generation. However, carbon taxation is relatively low for transportation (reflecting lighter gasoline and diesel taxes) and buildings (reflecting lower taxation on heating oil and natural gas) (Figure 5.4). While 83% of GHG emissions were positively priced in 2021 (against 68% in the OECD on average), only 37% were effectively priced above EUR 60 per tCO2e (a widely used benchmark of a low-end estimate of the social cost of carbon in 2030). This results from the low price outside of EU-ETS sectors. In particular, 0.3% of emissions in residential energy use were priced above this level against more than a quarter on average in the EU.

Austria is making progress in carbon pricing on sectors outside the EU-ETS via its recent eco-social tax reform (see Chapter 2). The eco-social tax reform introduced a carbon pricing mechanism on sectors, such as transport and buildings, which are not covered by the EU trading system. The mechanism started operating in October 2022 and sets a gradually increasing fixed price on those emissions until 2025. This will then be incorporated in the new EU ETS ("ETS 2") which is set to come into force in 2027. The new carbon price is aligned with a similar system implemented by Germany in 2021 and should thus prevent significant carbon leakage in particular in the transport sector.

Steeper price increases under the eco-social tax reform should be considered. The scheduled prices are relatively low: they started from EUR 30 per ton in 2022 and will rise to EUR 55 per ton in 2025. By comparison, prices in the current EU-ETS fluctuated between EUR 80 and EUR 100 per ton in 2023. Evidence suggests that the eco-social tax increases will not bring substantial emissions reductions. Based on OECD estimates of the semi-elasticities of emissions responses to effective carbon rates (ECRs), an increase of EUR 30 in carbon prices results in a long-term reduction in emissions of 13% in the transport sector and 8% in the buildings sector (D'Arcangelo et al., 2022[5]). In contrast, the objectives set in the updated EU Effort Sharing Regulation demand a reduction of emissions of 48% by 2030 in non-ETS sectors such as transport and buildings compared to 2005 levels. In 2019 in Austria, emissions in transport, buildings, waste & agriculture, the main non-ETS sectors, were only 13% below their 2005 level (-22% in 2022).

Figure 5.4. Austria's net effective carbon rates are low compared to peer countries

Net effective carbon rates, by sector and fuel, 2021



Note: Effective carbon rates for total excluding biofuels CO2, average in EUR (real 2021 base) per tonne of CO2 equivalent. The shown rates refer to 2021, so they do not reflect the consequences of the implementation of the eco-social tax reform, which imposes a tax on carbon in non-ETS sectors from EUR 30 per ton in 2022 to EUR 55 per ton in 2025.
Source: OECD (2023), "Environmental policy: Effective carbon rates", OECD Environment Statistics (database).

StatLink https://stat.link/be9vp3

Reducing fossil fuel subsidies would also raise the effective carbon price. Austria implicitly supports fossil fuels, mostly through tax expenditures. These include a partial refund of energy taxes paid by energy-intensive businesses, and lower tax rates on gasoline and diesel for specific uses (OECD, 2023[6]). Recent estimates, excluding most of the relief measures implemented against inflation since 2022, suggest that the fiscal cost of this support amounts to between EUR 0.8 billion and EUR 6 billion (OECD, 2023[6]; Plank et al., 2023[7]; Schnabl et al., 2021[8]; Kletzan-Slamanig et al., 2023[9]). It is below the majority of OECD and EU countries (relative to the size of its economy) but significantly higher than the Scandinavian countries, Switzerland, and Portugal. The government could improve the systematic monitoring and evaluation of those tax expenditures and other subsidies which are counterproductive for climate change mitigation, including their potential role in increasing emissions (Kletzan-Slamanig et al., 2022[10]). In 2023, the

Ministry of Finance introduced for the first time an overview of "climate counterproductive measures" in ESR sectors in the annual climate and environmental report, a supplementary budget document (BMF, 2023[11]). Indeed, significant progress has been made regarding budget tagging and green budgeting in general after a late start (OECD, 2022[12]). This is a welcome step towards such a consistent analysis of tax expenditures and fossil fuel subsidies, their quantification, and their eventual phaseout. A particular challenge, which has also been identified in the second module of the green spending review cycle started in 2022, will be the extension of those green budgeting measures at the subnational levels where the transparency and the uniformity of data reporting (both on funding and climate impact) are lacking.

Investment and innovation need to rise to support the green transformation

Investment needs for the green transformation are substantial. A recent analysis by the Austrian Environment Agency forecasts additional investment valued at 4.2% of GDP per year to achieve the 2040 net-zero objective. The government will fund a large share of the investment: Austria's 2019 NECP estimated that the public sector will cover 60% of investment costs against 45% on average in Europe. Such substantial expenditures will require a supportive and efficient framework for the administration of investment and other environmental expenditures.

Improvements to public procurement processes would facilitate green investment. The efficient implementation of new infrastructure investment plans will require improvements in the competitiveness of the procurement process, bidder selection, and project appraisal and selection, where Austria lags behind the average OECD country (OECD, 2023[13]). In particular, the country could provide additional mechanisms to facilitate access to procurement opportunities by suppliers of all sizes such as simplifying administrative processes, and ensure the publication of the guidelines for the procurement of infrastructure projects (OECD, 2020[14]; Global Infrastructure Hub, 2020[15]). The duration for awarding contracts can be relatively high while the quality of contract management for public-private partnerships (PPPs) also lags the average developed country resulting in a low value of closed PPP deals (Global Infrastructure Hub, 2020[15]). As part of the Recovery and Resilience Plan, the Ministry of Finance plans a spending review on the sustainability of public procurement in 2025.

Stronger co-ordination in green investment across levels of governments is needed. Austria's federal system allocates a significant portion of responsibilities for green investments to the subnational governments. However, currently the long-term federal infrastructure plan is not aligned with regional development plans (OECD, 2020[14]). It is thus welcome that the Ministry of Finance published a spending review in 2023 analysing synergies in the funding of climate policies between the central government and the federal state. In particular, the report recommended more harmonisation in data reporting and target indicators, a study to prepare a distribution of Austria's GHG emissions targets between federal states, and the development of incentives within the system of transfers between the central and subnational governments. Indeed, the federal government could incentivise more coordination across government levels by tying more sub-national government funding to the green transformation (Kletzan-Slamanig et al., 2023[16]).

Leveraging fiscal federalism institutions could be relevant in a country where local authorities have few own tax revenues. In practice, the recently passed Municipal Investment Act provides an interesting initiative with the allocation of EUR 1 billion for 2023 and 2024 from the federal government to municipalities, with half earmarked for energy efficiency measures, the switch to renewables, or the expansion and decarbonisation of district air conditioning systems. Further measures could be considered. For example, grants or the distribution of shared tax revenues could be earmarked to specific green transformation objectives (in the spirit of Ecological Fiscal Transfers (Busch et al., 2021[17]; OECD, 2021[18])) as in the "Climate Lens" programme in Canada (Government of Canada, 2023[19]). In that context, progress has been made in the financial equalisation agreement negotiated at the end of 2023 where, as part of the established "Future Fund", around EUR 600 million are allocated annually to the fields of housing

and renovation, and environment and climate, with specified targets to be reached including an increase in the renovation rate to 3% for public buildings and an increase in the share of renewables in final energy consumption by 1 percentage point each year. However, those amounts still represent a minor share of local resources, some indicators (in particular in the field of housing and renovation) are not harmonised between federal states, there is no clear link between allocated resources and performance, and there is no impact on the financial resources that are made available to the subnational governments if the targets are not met (Austrian Parliament, 2023[20]; KDZ, 2023[21]; Bittschi et al., 2024[22]).

Austria has further scope to lead green innovation. The public R&D budget in green technologies is high but lacks focus. In 2021, Austria's public R&D budget for low-carbon energy purposes amounted to 0.05% of GDP, above most OECD countries. Additional effort is scheduled, as research funding from the Ministry of Finance is scheduled to increase by 5% in 2024. Nevertheless, the current support for green technologies represents a low share of the government R&D budget as most of the budget is allocated to the "general advancement of knowledge". This lack of focus had been already identified in the 2018 Review of Innovation Policy (OECD (2018[23]) and Chapter 3), although progress has been made recently. For example, as a result of the Research Financing Act passed in 2020, the government has developed two plans for Research, Technology and Innovation (RTI) for 2021-2023 and 2024-2026 which define targets and fields of activities for R&D and which have identified the digital and green transition as key priorities. More focus could benefit Austria and its partners: the country has a relatively high share of patents in environment-related technologies and could thus contribute substantially to the development of the technologies necessary to achieve the green transformation globally. In particular, it has a big comparative advantage in environmental technologies related to the mitigation of emissions in buildings and energy generation (OECD, 2023[24]).

In its updated climate plan, Austria is planning a significant effort on innovation including in international collaborative projects. Significant funds are earmarked for innovation over the next three years (2024-2026). According to the draft plan, EUR 330 million will finance four missions focused on the green transformation, targeting the energy transition, the mobility transition, the circular economy and production technologies, and climate-neutral and smart cities. An additional EUR 520 million will support R&D and demonstration for energy, mobility, and climate neutrality research including EUR 320 million for the greening of industry as part of a "climate and transformation offensive", funded via the Austrian Climate and Energy Fund (KLIEN), between 2023 and 2027. Austria will also take part in several Important Projects of Common European Interest (IPCEI) at the European level, which are projects carried out by the private sector and supported by at least four EU countries. In particular, one of the four main parts of Austria's Resilience and Recovery Plan is devoted to the "knowledge-based recovery" and will finance an IPCEI on hydrogen technologies. Austria is also taking part in the IPCEI on batteries. This continues Austria's active participation in multilateral efforts such as Mission Innovation, a global initiative of 23 countries with the purpose of sharing information on innovation initiatives and promoting public-private collaborations for green innovation.

Addressing the socio-economic consequences of the green transformation

Climate change mitigation policies will have distributional effects and will require accompanying measures to support households and businesses vulnerable to the transition. For example, a recent analysis by the Ministry of for Social Affairs found that the impact of increasing climate risks and of climate policies tend to affect vulnerable groups disproportionately, and has identified key vulnerability factors such as low income, old age, migration background, and low level of education (BMSGPK, 2021[25]). A follow-up study by the Ministry also analysed the different dimensions of the population's vulnerability to climate change and climate-related policies in key areas of social policy such as health and care, family policy, housing, mobility, and employment, and provides starting points for their green transition, including financing issues (Wirtschaftsforschungsinstitut, 2024[26]).

First, the structure of economic activity will be altered, and this will change the allocation and the remuneration of labour and capital. New types of jobs will emerge, some existing jobs will decline, and required skills will change within jobs (OECD, 2023[27]). Austria's sectoral specialisation and the preponderance of industry suggests that a larger share of workers work in occupations that could be deemed polluting compared to other OECD countries, which could also be concentrated in some local communities (Borgonovi et al., 2023[28]). However, the size of the overall job turnover in the green transformation is likely to be relatively small compared to overall labour market movements (Chateau, Bibas and Lanzi, 2018[29]). Ensuring that labour markets are sufficiently flexible and improving the dynamism of the economy more generally (see Chapter 3) will thus be essential to smooth the transition. This includes ramping up and adapting active labour market programmes to facilitate the reallocation of workers, and boosting training and skill development to address skills mismatches. Public employment services in Austria already provide information to job seekers regarding green jobs and skills (OECD, 2023[27]) and help them identify "environmentally-oriented production and services" occupations (European Commission, 2021[30]). To anticipate labour needs, public employment services could benefit from moving from their occupation-based approach to a skills-based approach in assessing the needs generated by the green transformation. The government has run "skills assessments and anticipation" for the green transition but those were mostly focused on industries rather than skills, and could also be more differentiated by regions (OECD, 2023[31]).

Regions heavily reliant on fossil fuels or with a high degree of specialisation in sectors affected by the green transition will need support. A recent regional analysis by the OECD has shown that Upper Austria and Styria are among the European regions most exposed to the transition, with high emissions levels and a large share of employment in polluting sectors such as the manufacturing of basic metals and the production of paper products (OECD, 2023[32]). Carinthia and Tyrol have a high share of employment in non-metallic mineral products. To cushion the local impact of the green transition, policymakers may need to reconsider place-based policies and remove obstacles to geographical mobility. The last *OECD Austria Economic Survey* showed that inter-regional migration in Austria is lower than in peer countries and suggested that reducing barriers to innovative entrepreneurship would have the biggest positive impact on labour mobility. Addressing inefficient restrictions on housing including land-use and rental market regulations (without a detrimental impact via land take, see below, reflected in relatively low national and regional elasticities of housing supply to prices, would also support labour mobility (Cavalleri, Cournède and Özsöğüt, 2019[33]).

Second, the temporary increase in the cost of energy will affect households differentially depending on income levels, residential location, or tenancy level for example, as the past year's increase in energy prices has illustrated (Blake and Bulman, 2022[34]). Targeted transfers can help offset the regressive impacts of mitigation policies. The eco-social tax reform recycles some carbon pricing revenue into tax rate reductions in lower income tax brackets and the distribution of a cash transfer whose amount is differentiated based on the availability of infrastructure and public transport in the location of residence. Recent simulations suggest that allocating the climate bonus based on income – combined with the reductions in income tax – could be more efficient in jointly supporting economic growth while reducing inequalities (Kettner et al., 2023[35]). Notwithstanding recent improvements, fiscal support for the transition in specific sectors, such as switching vehicles in the transport sector, or heating systems in the residential sector, would also benefit from more targeted approaches (see below).

The green transition will require significant changes in the economy, and policies to address climate change can only be effective if they are well understood in their structure and objectives, perceived as fair, and democratically accepted. This presents at least two important challenges for Austria. First, improving transparency and openness will be essential (see Chapter 3). Austria experimented with inclusive democracy for green policies by creating a Climate Council which gathered 100 randomly selected people to formulate recommendations for the green transition after getting information and support from scientists. The Council came up with 93 recommendations but few have been implemented yet. Second, recent

surveys from the European Investment Bank suggest that Austrians are more pessimistic about the impact of climate change on the future of jobs, their purchasing power, and overall quality of life compared to citizens in other European countries, and are less likely to support subsidies for vulnerable firms and workers or higher taxes to finance climate policies (EIB, 2023[36]). They are also less likely to acknowledge the effects of climate change on their lives, and to believe in its human origins. Reducing information and knowledge gaps will be key to building trust and making behaviour more climate-friendly. Disseminating knowledge about climate change and nurturing constructive narratives about climate policies can be achieved through public communication and education campaigns, targeted combating of misinformation, and promoting transparent and accessible political discourse on the design and rationale of climate policies (D'Arcangelo et al., 2022[37]).

Ensuring decarbonisation in high-emission sectors of the economy

Reducing transport emissions requires electrification and changes to urban planning

Transport, Austria's primary source of emissions, is dominated by private car use and road transport, alongside a slow transition to low-emission vehicles. It is also by far the sector with the highest green investment needs. Greening the transport sector requires combining a reduction in transport activity, a shift of travels towards greener options, and the greening of transport technologies (ITF, 2021[38]).

Incentivising densification and smart urban policies

Reform to planning regulation and property taxation can encourage urban densification, reducing transport emissions. Housing supply is less responsive to prices in Austria than in most European countries at both the national and local level (Cavalleri, Cournède and Özsöğüt, 2019[33]; Bétin and Ziemann, 2019[39]). One way forward is therefore to make land-use regulations more flexible in accordance with urban strategies, and more generally allowing densification in areas where demand expands. In particular, building height restrictions could be relaxed in high-environmental-quality areas as current building heights suggest large potential to build higher, and more generally maximum density restrictions could be loosened (Jedwab, Barr and Brueckner, 2022[40]). Enhancing tax autonomy on local property taxation could boost the responsiveness of housing supply by strengthening local authorities' incentives to reduce inefficient constraints on new developments (Dougherty and Kim, 2023[41]). This could be done by increasing the importance of recurrent property taxation and reducing transaction taxes, while updating property values, as mentioned in Chapter 2. Opting for a split-rate design or a land value tax in the long run would further encourage the development of vacant or underused land in suburban areas. More direct instruments can also incentivise densification: road pricing mechanisms (e.g. cordon tolls or flat kilometre taxes), for example, may provide long-run incentives for urban densification (OECD, 2018[42]).

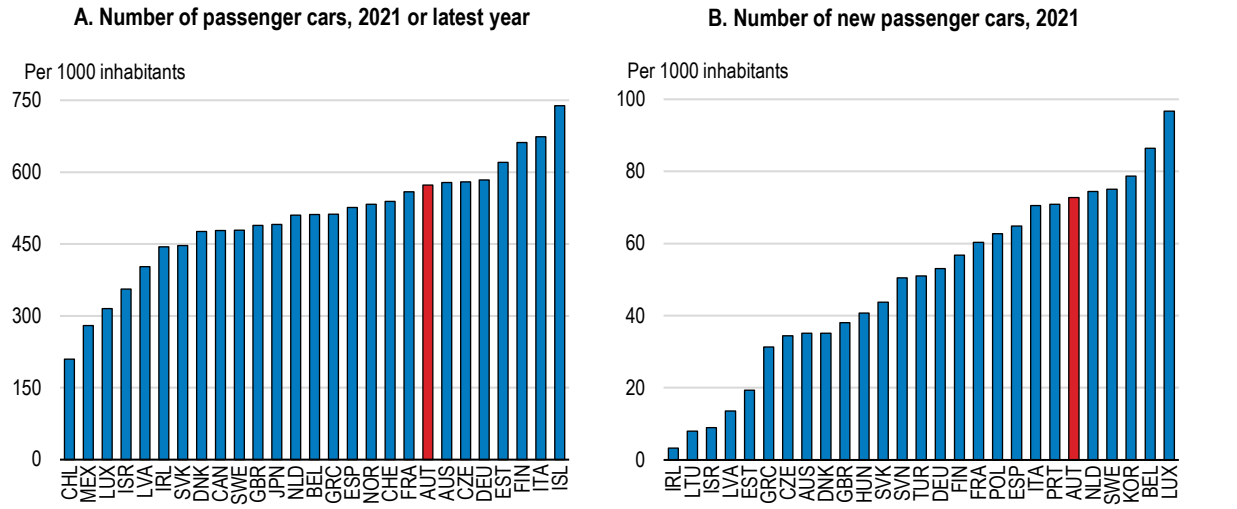
Densification requires good coordination across levels of governments. Local authorities influence densification through responsibility for transport system planning, and regulation of land use and zoning. The coordination of land-use planning in Austria is facilitated by the Conference on Spatial Planning, which co-ordinates spatial planning policies between the three levels of government. In theory, responsibilities and decision-making in urban planning are preferably delegated to the metropolitan rather than the local level to avoid not-in-my-backyard dynamics and foster inter-municipal co-operation, including in the provision of public services and transport (OECD, 2023[43]). Metropolitan areas in Austria exist functionally but do not have a formal or legal status. Intermunicipal cooperation is purely voluntary (although it has been incentivised by Länder e.g. via adjustments on equalisation transfers) despite only 70 municipalities out of more than 2 000 having more than 10 000 inhabitants. Good coordination may thus require new models for intermunicipal cooperation. Today, such cooperation is possible via the formation of local authority associations to manage certain specific areas, and municipalities also have the possibility to

merge into a formal higher-level authority called a "territorial municipality" (*Gebietsgemeinde*). However, multi-purpose associations are rare and no territorial municipality has ever been formed (KDZ, 2021[44]). The government could establish metropolitan transit authorities, which can help promote transit solutions in line with national and local needs. Experience from other OECD countries shows that better coordination of transit management in metropolitan areas can also contribute significantly to higher growth and well-being (OECD, 2015[45]).

Shifting towards active mobility and public transport

Encouraging active mobility and public transport use can significantly reduce emissions. The number of cars is high in Austria relative to the population and car purchases remain significant (Figure 5.5). There is thus a need to promote a shift from motorised to active modes (walking, cycling) for travel within urban areas for example, or shifting from road to rail for regional/intercity travel or freight transport. According to an OECD study, a shift from private cars to urban rail can reduce final energy use per passenger-kilometre by more than 90% and shifting from trucks to freight rail delivers a 72% reduction (ITF, 2021[38]). Given this, Austria's plans for significant investment in public transport infrastructure are welcome; investments in sustainable mobility account for the single largest item in the National Resilience and Recovery Program.

Figure 5.5. Austria has a large number of passenger cars relative to its population



Source: ITF transport database and Eurostat.

StatLink https://stat.link/6xbv58

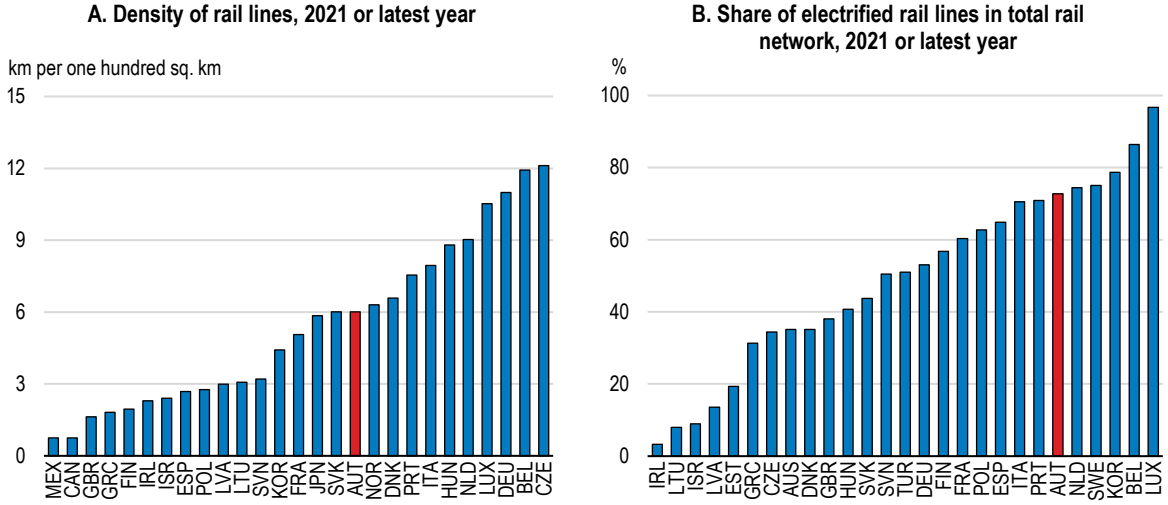
There is room to encourage investments in more walking and cycling. There is strong potential for modal shift for short urban trips: for example, around 20% of car journeys are shorter than 2.5 kilometres and 60% are shorter than 10 kilometres (BMK, 2022[46]). Austria has developed a "Walking Master Plan for 2030" and a "Cycling Masterplan". The Walking Masterplan targets a 20% share of trips taken by foot in 2030 up from 17% in 2020. Proposed measures include subsidies for pedestrian infrastructure and the mandatory development of local masterplans for large cities. The Cycling Masterplan targets an increase in the share of cycling in the modal split to 13% by 2030 from 8% in 2020. Proposed measures include investment in the expansion of bicycle highways connections for longer-distance traffic, infrastructure for walking and cycling networks, the construction of bicycle parking facilities, awareness raising, and the further development of bike rental systems (Planoptimo and Verracon, 2022[47]). As the planning competence for pedestrian and cycling infrastructure lies with the municipality or federal state level, the national subsidies aim to encourage the responsible planning levels to set-up long-term development goals and design targets for walking and cycling networks. To promote cycling, the government is also proposing

a flat rate subsidy of EUR 300 for e-bikes (up to 50% of eligible costs) for enterprises in 2024. Such programs are effective to substitute driving for biking but can be costly, at least when focusing on the impact on emissions given the current social cost of carbon (Anderson and Hong, 2022[48]). To improve the cost-efficiency of the program, the subsidies could be more targeted: for instance, France provides three subsidy levels depending on household income. To promote walking and cycling further, the authorities could also set a lower speed limit in built-up areas (the official limit is 50 km/h); and streamline planning procedures for cycling infrastructure (such as cycling lanes and parking). First steps have been taken or are in discussion in Parliament to improve the quality of cycling and walking via amendments to the road traffic regulations such as regulations for bicycle overtaking distances, and to ease processes for municipalities to implement reductions in speed limits.

Austria has a well-developed urban public transport system, but could improve accessibility in rural areas. Austrians use public transport more often than most EU countries for both urban and longer trips: in particular, Austrians are by far the heaviest users of trams and metros in Europe (European Commission, 2022[49]). However, this masks an important rural-urban divide. In Austria, 40% of the population lives in rural areas, twice the EU share. More than half report problems in public transport access compared to 8% for urbanites, and distances to public transport stops are significantly higher for them (Kastrop et al., 2019[50]; BMVT, 2016[51]). As a consequence, more than a third of households in small cities have more than one car, against 9% in Vienna (Heinrich-Böll-Stiftung, 2021[52]). Facing similar challenges, some countries have implemented “demand responsive transport” programs, with bookable public transport operating on real-time demand rather than a fixed schedule and which can service underserved areas, and which can be door-to-door or using predefined locations on demand (ITF, 2021[53]). Such programs implemented in the Netherlands, in Finland and in Norway for example, suggest that those services are popular, can substitute for car use, and contribute significantly to emissions reduction, although they can be costly if they do not replace existing fixed routes (Coutinho et al., 2020[54]; Dotterud Leiren and Skollerud, 2015[55]; Diana, Quadrifoglio and Pronello, 2007[56]).

Additional investment in public transport along with Austria’s high-quality rail infrastructure network would ensure that increased capacity follows the increase in demand. For longer-distance travel and freight, Austria benefits from a well-developed railway infrastructure. The railway system is relatively dense and Austria invests relatively more than other OECD countries (Figure 5.6, Panel A). This effort will be pursued in the proximate future, with additional investment of EUR 2 billion scheduled between 2024 and 2029. To incentivise public transport use, the government has introduced in 2021 a “climate ticket” at the national level, offering nearly unlimited public transport use across the country with a single ticket for a full year, followed by eight “regional climate tickets” for regional public transport use (Box 5.1). It has contributed to substituting some car journeys with public transport. By the end of 2023, 266 000 nationwide climate tickets and more than 1.2 million regional climate tickets were in use - amounting to 16% of the Austrian population. The eventual goal of the government is to increase public transport use along with active mobility to reduce the use of motorised vehicles to 40% of trips compared to 60% today. The main risk in the short term is that the public transport infrastructure reaches saturation (IEA, 2020[57]). A climate ticket satisfaction survey held by the Ministry of Climate suggested high satisfaction with public transport but mentioned deterioration in punctuality and capacity, in addition to a recurrent lack of access in rural areas. For this purpose, a major investment package co-financed with funds from the Resilience and Recovery Facility (RRF) was approved in 2022 for the construction of new railway lines, the electrification of regional railway lines, and financial support for zero-emission buses, utility vehicles and infrastructure. Shifting more transport to rail can contribute substantially to emissions reduction because the railway infrastructure is already well electrified (Figure 5.6, Panel B).

Figure 5.6. Austria has a dense, and relatively electrified, rail network



Source: OECD (2023), "Performance Indicators", OECD Transport Statistics (database); and ITF transport database.

StatLink https://stat.link/2ofqtg

Scaling back fiscal support for car use

Fiscal support for commuters and business trips discourages public transport. Austria, as several other OECD countries, provides tax deductions for commuting expenses. The deductions comprise four elements: a progressive refundable tax credit, a "commuter allowance" (the *Pendlerpauschale*), a tax deduction proportional to distance travelled (the "commuter euro", or *Pendlereuro*), and a tax exemption for an employer's subsidy to a public transport ticket (Table 5.2, Panel A). Austria also provides significant incentives for car use for business purposes (Table 5.2, Panel B). The flat rate taxation of the personal use of company cars, considered as a remuneration in-kind to employees, undertaxes actual benefits: it has been estimated that the government only captures 60% of the benchmark benefit (Harding, 2014[58]). This can incentivise additional car purchases: in the first nine months of 2019, over 62% of newly registered cars were company-owned (IEA, 2020[57]). Business trips by cars are also incentivised by the kilometre allowance, a flat-rate payment for all costs incurred through the use of a private vehicle for journeys as part of a business trip. In parallel, far more Austrians report traveling for "personal business" than in other European countries (Eurostat, 2021[59]). In combination, all these fiscal measures discourage the use of public transport and encourage car-use, including via decisions on where to live. The key issues are:

- Bias towards car-use and long travels. The commuter allowance is higher if public transport is not accessible, which rewards commuters living in areas with bad public transport connections. Likewise, the commuter euro tax deduction increases with distance travelled. Evidence suggests that the commuter tax breaks indeed lengthen travel distances (OECD, 2013[60]; Paetzold, 2019[61]; Kletzan-Slamanig et al., 2022[10]). Similarly, the flat rates on the use of company cars and for the kilometre allowance, independent of the intensity of use, favour trips of longer distances and reduce incentives to use other means of transport.
- Counterproductive environmental impact. The biases described above imply higher emissions, while those fiscal measures rarely feature additional green incentives, although since 2016, the amount of the taxable total benefit in kind for the private use of a company car is lower when the CO2 emissions of the car in the year of purchase are below a certain threshold. In addition, no taxable benefit in kind applies for zero-emission vehicles.
- Regressivity and inefficiencies. The commuter tax allowance is regressive as high-income earners commute longer distances and face higher marginal tax rates. Two-thirds of the tax expenditure

from the commuter allowance and the commuter euro accrue to the top half of income earners. Similarly, the tax benefits for the private use of company cars are also quite concentrated towards high-income workers – evidence from Germany suggests little use of company cars for the bottom 50% of the income distribution. Company cars are also typically larger and more powerful (Fisher et al., 2021[62]).

- Excessive complexity. The multiplicity of instruments induces administrative and compliance costs. In addition, most federal states also provide additional commuting tax breaks above and beyond the federal allowance.
- High fiscal costs. For example, estimates suggest that the commuter allowance and the commuter euro cost around EUR 510 million annually between 2016 and 2020; while the implicit benefit for the private use of company cars cost approximately EUR 500 million in 2019.

Table 5.2. Fiscal incentives for commuting and the use of cars as part of business activities are diverse

Panel A: Support for commuters in Austria

Instrument	Description
Traffic tax credit (Verkehrsabsetzbetrag)	The traffic tax credit is refundable and covers the expenses for trips between home and place of work as a lump sum, for all taxable employees. It is automatically taken into account by the employer when calculating the payroll. The traffic tax credit is EUR 421 per year in 2023. For commuters also entitled to a commuter allowance (see below) with yearly income below EUR 12 835, the traffic tax credit increases to EUR 726. For incomes between EUR 12 835 and EUR 13 676 per year, the increased traffic tax credit is gradually reduced to the standard rate.
Commuter allowance (Pendlerpauschale)	There are two types of commuter tax allowances: the small and the large commuter allowances. The small commuter flat rate (EUR 58, 113, or 168 per month depending on distance) is available to those whose place of work is at least 20 kilometers away from their home, and where it is possible and "reasonable" to use public transport at least halfway to work. The large commuter flat rate (EUR 31, 123, 214, or 306 per month depending on distance) is available to those whose workplace is at least 2 kilometers from their home and the use of public transport is "unreasonable". The commuter allowance reduces the income tax base.
Commuter Euro (Pendlereuro)	The commuter euro is a tax deduction for commuters eligible to a commuter allowance, calculated by multiplying the one-way distance in kilometers between home and work by 2 (if the commute from home to work is X km, the commuter euro is EUR 2*X). The amount of the commuter euro is then deducted from taxes paid.
Public transport ticket (Öffi-ticket)	Since July 1, 2021, employers have been able to provide their employees with a weekly, monthly or annual ticket for public transport or reimburse the costs for it as an untaxed benefit. The costs for the public transport ticket can be covered in full by the company, but it is also possible to only cover part of the costs. The amount donated by the company for the public transport ticket is to be deducted from the amount provided by the commuter allowance.

Panel B: Support for the use of cars as part of business activities

Instrument	Description
Taxation rate for the private use of company cars	The use of company cars for private use is taxed as a benefit in kind provided by the company to the employee, since the cost of acquisition is borne by the employer. The taxation of the fringe benefit is calculated as 2% of the car acquisition cost. Starting in 2016, the rate was lowered to 1.5% for vehicles below a (gradually decreasing) emissions threshold (132g/km in 2023). Employees travelling less than 6 000km per year face half the rate. In addition, no taxable benefit in kind applies for zero-emission vehicles.
Kilometre allowance (Kilometergeld)	The kilometre allowance is a flat rate reimbursement for costs incurred through the use of a private vehicle for business trips. The allowance is EUR 0.42 per kilometre for a car, EUR 0.24 for a motorcycle and EUR 0.38 for trips by bicycle.

Note: Panel A: The commuter allowances and commuter euro were temporarily increased between May 2022 and June 2023 as a response to the energy price crisis.
Source: Austrian Automobile, Motorcycle, and Touring Club, Austrian Government, Chamber of Labour, (Kletzan-Slamanig et al., 2022[10])

Several initiatives could help address these concerns. The commuter allowance could be replaced with targeted support for employees who have high travel costs as a share of their income or those with unavoidable long-distance work travel; while the commuter euro tax deduction could be reduced. The

taxable total benefit in kind for the private use of a company car could be greened further by widening the relative gain in buying a low-emitting vehicle. Similarly, the level of the kilometre allowance is set too high (as it fails to take into account differences between cars) and could be reduced. The allowance levels could also be more aligned with climate objectives and be expanded to greener alternatives, e.g. public transport (Kletzan-Slamanig et al., 2022[10]).

Box 5.1. Austria's KlimaTicket for public transport

In October 2021, Austria introduced a nationwide climate ticket – the "KlimaTicket", which was included in its Resilience and Recovery Plan. It offers almost unlimited public transport use across the country (including state and privately-run rail services and inner-city transport services), with a single ticket for a full year. In total, the ticket costs EUR 1 095 per year for adults and EUR 821 for youth and seniors. A family ticket is also available. The BMK allocates EUR 180 million annually for this purpose. In the 2024 Budget Plan, the government proposed to make the KlimaTicket free for 18-year-olds with an additional expenditure of EUR 120 million per year. In addition, all Länder introduced regional tickets as of January 2022.

The KlimaTicket has been complemented with other policies to incentivise the use of public transport. The federal government has invested in infrastructure development and the digitalisation of services, for instance. The number of trains covering west to east routes has been increased; the train fleet has been modernised, and night trains expanded.

In contrast to similar initiatives in other OECD countries, customers in Austria purchase a ticket for a full year.

Austria's national KlimaTicket gained more than 130 000 subscribers in the first two months of its existence. The take-up has slowed down and as of October 2023, 262 700 tickets had been purchased, or only around 3% of the Austrian population. Regional climate tickets are more popular, and overall one in seven Austrians use the national or a regional ticket.

The national ticket appears to have helped induce behavioural change. While the large majority of subscribers have a driving licence, about two-thirds of surveyed customers indicated that they were using public transport more frequently. Indeed, 85% had already replaced car journeys with public transport by then. A survey held in May and June 2023 by Verkehrsclub Österreich (VCÖ) also suggests that a majority of national and regional KlimaTicket users have substituted at least some of their car travel by public transport.

Source: OECD Climate Action Dashboard, (BMK, 2023[63]), Verkehrsclub Österreich

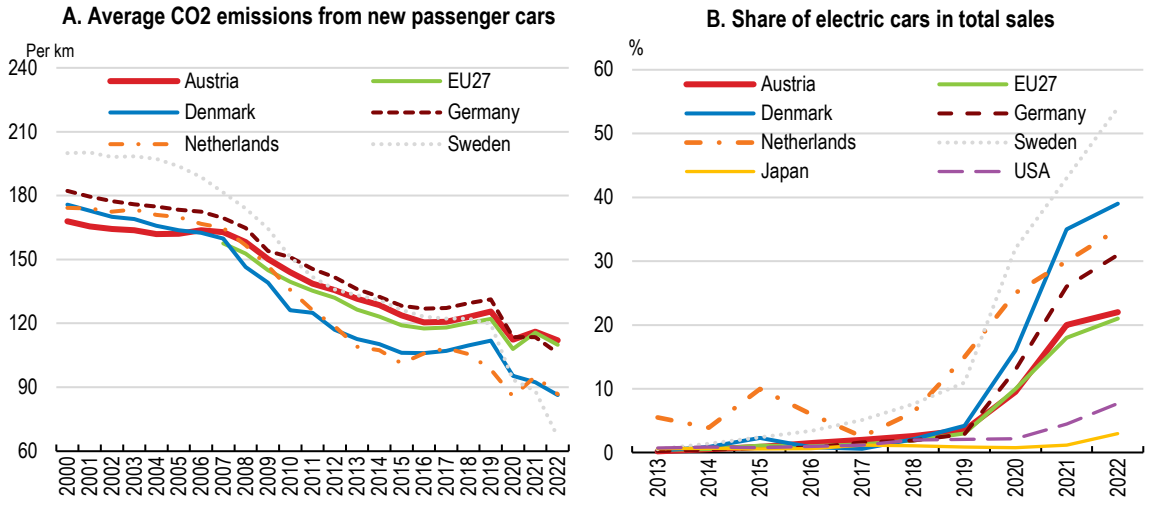
Austria's fuel taxes are relatively low in international comparison and lower for diesel than for gasoline, incentivising more polluting cars. The effective carbon rate on road emissions was lower than the OECD average in 2021 although the rate is set to increase under the eco-social tax reform (Figure 5.4). In addition, diesel is still favourably taxed relative to gasoline despite emitting more CO2 and producing more particulates, although the gap has narrowed in recent years and is now close to the median OECD country (OECD, 2022[64]). The low relative price of diesel has contributed to a high share of diesel vehicles in Austria relative to other countries (ICCT, 2021[65]). A peculiar issue for Austria is that a significant share of its emissions is driven by "fuel tourism", i.e. fuel sold to non-resident drivers in Austria which is then used abroad. This fuel tourism, mostly driven by heavy good vehicles, has been estimated to account for a quarter of total diesel and petrol sold in Austria in 2016, and a quarter of Austria's emissions in the transport sector in recent years (Breitenfellner, Lahnsteiner and Reininger, 2021[66]; Umweltbundesamt, 2023[67]; IEA, 2020[57]). Part of it can be explained by the low taxation of fuel compared to neighbouring countries (OECD, 2021[68]). In that context, it is welcome that based on the EU "Eurovignette" Directive, Austria has

introduced an external cost charge for CO2-emissions as part of the toll for vehicles above 3.5 tons by 1 January 2024 and a 75 % reduction for zero-emission vehicles above 3.5 tons. The taxation of diesel should be aligned with the taxation of gasoline, and should increase in line with neighbouring countries to reduce fuel tourism further. As diesel vehicles are used especially by companies – which react more to changes in prices – phasing out the lower taxation of diesel could have a substantial effect on behaviour and emissions. For example, an estimate based on historical price elasticities of petrol and diesel demand suggests that the alignment of diesel taxation with gasoline could reduce CO2 and fine particulates emissions by 6% in the long run, and the reduction would be 10% with an additional EUR 50 per ton carbon tax (Zimmer and Koch, 2016[69]). Aligning the price of diesel and gasoline could also provide significant tax revenues: the tax revenues forgone have been estimated to cost between EUR 540 million to EUR 1 billion in revenues forgone (Kletzan-Slamanig et al., 2022[10]).

Accelerating the electrification of passenger vehicles

In line with other European countries, Austria is supporting the purchase of electric vehicles (EVs) but the relative gap in the price impact of emissions-related fiscal policies between EVs and internal combustion engine (ICE) vehicles is still low. Although the share of battery electric cars and plug-in hybrids in new car sales has increased fast since 2019, they still only represented 4.1% of the total car stock in 2023 and the average emissions of new cars is still relatively high (Figure 5.7, Panel A). In addition, the increase in new registrations of electric cars has slowed down in 2022 despite the ambitious goals set in 2021 of integrally decarbonising cars, light-commercial, two-wheelers, and some heavy-duty vehicles by 2030 and large heavy-duty vehicles by 2035 as part of the Mobility Masterplan (Figure 5.7, Panel B). However, subsidies in Austria have significantly increased in recent years, and drivers can receive up to EUR 5 000 for the purchase of electric vehicles in 2023 in addition to some tax benefits like the exemption from NoVA, the one-off consumption tax on registration (Table 5.3). Still, the difference in the relative tax burden between a small ICE vehicle and a small EV is relatively low compared to other European countries (Figure 5.8).

Figure 5.7. The increase in EV purchases has slowed down, and new cars are more polluting than in other countries

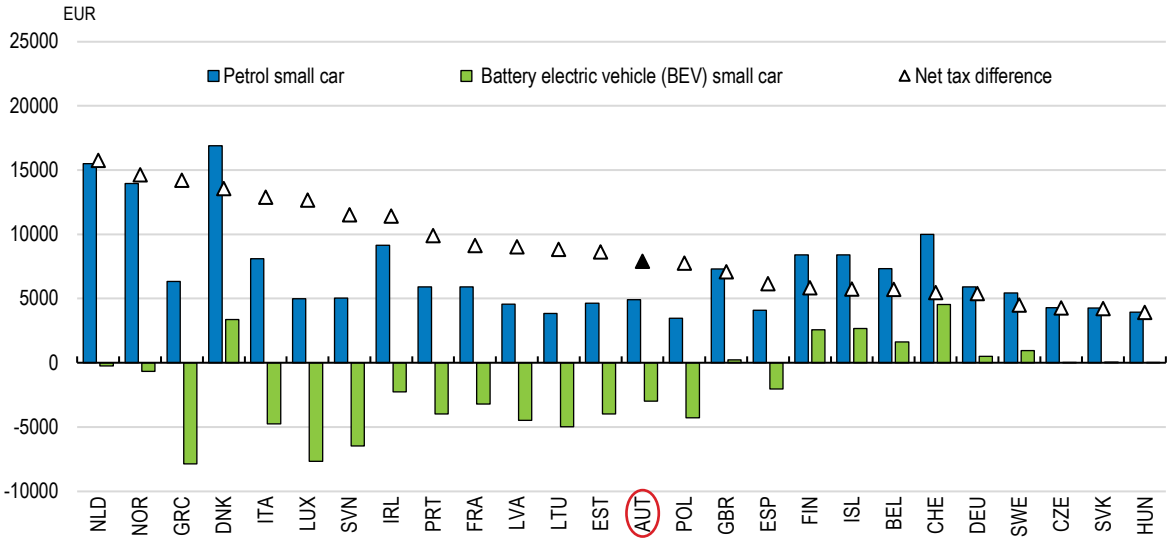


Note: Electric cars refer to battery electric vehicles as well as plug-in hybrid electric vehicles. In Panel A, emissions are based on information recorded in cars' certificates of conformity.
Source: IEA (2023), Global EV Data Explorer; and European Environment Agency.

StatLink https://stat.link/gj06s4

Figure 5.8. The relative tax burden on EVs versus ICE small cars is low by international comparison

Net tax burden by type of small cars and net differences



Note: Preliminary data. Calculations based on the tax burden data over ten years of private ownership. The total tax burden includes taxation on car acquisition (net of purchase grants) and ownership, a standard VAT rate, and excise duties on energy use.
Source: Transport & Environment (2024).

StatLink https://stat.link/vi1rcx

Austria should further increase support for EV purchases, but measures should be temporary and carefully targeted. Incentives to purchase EVs over ICEs could be increased by linking the cost of acquisition more strongly to emissions efficiency, as has been done in some other European countries (Wappelhorst et al., 2020[70]; Transport & Environment, 2022[71]). The public sector also has a role to play to stimulate EV demand directly. For that purpose, the Austrian government has set in 2021 a minimum target for the procurement of clean and energy-efficient vehicles as an application of the European Clean Vehicles directive (EY Law, 2022[72]). Purchase incentives and public procurement support measures can help to kick-start the market for EVs but can be a costly way to promote wider adoption – in particular relative to the benefits in terms of emissions reduction (Clinton and Steinberg, 2019[73]). They should thus be targeted, and temporary. Untargeted subsidies are costly, regressive, and have tended to support the purchase of heavier vehicles in other countries. In the United States, for example, 90% of tax credits for electric vehicles went to the 20% highest income households (Borenstein and Davis, 2016[74]). Subsidising stations with zero-emission cars available for renting could provide better access for low-income households, who are less likely to own a car (Nicholas and Bernard, 2021[75]). Subsidising loans rather than grants for purchasing zero emission vehicles, as done in Scotland, addresses financial constraints by overcoming high upfront costs of electric cars while mobilising more private funding (Wappelhorst, 2020[76]). Likewise, subsidies can be limited to light cars: starting in 2023, France restricts its ecological bonus and conversion premium to private cars under 2.4 tons (the conversion premium is also only accessible to low-income households). Public support should also be temporary as the price of electric cars falls over time. As EVs become better established, the speed of the subsidy phase-out should consider the decline in battery costs, the expected rise in carbon prices, and developments in the oil market, to prevent a strong drop in incentives to buy electric cars. For example, Norway has started scaling back insurance and registration tax incentives now that EVs are widespread in the country (OECD, 2022[77]).

By nature, the electrification of vehicles cannot have a quick impact on emissions. Short-term measures could help reduce greenhouse-gas emissions, and more generally air pollution on the road. One avenue could be to lower speed limits. Austria belongs to the set of countries with the highest speed limit on motorways at 130 km/h (European Commission, 2022[49]). Reducing the speed limit would have various benefits in terms of emissions of GHG but also fine particulates. Per kilometre driven, a car emits on average 50% less nitrogen oxides, 34% less fine dust particulates, and 23% less CO2 at 100 km/h compared to 130 km/h. A limit at 120 km/h would reduce CO_2 emissions by 10% (Umweltbundesamt[78]).

Table 5.3. Support for the purchase of electric vehicles, 2023

Panel A: Public and private grants for purchasing battery electric and hybrid vehicles, in euros

Vehicle	E-mobility bonus deduction, granted by the dealer to the customer	Government Grant*
Electric/fuel-cell vehicles	2000	3000
Light vehicles (classes L2, L5, L6, L7)	0	1300
Plug-in hybrid and electric vehicles with range extenders	1250	1250
E-motorcycle	500	1400
light E-motorcycle	500	700
E-moped	350	450

Panel B: Tax benefits and purchase incentives for electric vehicles and charging infrastructure

	Tax incentives
Registration and acquisition	VAT deduction and exemption from tax for zero-emission cars used for business purposes. Exemption from the one-off consumption tax on registration (NoVA).
Ownership	Exemption from "motor-related insurance" tax, which is calculated on engine performance (in kW) and CO_2-emissions, for all zero-emission cars while for PHEV only the performance of the ICE is used for the assessment.
Commercial fleet	Exemption from the motor-related insurance tax for all zero-emission cars. A tax incentive for the purchase of a zero-emission car amounting to 15% and a special depreciation applies. For employees, the private use of a zero-emission company car, and the electricity to charge it, are exempted from taxation as benefit in kind. Benefit-in kind taxation is lower for low emission cars.
	Subsidies and grants
Purchase	See Panel A for households. Subsidies of up to 80% of the additional costs are provided for zero emission duty vehicles and 40% of the investment costs for charging infrastructure ("ENIN" funding program). This funding sheme is also available for zero emission buses and charging infrastructure ("EBIN" funding program). These funds are supported by the recovery and resilience facility of the European Union.
Infrastructure	Subsidy of EUR 600 to 1 800 until the end of 2023 for the private purchase of wallboxes, depending on the type of building. Flat grants for the installation of charge points by companies, local authorities and associations: EUR 2 500 for publicly available AC normal charging points, EUR 15 000 or 30 000 for DC fast charging points depending on power. Reduced grants for non-publicly available charging points. A subsidy of up to EUR 30 000 is available to companies and public entities for the purchase and installation of DC charging stations designed to accommodate heavy goods vehicles.

Note: Panel A: * Up to 50% of the purchasing cost. Applicants are eligible to the government grant only if the vehicle dealer has granted the e-mobility bonus. PHEV: Plug-in Hybrid Electric Vehicle. ICE: Internal combustion engine. The subsidies shown in the table do not take into account potential programs at the subnational level.
Source: Panel A: KLIEN. Panel B: ACEA, European Alternative Fuels Observatory, Kommunalkredit Public Consulting, KLIEN, Austrian Research Promotion Agency.

Austria has set ambitious goals for charging-station infrastructure. Facilitating domestic charging and ensuring a sufficiently dense network of charging stations would help with the so-called "range anxiety", one of the two main barriers to EV adoption along with high prices. The Austrian government plans to ensure a nationwide network of charging stations with access to a fast-charging station at a maximum distance of 15 kilometres and one station at least every 25 kilometres on motorways by 2030 (BMK, 2022[79]). For this purpose, supported with RRF funds, Austria provides significant incentives for private

charging along with the grants for the purchase of electric vehicles (Table 5.3, Panel B), and also provides similar support for the installation of company and public chargers. Austria is also one of the four European countries which has implemented (starting in 2023) a credit mechanism whereby the electricity used to charge EVs at public or private charging stations can be sold to intermediaries as carbon credits. As a result of these policies, the density of charging stations is currently relatively high compared to other European countries (ACEA, 2022[80]). Rural access to charging stations is a concern given the importance of cars in those regions, and the government started a funding program (*LADIN*) for the deployment of charging stations in underserved areas with an initial amount of EUR 7 million for the first tender.

Austria can support a more efficient use of the charging infrastructure and alleviate range anxiety further. Despite the high density of charging stations in international comparison, the share of fast chargers is relatively low and could be increased to facilitate long journeys (IEA, 2023[81]). The government should also make sure that coordination with stakeholders (including the private sector and local administrations) addresses the key market failures in the stations network. Notably, policy should work further on alleviating planning constraints, promoting standardisation in the charging infrastructure, and encouraging time-of-use tariffs, while providing real-time information on stations' availability. A welcome example of simplification is the amendment to the Condominium Ownership Act in 2022 which provided a "right to plug" for parking space owners in multi-ownership buildings whereby the installation of private charging stations will not need the approval of all landlords.

Simplifying procedures to accelerate the deployment of renewable energy

Austria's domestic energy production is essentially decarbonised, but insufficient to satisfy energy demand; net imports of fossil fuels are substantial. Domestic energy production has averaged around 37% of total domestic energy supply over the last decade (Figure 5.9). The final consumption of energy related to transport contributes to the use of oil products and the import of oil. Biofuels and waste, natural gas, and electricity are the main sources of energy consumption in the industry sector and in buildings. Governments can decarbonise energy supply through policy intervention in two main areas:

- Electricity production, storage and grid capacity: Governments can help realise opportunities to expand cost-effective, low-emission domestic generation, including renewables. Governments are also a key player in planning grid development and energy storage given their inherent network structure. Electrification is essential to Austria's decarbonisation of final consumption sectors such as transport, industry, or buildings (see other sections).
- Fuel imports: Most of the final consumption of natural gas and oil, which represents more than half of final energy consumption, is imported and originates from a small set of countries. Austria has recently made significant effort to increase storage capacity, which will reduce reliance on imports in the future and improve Austria's energy security (Box 5.2).

Box 5.2. Recent trends in natural gas reserves in Austria

Natural gas storage capacities have been expanded recently

Gas storage capacity in Austria is significant. Total storage capacity has more than doubled since 2010. It is now the only country in Europe, with Latvia, where the storage capacity (94.6 TWh) is above average annual gas consumption (91 TWh) (GIE, 2023[82]). However, some storage facilities are predominantly connected to other countries. For example, the storage facilities of Haidach and 7Fields deliver gas primarily to the German network and the two countries have recently signed an agreement to jointly fill the two fields to target. In 2022, the government has implemented a strategic gas reserve of 20 TWh, whose gas volumes are stored in gas storage facilities and can only be released by the Energy Ministry. This strategic reserve will expire in April 2026. Other recent initiatives will contribute to support the security of supply. For example, a bilateral agreement with Germany in December 2021 details the use of gas sharing under the solidarity mechanism of the EU – which ensures the continuous access to gas for a set of "protected customers" like vulnerable households are hospitals.

The reliance on Russian gas has fallen but is still significant

At the end of 2023, gas storage facilities were almost full. The main concern for Austria is high dependence on Russian gas passing through Ukraine. In April 2024, 81% of imported gas originated from Russia, a larger share than in February 2022 – although in volume, imports of Russian gas in April 2024 were 11% below their level in February 2022 (but 27% above April 2023 levels) (BMK, 2023[83]). The contract between Gazprom, Naftogaz, and the gas transmission system operator of Ukraine GSTOU, provides for the transit of Russian gas through Ukraine until the end of 2024. Austria has committed to phase out imports of Russian gas by 2027 in line with the EU's objective through the REPowerEU plan, but has not outlined a clear plan to phase out completely this dependence on Russian gas, while Germany and the Czech Republic have now eliminated those gas imports (European Commission, 2023[84]). Some measures have already been taken to incentivise reduced reliance on Russia. As part of the Gas Diversification Act of 2022, the government has incentivised the injection of non-Russian gas by a direct subsidy (EUR 100 million) and by the reduction in the storage obligation duration for gas when it does not come from Russia.

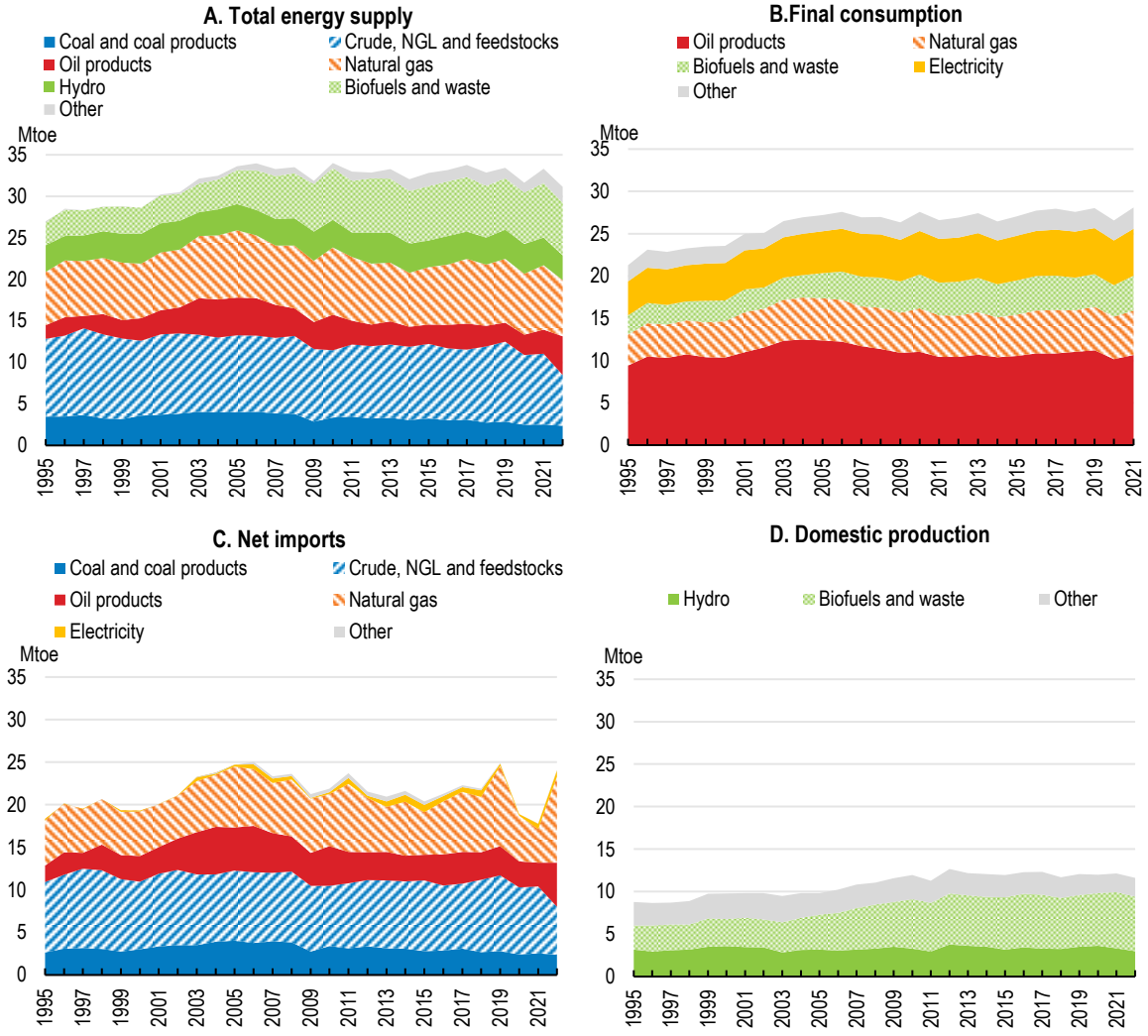
In 2022, the Austrian Energy Agency suggested that dependence on Russian gas could be reduced through the exploitation of unused routes from northern Europe and the development of strategic partnerships with coastal countries for the import of liquefied natural gas (Austrian Energy Agency, 2022[85]).

A substantial further increase in domestic renewable electricity generation is planned. Austria has expanded electric power capacity by 27% since 2008 and the mix has shifted further towards renewables. The country has one of the highest shares of renewables in electricity generation in the OECD: around 60% of the electricity supply is fuelled with hydropower, and less than 20% comes from fossil fuels. The government plans to cover 100% of total electricity consumption with domestic renewable energy sources (on a national balance) by 2030. Combined with the increased electrification in the various sectors, the updated climate plan envisages increasing renewable energy generation from 56 TWh in 2020 to 91 TWh in 2030. The Renewable Energy Expansion Act passed in 2021 aimed at providing the necessary funding and regulatory environment to increase renewable energy generation significantly. To improve the efficiency of the incentives for investment in power plants, the Act replaces a feed-in tariff by a market-based premium, which subsidises electricity generation from renewables based on the difference between the average cost of production - determined by an auction - and the market price. The Act promotes investment grants for PV systems, wind turbines, and electricity storage. The replacement of the feed-in

tariff is welcome, as evidence suggests that the introduction of auction systems in the EU has significantly lowered support cost while enhancing renewables deployment and promoting technological innovation (Zabala and Diallo, 2022[86]).

Figure 5.9. Austria has green domestic energy production but imports of fossil fuels are substantial

Demand and supply of energy, by fuel sources



Note: In Panel A, total energy supply corresponds to the sum of production, net imports, and the variation of stocks, minus international marine and aviation bunkers. In Panel B, final consumption is the sum of consumption in end-use sectors and for non energy-use. Data in 2022 are missing.
Source: IEA World Energy Balances.

StatLink https://stat.link/nplv9a

Reducing administrative barriers to the deployment of renewable energy infrastructure

Planning and permitting procedures for installing renewable energy facilities are burdensome. In Austria wind power projects typically take five to six years to permit – longer than most countries in Western and

Central Europe (European Commission, 2023[87]). Federalism can generate additional complexity. Since subnational governments are responsible for building regulations and zoning laws, planning and permitting procedures for renewable infrastructure projects differ across the country, sometimes with local concerns about negative impacts of green investment having high priority (European Commission, 2022[88]; IEA, 2020[57]). For instance, onshore wind power has only been developed in a small number of Länder to date and the states have implemented heterogeneous restrictions e.g. on minimum setback distances (OECD, 2023[89]), which in turn have a significant negative impact on the number of permits that are delivered (Stede, Blauert and May, 2021[90]). Zoning applications for large solar installations are rarely granted in particular where they clash with interests of the agricultural sector (Banasiak, Najdawi and Maarja Tiik, 2022[91]; European Commission, 2023[87]). The Renewables Expansion Act only weakens zoning constraints for a minority of installations. PV installations are also hampered by a lack of clarity on technical requirements from Distribution System Operators – which can also differ across federal states (European Commission, 2023[87]). Small-scale hydropower projects face administrative complexity including via redundant checks and contradictory conditions, and the lack of digital applications (Mayer and Tallat-Kelpšaitė, 2020[92]).

Efforts to simplify procedures are underway. For example, a major amendment of the Environmental Impact Assessment Act adopted in early 2023 focused on further accelerating permitting procedures. The possibility to institute “renewable energy communities” - associations that manage green energy autonomously - thanks to the Renewables Expansion Act provides an interesting example of the potential for decentralised energy generation and self-sufficiency, although the governance principles remain vague (REScoop.eu, 2022[93]). Several states also already implement simplified procedures for small scale renewables projects and their experience could be shared. For example, Upper Austria exempts small hydropower plants from the electricity generation licence and the building code in Carinthia exempts rooftop PVs from any required notification. Additional steps should be considered, including:

- Combining the designation of renewable energy projects as being of “overriding public interest” with the requirement for subnational governments to designate specific areas where permitting procedures would be simplified (e.g. France’s and Spain’s “acceleration areas”, or Germany’s designated areas for onshore wind) would help speed up the necessary investments. Currently, only three provinces in Austria have provided go-to areas for PV systems (SolarPower Europe, 2023[94]). The revision to the EU Renewables Energy Directive which entered into force in November 2023 adequately requires the designation of such zones over the entire EU by February 2026.
- Using “silence procedures”, where a lack of a formal response on a permitting procedure within a certain timeframe is interpreted as an implicit approval, such as those used by Spain and Portugal, would ease administrative bottlenecks (European Commission, 2023[87]).

Facilitating grid development and investing in long-term storage capacity

The expansion of the domestic electricity grid is hampered by inefficiencies and administrative constraints. Austria’s electricity grid will require greater capacity and flexibility. Shortfalls in grid capacity have already been an important barrier to investment in wind turbines and ground-mounted PVs, in particular in eastern Austria (Mayer and Tallat-Kelpšaitė, 2020[92]). Further electrification implies greater capacity needs overall. Furthermore, the grid will have to be re-worked to handle the planned expansion of renewable energy sources, which are often small scale and geographically dispersed. Austria faces stronger cost and administrative barriers to grid expansion than other European countries (Figure 5.10). Specific issues include:

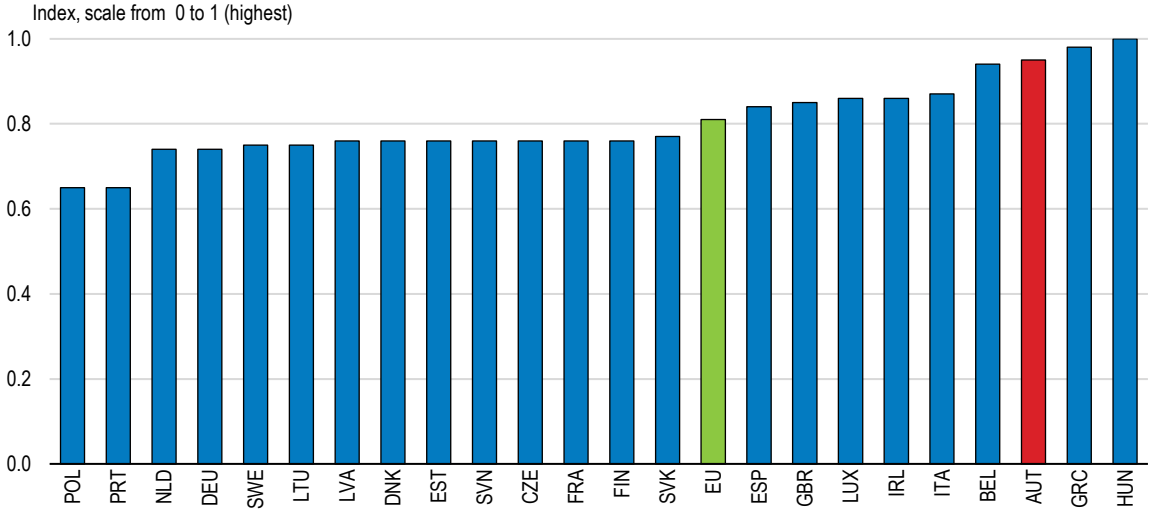
- High costs of grid access. For example, grid connection costs for ground-mounted solar PV systems often account for more than 20% of total investment costs, against 10% in France on average (Banasiak, Najdawi and Maarja Tiik, 2022[91]). The cost of grid connections needs to be

lowered in line with other European countries. This could be done by reducing the network access fee for generation plants as they are currently specified in the Renewable Energy Expansion Act; and increase the upper cap on grid access costs above which the full cost has to be borne by the developer (which has been set at EUR 175 per kW).

- Unfavourable tax treatment. For instance, contrary to neighbouring countries, pumped storage hydro plants which allow for both energy generation and energy storage are doubly taxed, not only when they draw power from the grid but also when they deliver electricity to the grid (IEA, 2020[57]; International Forum on Pumped Storage Hydropower, 2021[95]).
- Complex grid development procedures. As a shared competence of the federal and the provincial governments, permitting procedures (e.g. different limits on electromagnetic emissions) for transmission grid projects are also complex and lengthy (Banasiak, Najdawi and Maarja Tiik, 2022[91]). More generally, the duration of grid expansion threatens the feasibility of the renewable expansion strategy for 2030. This can be partially explained by market actors hoarding grid connection permits for when grid capacities decline (European Commission, 2023[87]). Better harmonisation of procedures between regions and a centralised coordination would alleviate some of the barriers to deployment. The creation of an integrated Austrian network infrastructure plan (NIP) as part of the Renewables Expansion Act is thus highly relevant. A draft NIP has been sent for public consultation during the summer of 2023 and derives the energy infrastructure which is necessary for the transformation of the energy sector based on estimated needs. The government should make sure that the NIP involves all the relevant stakeholders and can be implemented quickly.

Figure 5.10. Indicators suggest Austria faces relatively large barriers to wind and solar deployment

Barrier index on grid regulation and infrastructure for wind and solar PV deployment



Note: The Barrier Index (BI) assesses the barriers to wind and solar PV deployment in four key areas: political and economic frameworks, markets, administrative processes, and grid regulation and infrastructure. The index on grid regulation and infrastructure considers, among others, the cost and duration of grid access for Renewables Energy Sources (RES), the foreseeability and transparency of grid development, and the complexity of the connection procedures. The index is computed on the maximum of assessed severity and spread values for all affected technologies. The EU aggregate refers to the average of EU member countries plus the United Kingdom. For more details, see https://resmonitor.eu/en/.
Source: RES Policy Monitoring Database.

Austria needs to ensure that interconnections within its territory and with neighbouring countries are sufficient to leverage the benefit of the continental variation of climate for renewable energy use (Li et al., 2021[96]). Within Austria, the additional investment in renewables will affect the geography of electricity production: in particular, large investment in PV and wind capacity in eastern Austria will require the reinforcement of the transmission grid between Eastern and Western Austria (BMK, 2023[97]). The additional domestic storage capacity is also likely not to be enough for Austria to cover all its energy needs instantaneously. The country will thus need to reinforce its interconnections with the European grid. As a hub, Austria also plays a significant role in the optimisation of the European grid and its investment in interconnection and storage is important for the integration of the European electricity market. For example, the European Network of Transmission System Operators for Electricity (ENTSO-E) suggests major interconnection needs between Austria and its neighbours as part of the most cost-effective grid in Europe for 2030 and 2040 (Table 5.4). The triangle between Hungary, Slovenia and Austria has, more generally, often been identified as key for a European grid (Cremona, 2023[98]). The development of interconnections will also, in turn, incentivise additional investment in renewables power (Gonzales, Ito and Reguant, forthcoming[99]). Currently, Austria has not set additional interconnection targets for 2030, arguing that the 15% interconnection target – i.e. the share of electricity produced in Austria which is allowed to be transported across its borders by the current infrastructure - set by the EU has already been achieved. However, it has still experienced bottlenecks, in particular in north-south energy flows, which has led to the development of a network reserve scheme remunerating, via an auction process, resources providing the necessary reserves capacities to mitigate congestion (ACER, 2023[100]). The current level of interconnection needs to be monitored as future electric capacities will significantly increase in Austria and other European countries, and as interconnectivity will become all the more important with a larger share of intermittent renewables in neighbouring countries.

Table 5.4. Interconnection needs after 2025 in an "optimal" European grid

Connecting country	2030 interconnection needs in MW	2040 interconnection needs in MW
Switzerland	200	1200
Czech Republic	1000	1000
Germany	3100	3100
Hungary	1000	2000
Italy	500	1000
Slovenia	1000	1500
Slovakia	0	0
Total	***6800***	***9800***

Note: ENTSO-E determined the combination of increases in cross-border network capacity that minimise the total system costs at the European level, composed of total network investment (including costs of related necessary internal reinforcements) and generation costs. A panel of possible network increases was proposed to an optimiser which identified the most cost-efficient combination. To consider the mutual influence of capacity increases, the analysis was performed simultaneously for all borders in a single optimisation process at the pan-European scale.
Source: European Network of Transmission System Operators for Electricity ENTSO-E (2023[101])

Storage investments need to focus on long term capacity storage and funding research in new technologies such as hydrogen storage. The expansion of renewable energy output raises the challenge of how to maintain the balance of supply and demand as renewable generation is variable, and highly dependent on weather and time of day. The security of supply calls for investments in different types of storage installations: not only batteries typically for local, short-term storage, but also chemical storage via electrolysers producing hydrogen or ammonia for long term storage, all supported by pumped hydro storage (Koolen, De Felice and Busch, 2022[102]). Short term capacity storage is already quite dense in

Austria. In 2021, the country was the third residential storage market in Europe, in absolute numbers, reflecting a sizeable subsidy programme for PV which provided additional funding support for the installation of PV systems with battery storage (SolarPower Europe, 2022[103]). However, the country could invest more in long-term capacities. Monthly renewable production currently covers over 90% of electricity consumption in the summer but only 40% in the winter (BMK, 2023[97]). Austria will be able to leverage its expertise and current infrastructure in pumped hydropower. The potential for storage through hydrogen could be important but the technology is not fully developed (BMK, 2022[104]; Clemens and Clemens, 2022[105]). The recent Draft National Infrastructure Plan provides a welcome proposal for the development of new pumped hydro and electrolysis projects to achieve the desired network capacity in 2030 and 2040.

Encouraging the development of renewable hydrogen

Renewable gas (biogas and hydrogen produced from decarbonised sources) can potentially replace a substantial share of natural gas as part of Austria's green transformation. Austria's long-run energy strategy envisages partly replacing natural gas needs with biogenic gas (Austrian Energy Agency, 2021[106]). The strategy also plans on further developing renewable hydrogen and its synthetic methanisation. A hydrogen strategy, providing guiding principles for the future use of hydrogen as part of the 2030 and 2040 emissions objectives, has been published in June 2022, which is welcome. Supporting the use of renewable gas in industrial sectors where no substitute currently exists will be important to maintain industrial production before new technologies become available. In this regard, a new Act creating a green hydrogen production support scheme with funds of EUR 400 million has been under public consultation since February 2024. Leveraging renewable gas for the security of supply at the Austrian but also the European level has significant potential, as the gas storage capacity is 30 times more than the combined capacity of all pumped storage hydropower plants (IEA, 2020[57]). In the near term, increasing the blending limit of (renewable) hydrogen in the natural gas network from the current threshold of 4% to 10% or 20% and harmonising the regulatory limit with border countries could help (Kanellopoulos et al., 2022[107]; Clarke et al., 2022[108]; IEA, 2019[109]). However, this should be seen only as last resort solution to decarbonisation as the benefits in terms of CO2 emissions are small, and because blending reduces the efficiency of hydrogen use while increasing end-user costs and creating cross-country coordination constraints (Bard et al., 2022[110]; BMK, 2022[104]) (IRENA, 2023[111]).

Decarbonising district heating by deploying large capacity heat pumps

District heating can be an efficient way to decarbonise the buildings sector in particular in dense areas (see below), but its own energy sources will need to be decarbonised. A large share of district heating generation in Austria is currently produced in co-generation heat and power plants, including natural gas plants. As a consequence, in 2021 while 60% of district heating was powered by biofuels and waste, fossil fuels still contributed for one-third of heat generation (Figure 5.11). The Austrian Energy Agency has proposed a scenario of (almost) full decarbonisation for district heating by 2040 in line with the net zero objective, where the increased energy production of 8 TWh to 31.5 TWh between 2020 and 2040 is achieved by the total phasing out of natural gas (from around 8 TWh today) and the expanded use of biomass (from 10 to 14.5 TWh), geothermal energy and industrial heat pumps (from 0 to 6TWh), and renewable gas (from 0 to 5.5 TWh). The transition would require an investment of EUR 5 billion for additional power systems and EUR 5.5 billion for the network infrastructure (in real 2020 terms).

Austria could focus more on large capacity electric heat pumps for the decarbonisation of district heating. Renewable gas is likely to be more efficiently used in other sectors like industry, while the final energy needed will depend on complementary policies e.g. efficiency investment in buildings (see below) (Büchele et al., 2021[112]). Deploying more large capacity electric heat pumps could reduce the heavy reliance on biomass, with positive effects on decarbonisation. In addition to negative externalities in terms of air pollution, the lifecycle net carbon emissions of biomass can still be significant depending on its origin, and

on indirect emissions. Some estimates suggest that biomass emissions are an order of magnitude higher than other renewables – which would generate the electricity used in large heat pumps (OECD, 2021[113]). The scarce, sustainable biomass could be of most valuable use in other applications than district heating where the substitution of carbon-based fuels is difficult, such as aviation. In addition, most of the biomass used for district heating in Austria is wood-based, which can be in limited supply and have high environmental costs. The incentives to use biomass should be better aligned with its environmental effects from net carbon emissions and air pollution. In particular, the effective taxation of the energy produced from biofuels is significantly lower today than other clean energy sources because of the differential impact of electricity excise taxes. Several countries already provide specific additional support for industrial heat pumps. For example, Germany has recently introduced a subsidy of 40% of the investments in generation plants and infrastructure for heating systems powered by renewables (including biomass and large heat pumps) with an additional operating support for electricity-based heat pumps. Sweden and Denmark provide examples of how the deployment of large capacity heat pumps can be encouraged for district heating providers, through a reduction in electricity prices and direct government support (Box 5.3).

Box 5.3. The deployment of large-capacity heat pumps in Sweden and Denmark

The deployment of large-capacity heat pumps in Sweden in the 1980s

District heating in Sweden already relies on large capacity heat pumps to a substantial degree. The installation of those heat pumps in the country has been facilitated by the surplus of electricity generated by the commission of twelve nuclear power plants between 1972 and 1985. Because of this surplus, the government incentivised the replacement of domestic oil boilers by electric boilers and small-scale heat pumps, and the installation of large electric boilers and large-scale heat pumps in district heating systems. In 1990, more than one-third of the heat supply was sourced from electric boilers and heat pumps. The electrification of district heating was incentivised by a tax credit and a state investment grant.

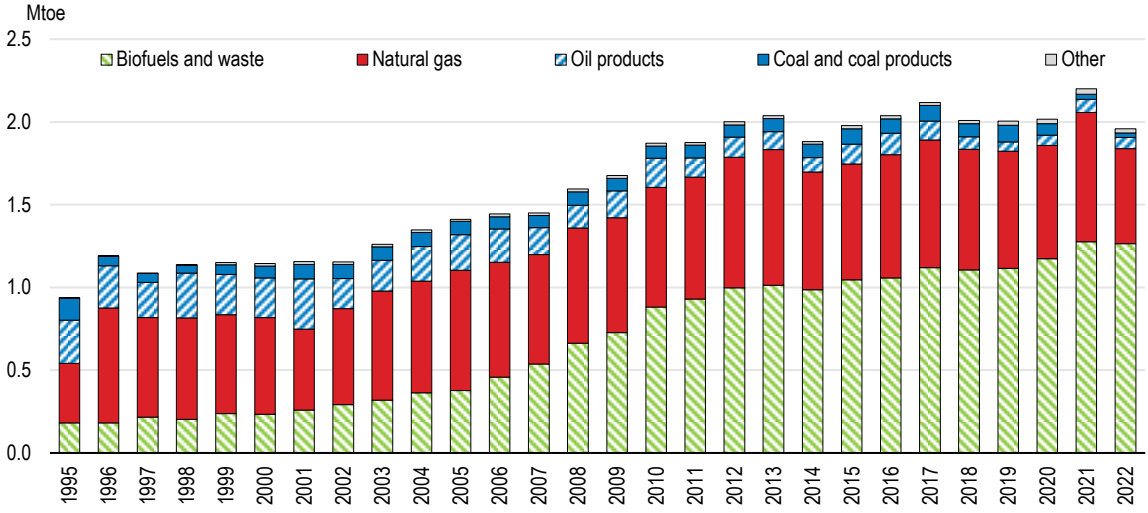
The deployment of large-capacity heat pumps in Denmark in recent years

Denmark saw a large increase in the installation of large-scale heat pumps for district heating when district heating companies were allowed to include the heat generated by the installation of a heat pump in their government-mandated energy savings target, starting in 2017. In 2021, the Danish government introduced a subsidy scheme which rebated 15% of the investment made to buy and install large capacity heat pumps for district heating companies. The subsidy targets companies sourcing heating from fossil fuels. The subsidy covers the cost of the purchase of the heat pump, potential environmental studies, and construction and installation services up to DKK 5 million (around EUR 670 000).

Source : (Averfalk et al., 2017[114]), European Commission

Figure 5.11. Fossil fuels are used in a sizeable share of district heating systems

District heating by fuel sources, 1995-2022



Source: IEA World Energy Balances.

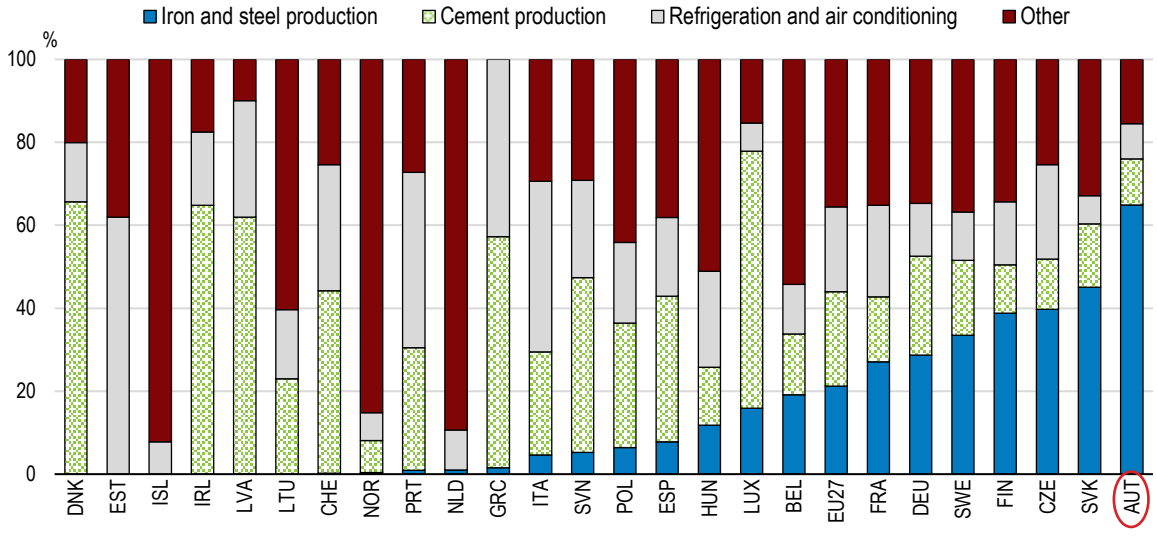
StatLink https://stat.link/s3ibd0

Supporting the green transformation of steel production

Along with transport-related emissions, rising emissions from industrial processes have contributed to the slowdown in Austria's decarbonisation efforts in the last decade. Today, they represent more than a fifth of emissions, a significantly larger share than in most countries. Those emissions are mostly coming from the production of iron and steel, along with the production of cement (Figure 5.12). One company, Voestalpine, is responsible for 90% of Austria's steel production and the large majority of emissions in iron and steel processes (Umweltbundesamt, 2023[115]). The company's largest two plants in Linz and Donawitz accounted for more than 15% of the country's total emissions (excluding LULUCF) in recent years (Voestalpine, 2023[116]).

Figure 5.12. Emissions from industrial processes are driven by the production of iron and steel

Distribution of emissions in industrial processes and product use, 2021



Source: Environmental European Agency.

StatLink https://stat.link/v6owdi

Steel making in Austria uses particularly emission-intensive technologies but the technical solutions to reduce emissions are relatively well known. The production of steel in Austria is mostly done through the blast furnace – basic oxygen furnace route (BF-BOF). The alternative to produce steel is to use electric arc furnaces (henceforth "electric furnaces"), which typically use scrap steel as input. In 2022, more than 90% of steel was produced in blast furnaces in Austria, against 56% in the EU. Today, it is possible to use the same input as in BF-BOFs, iron ore, and process it with natural gas to feed electric furnaces via a process called "direct reduction of iron" (DRI) and produce new steel. A transition from BF-BOFs to electric furnaces, first capturing and storing (or using) the carbon which is emitted from the DRI, and eventually replacing natural gas with hydrogen, could reduce carbon emissions by 90% (Fan and Friedmann (2021[117])). The conversion of BF-BOFs to electric furnaces would be even more beneficial for Austria compared to other countries given the low carbon intensity of its electricity. Voestalpine has already started to replace one blast furnace and basic oxygen furnace by one electric furnace in each of its two sites starting in 2027 and suggests that emissions would then be reduced by 30%.

The government's targets and Voestalpine's could be more clearly aligned. Despite the importance of the company in the country's emissions, it is not clear that the country's 2030 and 2040 GHG emissions reductions objectives are aligned with Voestalpine's. In particular, the new EU ETS sets a target of a 62% reduction in emissions for covered sectors in 2030 relative to 2005 while Voestalpine suggests that emissions at Linz and Donawitz would be reduced by 30% relative to current levels (which are close to 2005 levels, see Figure 5.2, Panel B) by that date (Held, 2023[118]). Likewise, the country has set a net zero objective (for the entire economy) in 2040 but the company has set its net zero objective in 2050.

The EU-ETS provides broad incentives for the steel sector to reduce emissions but will not be enough to decarbonise steel production. The EU Fit-for-55 package has recently tightened the emissions reduction target in the sectors currently covered by the ETS, from 43% to 62% by 2030 compared to 2005 levels. In addition, free emission allowances will be phased out over a nine-year period (from 2026 to 2034) and replaced by a carbon border adjustment mechanism (CBAM) which will impose a charge on the emissions embodied in specific carbon-intensive EU imports – including iron and steel. This is welcome, as the free

allowances have prevented carbon leakage risks but have hampered the development of greener technologies. In the case of iron and steel, the allowances' allocation rules based on technology-specific benchmarks have also encouraged more marginal innovation rather than breakthrough technologies (changing technologies may risk reducing the level of free allowances granted) (Somers, 2022[119]). Still, until the full phasing out of those free allowances, the producers' allocation means that producers will continue facing a lower price than the actual current ETS level which has fluctuated between EUR 80 and 100 per tCO2 in 2023 (and which was below EUR 60 until end 2021), which thus reduces incentives for innovation (OECD, 2023[1]). Overall, the EU-ETS with CBAM will likely not be sufficient to support the transition towards greener processes using carbon capture, use, and storage (CCUS) or hydrogen, which are the most likely ways that the emissions intensity of steel production will be reduced in addition to electrification (IEA, 2023[120]). First, the main constraint on the potential use of CCUS is not the price, as estimates suggest that CCUS technologies have an abatement cost below or close to current ETS prices (excluding the impact of free allowances) (IEA, 2021[121]; IEA, 2023[122]). In Austria, the use of CCUS would be more constrained by regulations. Second, the current level of carbon pricing in the EU-ETS is largely below those which would make hydrogen-fuelled production and other substitute technologies competitive (Hoffmann, Hoey and Zeumer, 2020[123]). Fluctuations in the EU-ETS price also generate uncertainties which further reduces incentives for investment in green technologies.

Reducing legal constraints on carbon capture and storage

Austria needs to review its ban on the development of permanent geological storage of carbon. The carbon capture of emissions generated by steel and cement production is typically a significant part of the decarbonisation of those sectors in net zero transition scenarios, because it is relatively cheap (since carbon emissions are concentrated) and at an advanced technologically-readiness level (in particular for the DRI process), although it has not been deployed at a large scale yet (IEA, 2023[120]). However, Austria has banned projects to develop permanent geological storage of carbon dioxide since 2011 and the "Federal Act on the Prohibition of the Geological Storage of Carbon Dioxide". By contrast, its long-term strategy developed in 2019 – aiming to net zero emissions in 2050 – includes a significant role for carbon sequestration. Only one project with a capacity of capturing 50 kilotons is taking place in Austria today (IOGP, 2022[124]) and focuses on the capture of emissions from exhaust gases at the Simmering biomass power plant, not directly on the industrial processes involved in steel production. The draft climate plan continues to emphasise CCUS technologies as a "last resort", but it is welcome that the Climate Ministry has commissioned a feasibility study for carbon capture and transportation. In addition, the legally-scheduled evaluation of the ban every five years, which was due by the end of 2023, should provide the chance to revive discussion on the potential for storage in Austria and discuss international and European experiences. In parallel, the Ministries of Finance and Climate have initiated in September 2023 the process for a "Carbon Management Strategy" for the years 2024-2030 to be finalised in June 2024 which focuses on technologies and processes for carbon capture, transport, use, and storage.

Austria will likely need to collaborate with other European countries in developing CO2 transport infrastructure. Recent assessments suggest that while Europe has largely enough capacity to store the necessary emissions for the green transition, Austria has low potential for carbon storage based on its geology (Element Energy and Clean Air Task Force, 2023[125]; IEA, 2020[126]). The long-term strategy published in 2019 suggested that the currently secured storage capacity amounted to between 400 and 500 MtCo2, or only 6.5 times the country's annual emissions. Therefore, in addition to providing a more precise assessment of its actual geological capacity, it is important that Austria contributes to European investments in carbon transport infrastructure to allow for storage in other European countries. In particular, oil and gas pipelines could be gradually repurposed for the transport of carbon dioxide (IEA, 2020[126]). Discussions at the European level would be supported by the passage of the recent Net Zero Industry Act proposed by the European Commission this year, which promotes the acceleration of carbon capture with

a Europe-wide objective of an annual 50Mt injection capacity in strategic CO2 storage sites in the EU by 2030, and demands the sharing of information on storage capacity across countries.

Incentivising the development of new steel-production technologies

The production of steel will depend on the development and the deployment of affordable new technologies. For example, the full replacement of natural gas with renewable hydrogen is prohibitively costly today and would only become gradually more competitive as renewable electricity (and electrolysers') prices fall and carbon prices increase (Fan and Friedmann, 2021[117]; Hoffmann, Hoey and Zeumer, 2020[123]). The reduction in the cost of hydrogen, and more generally the development of innovative technologies, will require public intervention to de-risk investments. Technologies such as hydrogen and carbon capture initiatives are beyond the typical scope of R&D funding yet are not mature enough to be financed purely via the markets, even with high carbon prices (Richstein, 2017[127]; OECD, 2023[89]; Somers, 2022[119]; Sartor and Bataille, 2019[128]). Those technologies would benefit from additional certainty on future returns – in particular as regards the future price of carbon. The government can also incentivise specific investments by the private sector by reducing the carbon price risk it has to bear.

Several instruments could be considered or expanded in order to support innovation and address these problems. Well-designed subsidies can spur innovation. They can support technologies that are at prototype or demonstration stage and be withdrawn when these technologies have matured to prevent the distortion of competition and ensure the efficient use of public finances. For example, as part of the climate and transformation offensive, the government has allocated EUR 2.9 billion to provide grants through tenders to fund projects which provide significant emissions reductions in industry, and where the allocation is mostly based on the amount of emissions reduction per unit of required funding. The initiative also includes support of EUR 600 million from the Ministry of the Economy, specifically allocated for research and business location. In particular, a "basic programme" funds 50% of the costs of prototype research projects via tender, based in particular on the innovative content of the project. The deployment of greener technologies with high current abatement cost, but which would benefit later from economies of scale, could also gain from original de-risking instruments. For example, general fluctuations in the carbon price set in the EU-ETS can be smoothed, e.g., by implementing a top-up on the ETS price like the Netherlands's carbon levy. Such a price floor also prevents the risk of leakage between sectors which is inherent in the trading scheme. Additional certainty on the returns to investment in green innovation for industrial processes can be provided through public procurement rules, for example by implementing carbon content criteria for steel. Other instruments could provide more certainty specifically on the returns to investment in decarbonisation innovation, similar to the market premium that Austria has implemented for renewables investment (see above), and which would particularly well-suited for the type of technologies envisaged to green steel (and cement) production. For example, Austria could consider the implementation of carbon contracts for difference (CCfD) such as the ones instituted this year by Germany for emission-intensive industries (Box 5.4). Based on a strike price for emissions reductions resulting from an auction – aiming to reflect the lowest abatement costs - the CCfD guarantees investors a fixed revenue per tonne of non-emitted CO2 by paying out the difference between the current carbon price (e.g. the ETS price) and the strike price (Agora Energiewende and Wuppertal Institute, 2021[129]). The use of CCfD can also now benefit from the coverage of the EU Innovation Fund as part of the EU Fit-for-55 package (European Commission, 2022[130]). Compared to standard contracts for differences, the CCfD would provide a price guarantee strictly focused on the carbon price, which would reduce the scope for potential mistakes on prices inherent in feed-in tariffs and standard contracts for differences. However, the design of a CCfD can be complex, in particular because of the asymmetry of information regarding the true cost of decarbonising technologies. Those could be addressed for instance by opening the tender to projects which have already displayed successful pilot results, and by requiring third-party independent verification of cost estimates (Sartor and Bataille, 2019[131]). It could also leverage information gleaned from the German auctions.

Box 5.4. Germany's carbon contracts for difference ("Förderprogramm Klimaschutzverträge")

In 2023, the German government instituted a carbon "contract for difference" (CCfD) program which awards companies in energy-intensive industries, and subject to the EU-ETS, 15-year compensation arrangements in return for reducing emissions in their production. All companies belonging to energy-intensive industries setting up facilities with 90% less emissions than a traditional plant, and which would emit more than 10 ktCO2 per year under traditional technologies, will be eligible to benefit from this program.

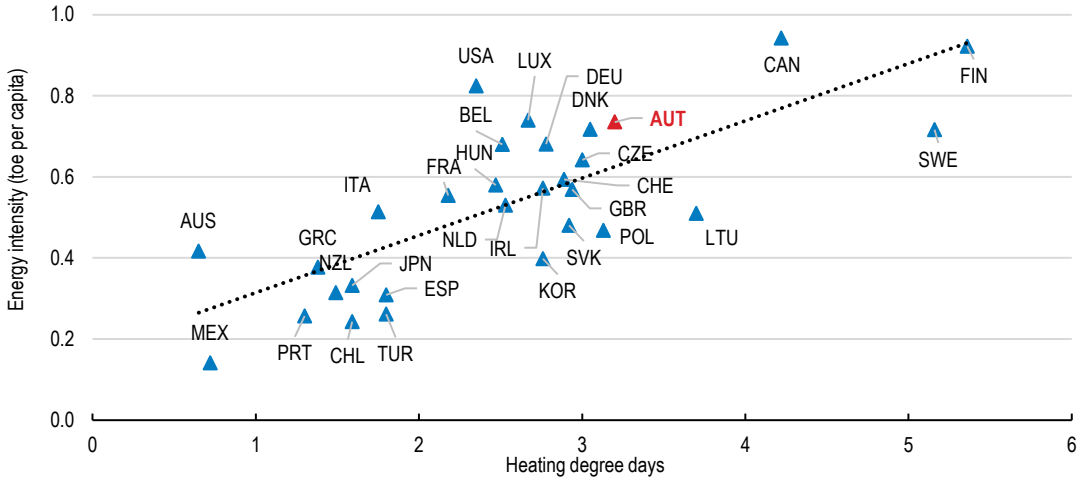
The CCfD starts from a strike price determined in an auction where companies submit bids related to the carbon price that would make the use of a green technology more profitable than the current process. This is compared to the current market price for carbon. The company is compensated if the price difference is positive and pays the government if it is negative, i.e. if the new technology actually becomes cheaper than conventional production. The contract thus aims at protecting the companies against fluctuations in prices of carbon and other technologies, e.g. the price of hydrogen.

Source: IEA, BMWK, (OECD, 2023[89])

Facilitating renovations would provide efficiency gains in the buildings sector

Emissions from the combustion of fuels in commercial and residential buildings are relatively high, representing around 10% of total Austrian emissions. More than 80% of emissions in the buildings sector come from residential buildings. Use of fossil-fuel heating systems is widespread. Austria's building energy consumption and related emissions have been decreasing in recent years, but are still relatively high today compared to countries with a similar climate. Energy consumption is similar to what it was 20 years ago while other countries have reduced energy consumption (per capita) significantly (Figure 5.13 and OECD (2021[132])). Indeed, the energy intensity of space heating and cooling in private households has increased over the last 20 years and only stabilised since 2015, even after controlling for changes in the climate and the expansion of habitable areas (BMK, 2021[133]). As a consequence, the greenhouse gas emissions by households for heating and cooling are higher per capita in Austria relative to the EU average (Eurostat, 2022[134]). The new climate plan aims at reducing emissions by 66% in 2030 relative to 2005 (53% relative to 2021), which is in line with the tighter emissions target from the EU fit-for-55 package. The government then aims at fully decarbonising the heat supply by 2040 to achieve the sectoral net zero target.

Figure 5.13. Austria's energy consumption per capita in buildings is above-average, even considering climatic factors



Note: Heating degree days are defined as the number of degrees that a day's average temperature is below the country's base temperature, that is, the temperature below which residents typically turn on the heating system. Data are based on IEA Energy Efficiency Indicators, IEA, 2020 edition.

Source: OECD (2021), Brick by Brick: Building Better Housing Policies, OECD Publishing, Paris.

StatLink https://stat.link/cxzemu

Switching heating systems to less polluting sources

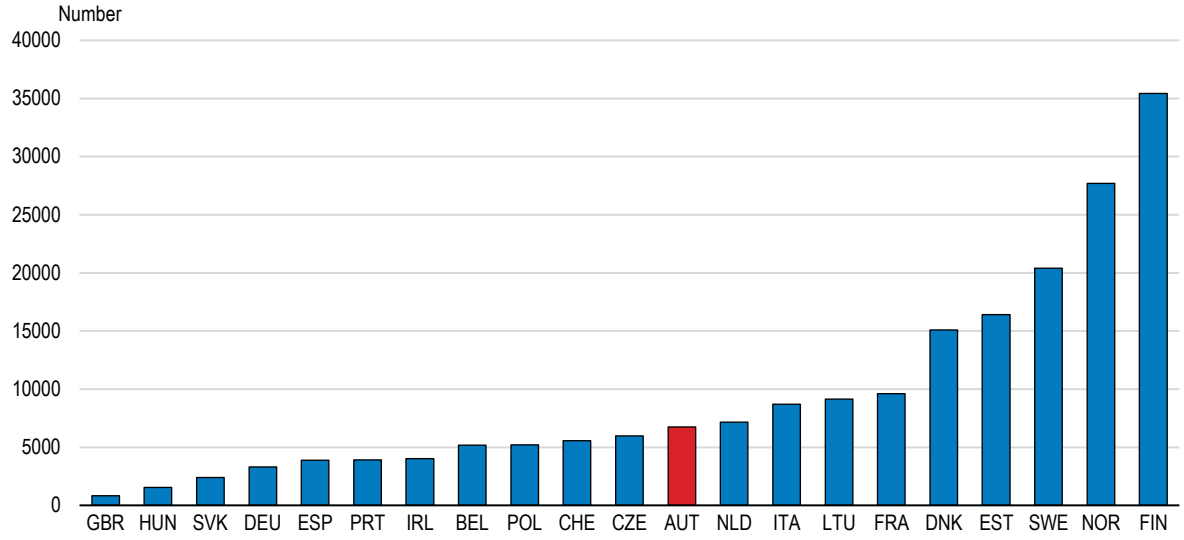
Greening building emissions faces significant implementation constraints. The reduction in emissions in the buildings sector will come mostly from the electrification of space and water heating and a switch to renewables for energy consumption, higher energy efficiency, and behavioural changes to reduce final demand (Hoeller et al., 2023[135]; IEA, 2022[136]). Implementing the right measures to reduce emissions in the sector faces particular challenges: potential investments can have a high up-front cost and only long-term benefits – which subject them to potential behavioural biases; and there is a multiplicity of agents involved (e.g. owners v. renters or multiple-ownership infrastructures) which may cause misalignment of incentives and coordination problems (Hoeller et al., 2023[135]). As a consequence, emissions in the buildings sector are less responsive to carbon pricing than emissions in other sectors (D'Arcangelo et al., 2022[5]).

A faster deployment of small-scale heat pumps is required. Heat pumps present the double benefit of being powered by electricity, and of being highly efficient. It is estimated that for typical Austrian family homes, replacing gas boilers by heat pumps would reduce energy consumption by two-thirds and emissions by four-fifths (Nijs, Tarvydas and Toleikyte, 2021[137]). Despite providing significant subsidies for the installation of heat pumps (Table 5.5), Austria is currently lagging in the pace of installation relative to the best performing countries in Europe. In 2022, it installed around 60 thousand heat pumps, or 6 700 per million people (Figure 5.14). As a consequence, the country still lags behind best performers in terms of heat pumps installed per population overall, with around 50 per one thousand people against more than 100 in Denmark and more than 200 in Sweden, Finland, and Norway. The deployment of heat pumps could be facilitated by additional price measures. The extension of carbon pricing to building emissions with the eco-social tax reform will improve the incentive for green heating. Austria could go further and reduce the taxation for electricity for heating. The adoption of heat pumps has been shown to be highly sensitive to electricity prices (Davis, 2023[138]). In Denmark the electricity excise tax has been reduced for consumption over 4 000 kWh for electrically heated households. However, price measures, including

higher subsidies, will not be sufficient. The faster deployment of heat pumps will require overcoming significant non-price barriers in the residential sector, as explained below.

Figure 5.14. The deployment of heat pumps lags best performers

Heat pumps sold per million persons, 2022



Source: European Heat Pump Association (EHPA, www.ehpa.org); and UN (2023), "Total population (both sexes)" in Probabilistic Population Projections based on the World Population Prospects 2022.

StatLink https://stat.link/nib57v

Renewable energy sources and district heating powered by renewable sources (see above) should contribute to greening building emissions. Residential heat pumps cannot replace all heating systems or may not be the most efficient replacement in all cases. The most appropriate and effective way to replace existing systems will depend on several dimensions, including temperature (today's heat pumps are less efficient in colder climate where extracting heat is harder) or existing infrastructure (e.g. the existence of a central heating system infrastructure) and space constraints. In particular, centralised district heating could provide economies of scale and more efficiency relative to decentralised systems in densely-populated areas (Hoeller et al., 2023[135]), while solar thermal is the best technology to green water heating (IEA, 2021[139]). Austria adequately provides simple information in matrix form for the most adequate substitute for fossil-fuel heating systems depending on house types and their energy efficiency (Klimaactiv, 2020[140]). District heating could play a significant role in the country since more than one-quarter of apartments are heated with local or district heating. Combined with the greening of its sources, Austria is planning on expanding the district heating network by around 40% by 2040 (Austrian Energy Agency, 2022[141]).

Energy-efficiency regulations that phase out fossil-fuel heating systems should be re-introduced. The Renewable Heat Act, proposed in 2022, provided an ambitious pathway for the replacement of heating systems. In 2022, around 1.25 million gas heating systems (half being central heating systems), 630 000 oil heating systems, and 11 000 coal-fired heating systems were operational in Austria (Austrian Parliament, 2022[142]). The 2022 draft Act laid out timelines for transition to green alternatives, including a complete phasing out by 2040 for natural gas heating systems and 2035 for other fossil-fuel systems. Such a plan was in line with the proposed new EU directive on the Performance of Buildings (EPBD) which would require a roadmap to phase out fossil fuels in heating and cooling by 2040. However, the Renewable Heat Act was altered in October 2023, focusing on banning the installation of fossil-fuel heating only in new buildings – both for centralised and decentralised systems (as of 2019 there has been a ban on new centralised oil-fuelled heating systems) – and accompanied by a ramping up of subsidies for the switching

of heating systems (see below). Most other countries also focus on constraining the installation of new systems (Braungardt et al., 2023[143]). Still, there are more ambitious exceptions. In Norway, for example, the use of fossil oil for heating has been banned since 2020. An effective ban for boilers based on fossil fuels in existing (and new) buildings could be implemented by setting gradually tighter requirements for heat generators based on greenhouse gas emissions or the type of fuel used, as recently proposed by the European Commission (European Commission, 2022[144]). Such requirements could impose a significant burden on vulnerable households if it implies the purchase of new heating systems with high upfront costs. Fiscal support will need to be provided, in particular through a better targeting of the current subsidy system (see below).

Speeding up the renovation of poorly insulated buildings

Many buildings in Austria are old and poorly insulated. Investing in buildings retrofit will be important as three quarters of the buildings were built before 1990 (IEA, 2020[57]) and a very large majority were built before 1945. New buildings have an insulation level (measured by thermal transmittance, i.e. how fast heat can transfer through building material) five times higher than buildings built before 1945 and more than two times higher than buildings built before 1990 (OECD, 2022[145]). As a consequence, Austria's residential buildings feature the highest final energy consumption (in kWh/m²/year) in Europe and will likely remain so after the upgrade of the worst-performing 15% of the building stock as required by the new EPBD (BPIE, 2023[146]). Improving buildings' efficiency is complementary to the deployment of heat pumps, as the pumps become more useful when heating cannot dissipate. Improving the efficiency of existing buildings can have a significant impact as improving a home's efficiency rating by two grades (e.g. from D to B) can halve heating energy demand. Better-insulated buildings will also support Austria's adaptation strategy as it will reduce exposure to extreme temperatures.

Austria needs to speed up the pace of energy-efficiency building retrofits, including through more detailed renovation planning. Currently, the pace of renovation is still slow. In particular, the rate of deep renovation (renovations with at least three thermally or energetically-relevant individual measures) of main residences fell by more than half between 2009 and 2021 (Amann, 2022[147]; European Commission, 2023[148]). The government aims to raise the renovation rate to 3% of the total (not as yet thermally renovated) housing stock up from 0.7%-1.5% in 2018 (OIB, 2020[149]). Estimates suggest that such an increase would reduce emissions in the buildings sector by more than 10%, not counting emissions reduction form switches to green heating systems (BMNT and BMVIT, 2018[150]). Austria was among the first countries to submit, in 2020, a long-term renovation strategy for residential buildings to the European Commission. However, the strategy has been judged to be only weakly compliant with the requirements of the current 2018 EPBD. In particular, despite the articulation of a roadmap with regular indicative milestones, the Austrian plan lacked a presentation of cost-effective options to decarbonise buildings relevant to specific building types and climate zones, with identified trigger points in the lifecycle of the buildings (BPIE, 2020[151]; Castellazzi et al., 2022[152]). The new EPBD will require more operational long-term renovation plans ("National building renovation plans") to be integrated with countries' NECPs and which will be subject to the Commission's assessment and recommendations. A precise renovation plan could be accompanied by the implementation of building renovation passports, as suggested voluntarily by the new EPBD, which would provide a long-term renovation schedule for a given building following an energy audit. Existing schemes such as the individual renovation roadmap in Germany or the energy efficiency passport in France have shown a positive effect on the depth, the rate, and the quality of renovations when they are combined with financial advice and support, legal requirements, and communication campaigns (Volt, Fabbri and Zuhaib, 2020[153]).

Overcoming market failures and helping vulnerable groups

Austria should continue subsidising the replacement of heating systems and the renovation of buildings, but in a more targeted way. Significant investments such as large building renovations or the installation of heat pumps have high upfront costs which will only make households or companies whole over the long run via efficiency gains. Subsidising private upfront costs is desirable, but should be targeted. Schemes with sizeable grant components can be fiscally costly and involve considerable deadweight loss, i.e. the subsidies finance investment that would have taken place without them. Previous untargeted programs in Switzerland and France have, for instance, been found to have large deadweight losses (Studer and Rieder, 2019[154]; Egner, Klöckner and Pellegrini-Masini, 2021[155]; Risch, 2020[156]). Targeting grants can focus on the most vulnerable groups. For other households and SMEs, providing subsidised loans that are repaid via utility bills ("on-bill financing") through energy savings, such that customers do not pay more than they would have paid without the renovation, can address barriers to high upfront costs while leveraging more private capital (Economidou, Todeschi and Bertoldi, 2019[157]; Bertoldi et al., 2020[158]). For instance, the United Kingdom implemented the Green Deal Scheme between 2013 and 2015 which featured on-bill financing where loans for energy-saving improvements were paid back through a charge on the utility bill and where annual repayments could not exceed estimated energy savings.

Austria has recently complemented its universal subsidy schemes with targeted support for vulnerable households. The flat-rate subsidies, differentiated by technologies, are available to all households for the switching of heating systems and the renovation of old (20-year old for companies and public buildings, 15-year old for residential buildings) buildings via respectively the "out of oil and gas" ("Raus aus Öl und gas") and the "Renovation offensive" ("Sanierungsoffensive"), representing a budget of EUR 1.25 billion (Table 5.5, Table 5.6) co-financed by RRF funds. Since 2022, the subsidies are complemented by the "Clean Heating for All program" through which the government covers the full cost of substituting fossil-fuel heating systems by green alternatives for the lowest income tercile, up to a technology-specific cap. However, this targeted measure is not available for renovation measures and is limited to homeowners, which reduces the extent of the targeting given the large share of tenants in Austria, the overrepresentation of low-income households among tenants, and the misalignment of incentives between owners and tenants (see below). As an example, France provides a grant (prime "Coup de pouce chauffage") for switching heating systems which is accessible to tenants of detached houses and which is higher for low-income households; while the partial and deep renovation subsidies "MaPrimeRenov'" are also differentiated by income. The Austrian government also provides energy saving advice and the replacement of one inefficient large household appliance free of charge to low-income households via the Climate and Energy Fund.

Table 5.5. Subsidies for switching heating systems

	Main subsidy	What is funded	(Selected) other support
Detached house	Between EUR 15 000 and 23 000 depending on heating system, up to 75% of eligible costs.	Connection to a green local or district heating network; if not possible, an eligible wood-fired central heating unit or a heat pump is funded.	EUR 2 500 bonus for the installation of a thermal solar system; EUR 5 000 drilling bonus for the installation of water-water or brine-water heat pump; EUR 4 000 bonus for switching to a low-temperature heat distribution system.
Multi-storey buildings	EUR 15 000 to EUR 45 000 depending on the power and technology of the replaced system, up to 75% of eligible costs; EUR 3000 per apartment for centralisation to a green heating system.	Connection to a green local or district heating network; if not possible, an eligible wood-fired central heating unit or a heat pump is funded; centralisation of the entire building to a green heating system.	EUR 10 000 bonus for the installation of a thermal solar system; EUR 10 000 drilling bonus for the installation of water-water or brine-water heat pump; EUR 4 000 bonus for switching to a low-temperature heat distribution system.

Companies	EUR 4 000 to 12 000 depending on system power and original heating system up to 50% of eligible costs.	Switch to wood heating, heat pumps, or connection to green district/local heating.	EUR 2 500 for switch out of gas-powered system OR switch to green local/district heating in town centers supplied with natural gas.

Note: "Green" local and district heating networks have minimum threshold on the energy provided by renewables. New heating systems like heat pumps and wood-powered systems have strict minimum efficiency thresholds.
Source: Austrian government, Kommunal Kredit Public Consulting.

Table 5.6. Renovation subsidies applying in 2023 and 2024

	Deep renovation	Roof and facade greening	Individual measures
Detached/semi-detached houses	Between EUR 18 000 (partial) and EUR 42 000 (comprehensive), up to 50% of eligible costs.	NA	EUR 9 000, up to 50% of eligible costs (only one measure can be funded).
Multi-storey residential buildings	200 to 525 EUR/m² (higher when using renewable raw materials and/or achieving a high-performance threshold), up to 30% of eligible costs.	25 EUR/m² for green roofs, 100 EUR/m² for ground-based greening, 200 EUR/m² for facade greening, up to 30% of eligible costs.	(Window replacement) EUR 9 000 up to 50% of eligible costs.
Corporations and institutions	Between 12 EUR/m² and 26EUR/m² up to 1000m², 6-17 above; up to 30% (large companies); 40% (medium-sized firms) and 50% (small enterprises) of eligible costs, below EUR 4.5 million.	18 EUR/m² (roofs); 60 EUR/m² (ground-based); 120 EUR/m² (facade greening) outside of town centers, doubled in town centers. Up to 25%/35%/45% of eligible costs for large/medium/small companies, and EUR 4.5 million.	55 EUR/m² (windows), 16EUR/m² (roof), 7EUR/m² (top floor ceiling), up to 30% of eligible costs.
Municipalities	Between 7 EUR/m² and 16 EUR/m² up to 1000m², 4-10 above; up to 30% of eligible costs, below 4.5 million.	11 EUR/m² (roofs); 35 EUR/m² (ground-based); 70 EUR/m² (facade greening) outside of town centers, doubled in town centers. Up to 30% of eligible costs, and 4.5 million.	33 EUR/m² (windows), 10 EUR/m² (roof), 5 EUR/m² (top floor ceiling), up to 18% of eligible costs; additional subsidies of respectively 55/16/7 EUR/m² provided by Länder up to 30% of eligible costs.

Note: "Individual measures" include (i) insulation of: external walls, top floor ceiling or roof, lowest ceiling or basement floor; (ii) refurbishment or replacement of windows and external doors. Buildings must be older than 20 years old. Eligible renovations typically feature limits on U-value (an indicator of heat lost), on thickness of insulation material, on heating requirement of the renovated construction and/or on the energy efficiency factor.
Source: Austrian government, Kommunal Kredit Public Consulting.

Investment in renovation and heating-system replacement in rental accommodation can be encouraged through smart financial support. Constraints on renovations or heating-system replacement can arise in rental properties due to differing incentives between owners and renters. Evidence suggests that energy efficient measures are less likely to be carried out in rental housing compared to owner-occupied housing even after controlling for income and household characteristics (Gerarden, Newell and Stavins, 2017[159]). Owners may have less incentives to invest if the returns of lower energy bills do not accrue to them, and tenants may have limited options to react to higher energy costs. This question is particularly relevant for Austria where a larger share of people are renters relative to other OECD countries (OECD, 2023[160]). Investment support can be designed to strengthen incentives in rental accommodation. For example, Germany has recently introduced an innovative measure where its new carbon tax on building emissions will be split between tenants and landlords differently according to the emission performance of the building. Tenants in low-emission housing will bear most of the price, while landlords will be liable for the majority of the additional price for carbon-intensive rental dwellings. This measure is intended to alleviate the carbon price burden on tenants and to encourage landlords to undertake investments to improve the emissions performance of their home, while still incentivising tenants to reduce their carbon footprint (OECD, 2022[161]). Similar incentive issues occur in multi-ownership structures. Policy moves have been made regarding the latter. In a welcome step, the voting requirement for renovation among owners in multi-

ownership structures has been made less stringent, from an qualified majority of two-thirds to a simple majority (or two-thirds of votes with at least one-third voting) (Hoeller et al., 2023[135]).

Stronger energy-efficiency standards can also encourage investment and overcome misaligned incentives and the lack of information. Expanding the coverage of building efficiency standards, through a well-defined schedule increasing stringency requirements, while making disclosure of information on the energy performance of properties (throughout their lifecycle) compulsory, would improve information and certainty for green investments. Such moves would help overcome the misaligned incentives in rental property described above, as well as incentivise investment more generally (De Mello, 2023[162]). New buildings in Austria are already subject to minimum energy performance requirements via the implementation of the 2018 EPBD. However, energy certificates are only required at contractual moments, when property is rented, or when leasing or selling property, while the new EPBD aims to extend certification requirement to buildings undergoing major renovations and renewed rentals. Certificate requirements could be expanded beyond those simple trigger points. Efficiency standards are already imposed in the subsidy programs for renovations and the switching of heating systems. To speed up renovations and overcome informational frictions among others, Austria could expand the set of trigger points (e.g. building age) for retrofits including minimum efficiency performance, provided adequate lead time and funding assistance (Climate Action Tracker, 2022[163]; Sunderland and Jahn, 2021[164]). Several European countries and American regions have recently provided medium- or long-term objectives for the efficiency ratings of existing buildings (Nadel and Hinge, 2020[165]; European Commission, 2021[166]; OECD, 2023[167]).

The coordination of housing policies with the federal states will be essential as they bear the responsibility for the execution of federal laws relative to housing, and urban and regional development. In particular, they are in charge of the deployment of updated energy efficiency standards, and housing subsidies for renovations. Since 2008, the Länder agree on binding, harmonised standards with the Austrian Institute of Construction Engineering, but the speed of adoption of new standards in local legislation can vary. The implementation of the recent spending review recommendation regarding the harmonisation of relevant data and the distribution of emissions targets between states will be essential in the buildings sector, given the lack of consistent data e.g. on renovation rates, and the disparity of initial conditions across states (Bittschi et al., 2024[22]). The federal government can support a coordinated transition through incentives in the financial equalisation system. In that context, it is welcome that the new equalisation agreement aimed at incentivising a speedier transformation in the buildings sector by earmarking EUR 300 million per year between 2024 and 2028 for housing and renovation as part of the Future Fund (see above). The agreement emphasises that those funds must be used to achieve a renovation rate of 3% for public buildings, and either to reach expenditures on renovation amounting to 30% of the revenues derived from the housing subsidy contribution (a social contribution of 1% whose revenues are allocated to the Länder) or to renovate and develop more residential units in already-developed areas than units built in currently-unsealed areas. However, the outcome of these new measures is uncertain as there is still no clear link between the allocation of resources and the performance of the local governments and there is no impact on financial resources if the specified goals are not achieved.

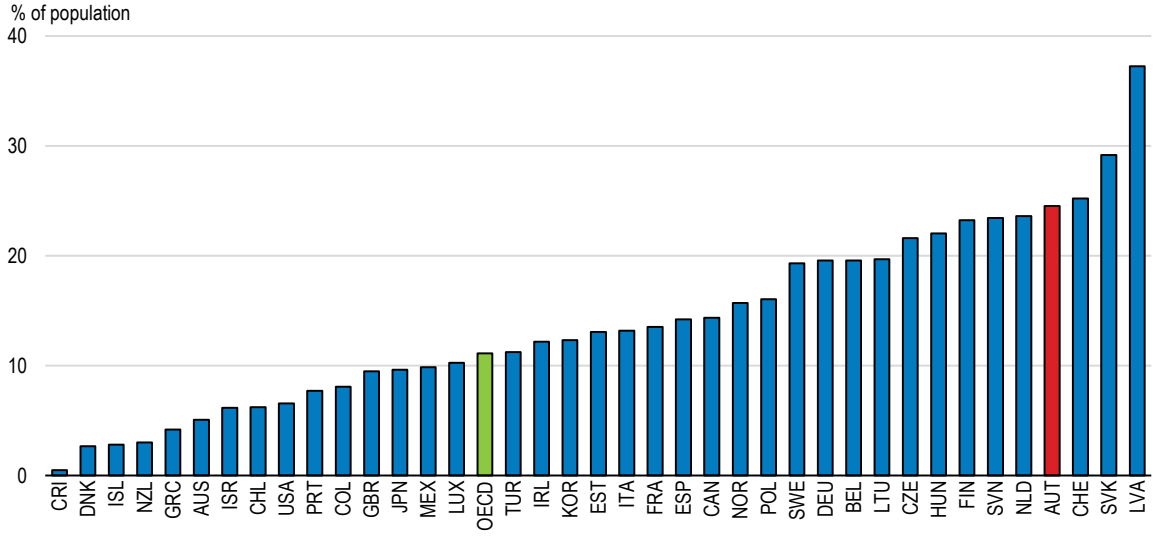
Providing easy access to information on energy consumption, and comparative tools, would encourage efficiency improvements. In addition to more stringent energy standards, the deployment of digital tools and smart controls can enable efficiency gains by providing information to consumers. Energy benchmarking and disclosure/transparency can contribute to significant reductions at low cost (OECD, 2021[132]; Frick et al., 2017[168]). In order to improve efficiency, Austria should speed up the rollout of smart meters. The country had originally aimed for an 80% rollout of smart meters in 2020 but delayed the objective to 2024, and less than 50% of households had smart electricity meters by 2021 – while 12 European countries had rates above 80% (ACER/CEER, 2022[169]).

Reducing flood risk, exposure, and vulnerability

The biggest challenge for climate change adaptation in Austria will most likely be increased flood risk. The country's geographical location and the distribution of the population and buildings over the territory makes Austria less exposed to extreme temperature, droughts, wildfires, or wind threats (in addition to being isolated from coastal floodings) (Maes et al., 2022[170]). However, flood hazard is likely to increase. The Austrian population is more exposed to flood risks than most OECD countries (Figure 5.15). The penetration of flood insurance, in turn, is relatively low. Reducing the future economic burden linked to more frequent and severe floods requires a two-pronged strategy: reducing exposure through better land use and protective investments, and reducing vulnerabilities through wider insurance coverage.

Figure 5.15. A large share of the population is exposed to floods

Share of population exposure to river flooding with a 10-year return period, 2020



Note: A return period is the average or estimated time that a flood event is likely to recur.
Source: IEA/OECD (2023), "Climate-related hazards: River flooding", Environment Statistics (database), https://oe.cd/dx/58w.

StatLink https://stat.link/kt2na1

Reducing exposure to flood risk by better planning and incentivising investment

More effective multi-level governance on planning, mobility, and housing development would help reduce the development of flood-prone populated land. Austria has sealed or artificialised a considerable amount of land ("land take"); a European Commission report found that Austria's land take was higher than the EU average (relative to its size) between 2012 and 2018, and significantly faster than population growth (European Commission, 2022[171]). In October 2021, the Austrian Conference on Spatial Planning was mandated to develop the first Soil Strategy for Austria, which aimed to reduce land take from 11.5 hectares per day to 2.5 in 2030 (Schamann, 2022[172]), and which was also included in the country's Resilience and Recovery Plan (RRP). The strategy was to be presented at the end of 2022 but has been delayed regularly.

A particular constraint for reducing land take (and for reforms in land planning in general) is that spatial planning and building regulations are the responsibility of local authorities which may not internalise the full risks of developing flood-prone land. Flood protection itself is shared across federal, state, district and municipalities. In general, in Austria the federal government is responsible for the development and management of water-regulating infrastructures, while the federal states and local governments are in charge of spatial planning and water resources management at their respective scales. Nationwide regulations on land take should be considered. These have proved useful elsewhere. In Portugal, national

law forbids development in areas adjacent to rivers without pre-authorisation and within 50 metres of the coast, while in France a 2021 law imposes mandatory objectives to local governments in order to achieve net zero artificialisation in 2050. If federal regulation is unlikely in Austria, incentives could be provided through the financial equalisation system. Similarly, the degree of insurance provided by the Catastrophes Fund (a public fund financed by federal taxes which pays for preventive and compensation measures against natural catastrophes, see Box 5.5) to local governments could be adjusted based on land-use objectives. For example, the United Kingdom limits reinsurance coverage for developments constructed after 2009, while in the United States coverage by the National Flood Insurance Program is only provided to communities which have set flood management conditions such as building and floodplain management standards. A voluntary Community Rating System in the United States also allows communities to earn points which are translated into premium discounts for households in those communities (OECD, 2016[173]).

Box 5.5. Austria's Catastrophes Fund (*Katastrophenfonds*)

In Austria's constitution, the responsibility to repair damages from natural hazards to private and public assets is assigned to the federal states. However, federal policy plays an important role through the Catastrophes Fund was created in the wake of large natural catastrophes, to fund preventive measures and support the compensation of private and local public assets.

Funding

The fund is financed mostly by a fraction (1.07%) of household and corporate income taxes. In 2021, receipts from those taxes amounted to EUR 509 million. It also receives some funds (EUR 10 million as of 2021) from corporate taxes which are earmarked for repairing state roads.

Functions

Three-quarters of the fund's expenditure is allocated to preventive measures, mostly to prevent future flood and avalanche damage, and the payment of insurance premia paid to cover losses to agricultural crops. Most of the remainder is available for compensating damages to private property and local authorities' assets. Compensation of up to 60% of damages is provided for private property and 50% for local assets.

Compensation process

Private individuals whose assets have been damaged by natural disasters can apply for support from the fund via their municipality. The federal states are responsible for assessing damages and for the payment of compensation. After damage has been recorded by a local expert commission set up at the community level, compensations are paid out directly to the claimants. However, there is neither any enforceable legal right nor guaranteed level for financial assistance.

Source: (Unterberger et al., 2019[174]), BMF 2022 Disaster Fund Act, (Holub and Fuchs, 2009[175])

Increasing the effectiveness of natural flood protection mechanisms, particularly forests, should be considered. Evidence from Austria suggests that forests can reduce run-offs including after heavy rainfall (Markart et al., 2022[176]), but the ecological condition of forests is relatively poor. Forests cover 45% of the territory but almost 90% are estimated to be in bad to poor conservation status (European Commission, 2022[171]). Only 13% of Austria's forests are part of Natura 2000 sites, a network of protected natural areas in Europe aimed at conserving biodiversity and ensuring the long-term survival of species and habitats, against 25% on average in the EU (European Commission, 2021[177]). Other nature-based solutions to building flood resilience can complement infrastructure investment in urban areas, and have been implemented with success in Austria. For example, the municipality of Ober-Grafendorf developed the "eco-street" project which provides roadside green spaces to stop diverting rainwater from the streets to

the canal system. Nature-based solutions are often less costly than infrastructure and can provide additional climate mitigation benefits (OECD, 2021[178]). Urban green space expansions, including parks and green roofs, increase water absorption capacities and thereby reduce the risk of urban flooding while contributing to reducing GHG emissions. For instance, about a quarter of Germany's larger cities provide financial subsidies for green roofs (OECD, 2023[4]).

Structural flood mitigation investments, such as dams, levees, and reservoirs, can be used to reduce flood risk, and can be particularly cost effective in urban built-up areas. Improvements in drainage systems and the installation of permeable pavement can also improve absorption capacity. One particular example is the Danube side channel built by Vienna between 1972 and 1988 in order to provide flood relief. More generally, the "Room for the River" programme in the Netherlands between 2006 and 2015 included creating and increasing the depth of flood channels and removing obstacles, and the establishment of floodplains across major river systems. However, those investments can take a long time to pay off, which can hinder their implementation. In order to take into account the long-term effectiveness of structural mitigation measures and the uncertainty on future impacts of a changing climate, some countries allow the use of climate change allowances (predictions of anticipated change to flood risk due specifically to climate change) in flood risks assessments. For example, in Australia, the Queensland Inland Flooding Study recommends a 5% increase in rainfall intensity for each 1°C increase in global warming. In Germany, the regions of Baden-Württemberg and Bavaria introduced a climate change factor as a surcharge value to be considered in flood calculations (Pelaez Jara, 2020[179]; OECD, 2016[173]).

Support for adaption investment by sub-national government could be made more effective. The Austrian government provides information and technical support to local authorities planning adaptation investments but could leverage financial incentives to support additional infrastructure. The Climate Change Adaptation Model Regions for Austria programme (KLAR!) helps regions enhance their climate resilience by providing funding for specific adaptation plans, in addition to information and advice from government environment experts via a common platform. Stronger incentives could be built in funding programmes. For example, investments by local authorities which reduce future risks could benefit from adjustments in financial equalisation transfers or in the contribution to, and the coverage provided by, the Catastrophes Fund. In parallel, the lower premiums demanded by insurers could be partially topped up by specific charges or taxes earmarked for adaptation investment (OECD, 2016[173]).

Pecuniary and informational support for private investments in risk reduction can also help adaptation. Private household investment in flood protection could significantly reduce flood damages (Kreibich et al., 2005[180]). The main issues, similar to the constraints on investment for energy efficiency in residential buildings (see above), are the lack of information on risks and the benefits of protection, and the high upfront costs. The potential solutions are also similar. For instance, households can be provided with subsidised loans. The government or private lenders could recoup the cost of subsidised loans through charges on the implicit benefits derived from those investments: that is, the full benefits of lower premiums would be shared between the household and the lender. In France, the "fonds de prévention des risques naturels majeurs" finances 80% of adaptation measures for SMEs and private households when they are situated in flood zones in cities with a flood prevention plan. The fund is financed by the "Catnat" premium, a mandatory contribution from all property insurance policies (Covéa, 2023[181]). Public policy can also improve information on flood risk by certifications akin to the buildings certificates for energy efficiency (Oakley and Ahern, 2020[182]). For example, Germany has implemented a "flood passport" (*Hochwasserpass*) that includes a risk assessment and recommendations for additional precautionary measures. Those passports could be combined with the detailed and easily accessible flood-mapping tools already developed by Austria, as discussed below.

Reducing the vulnerability to flood risk by rethinking insurance

Private insurance coverage against flooding is low in Austria. Basic flood risk insurance is exclusively provided by private insurance companies and is bundled within standard household coverage, with very low indemnity limits (Hanger et al., 2017[183]). A recent estimation suggests that only three quarters of households have basic coverage, with a limit of EUR 10 000. Extended coverage is available on an optional basis (OECD, 2020[184]). It is estimated that the insurance market penetration (measured by sum insured) against river flooding was 5% in Austria in 2022 against 40% in Germany or 100% in France and Switzerland, where coverage is compulsory (Insurance Europe, 2022[185]). In turn, more than 80% of economic losses from natural catastrophes (including floods) in the last 30 years were uninsured (European Environment Agency, 2023[186]). Because the country is highly exposed to future flood risk, an estimation by the European Commission suggests that Austria has the largest protection gap in the EU (Radu, 2022[187]). The low take up of flood insurance likely reflects, in part, a belief that government will step in to compensate losses in the event of flood damage through the Catastrophes Fund (Box 5.5).

Enhancing public awareness of flood risk would help insurance take up. Policies to improve flood risk information are underway. As part of the EU floods directive, the government developed a preliminary risk assessment which identified 416 risk areas with detailed information including probabilities of occurrence and estimated impacts. In addition, the government has developed an online mapping tool, HORA, with the Austrian Insurance Association, which enables the user to make an initial assessment of their personal risk situation. Other informational materials include CLIMA-MAP, which uses maps to illustrate climate change impacts in Austria's municipalities and regions. The government could build further public awareness by adding more information on flood risk at the time of a rental or purchase transaction, similar to the requirement for energy certificates in real estate transactions. This could be combined with the adoption of flood passports (see above). For example, France and Australia already require sellers and landlords to disclose information on compensation paid in the past for a property as a result of a natural disaster (OECD, 2016[173]).

More fundamental change to flood insurance could also be considered. Reform options include:

- Funding the Catastrophes Fund by mandatory premiums, rather than general taxation. Iceland, for instance, effectively requires flood insurance with its publicly-run Natural Catastrophe Insurance. Austria's Catastrophes Fund could be reformed in this direction with a switch from tax to premium-based funding. The collection of premiums and the ability to adjust premiums as a function of risk (and risk prevention measures which are undertaken) would allow the government to incentivise mitigation measures.
- Introduce mandatory and comprehensive private flood insurance, for instance by the mandatory extension of homeowners' insurance to include coverage of flood risk. In France, for example, private insurers must include insurance against flood risk in property insurance policies. Coverage is funded from a fixed share of all premiums. Insurers in turn benefit from government-backed reinsurance through the "Catnat" system. A state guarantee ensures that damages from extreme events can be covered. A particular advantage of the French system is that it provides complete coverage and affordable premiums while keeping a large role for private insurers, with subsequent benefits in terms of cost effectiveness (Kuik et al., 2017[188]). Well-designed subsidies could be implemented to ensure that premiums remain affordable: in particular, they should be means-tested and could be enacted with requirements regarding investments in risk reduction (OECD, 2016[173]). A recent analysis of a hypothetical switch from the current Austrian private insurance system with public ex-post compensation, towards a more mixed public-private insurance mechanism where the government acts as a global reinsurer, accompanied with incentives for risk reduction measures, suggests that it would significantly reduce the fiscal burden and the volatility of payments in addition to providing significantly broader coverage (Unterberger et al., 2019[174]).

Recommendations

MAIN FINDINGS	RECOMMENDATIONS (Key recommendations in bold)
Carbon pricing	
Effective carbon prices in Austria are low relative to leading countries, and heterogeneous across sectors.	**Accelerate effective carbon price increases, in particular in non-ETS sectors via the eco-social tax reform to close the gap with the EU Emission Trading Scheme**
Austria continues to provide support to fossil fuels, mainly through tax expenditures.	**Phase out fossil fuel subsidies, replacing them with targeted support for vulnerable groups, as necessary.** Align the taxation of diesel and gasoline and increase the tax rates.
Green investment	
Investment needs for the green transformation are substantial, but the governance of infrastructure has weaknesses. The involvement of stakeholders is lacking and the procurement process is not competitive.	Facilitate access to procurement opportunities to suppliers of all sizes by simplifying administrative processes and ensuring the publication of procurement guidelines.
Significant green investment will be undertaken by local governments but federal government lacks strong tools to incentivise it.	Condition a larger part of federal transfers to subnational government to ensure alignment on green objectives. Follow-up on the recommendations of the recent spending review to further develop green budgeting at the local level, harmonise data and indicators across subnational governments, and integrate local emissions targets consistent with the national target.
Complementary measures	
Climate policies will change labour market demands and temporarily increase the price of energy, with distributional effects.	Focus on skills rather than occupations in the assessment of future labour market needs due to the green transformation. Allocate the climate bonus based on income rather than by region.
Transport	
The low density of urban areas and significant urban sprawl contribute to longer travel distances and unnecessary trips by road.	Faciliate urban densification by making land-use regulations more flexible, e.g. by relaxing height restrictions.
Favourable tax treatments for car-based commuting and for company cars incentivise car use and long distance travel.	**Reform the commuter allowance with better social and ecological targeting.** Increase the incentive to buy low-emission vehicles in company-car taxation. Reduce the kilometre allowance and align the levels with green objectives.
The difference in the relative tax burden between fossil-fuel vehicles and electric vehicles is low compared to other European countries.	Better target EV subsidies, in particular towards low-income households.
A large share of short distance trips is still done by car. There is an important rural-urban divide in accessibility of public transport.	Encourage active mobility by lowering the speed limit in built-up areas. Also, streamline planning procedures for, and increase investment in, walking and cycling infrastructure. Provide specific public transport services for underserved areas by establishing demand-responsive-transport systems.
The density of charging stations is high but the share of fast chargers is low. «Range anxiety» is the second barrier to EV adoption along with high prices.	Promote the standardisation of the charging infrastructure and information on stations' availability. Increase the availability of fast chargers, in particular in remote areas.
Energy supply	
Austria still relies on significant fossil fuel imports. In particular, it is highly dependent on natural gas from Russia passing through Ukraine.	Follow up on the efforts to diversify natural gas imports to reduce dependency on concentrated sources and improve energy security.
Planning and permitting procedures for renewables installations and the electricity grid can be complex and lengthy.	**Designate more renewables projects as of "overriding public interest", and define more "acceleration areas".** **Simplify procedures for renewables installation. In particular, use "silence is consent" procedures to speed infrastructure installation.**
Austria faces high administrative barriers to grid expansion compared with other European countries. The costs of grid access and grid usage can be high.	Lower the cost of grid connections e.g. via the network access fee for generation plants. Prevent double taxation for usage and delivery to the grid. Ensure coordination of grid development and speed the effective implementation of the network infrastructure plan.
The supply of biogenic gas will cover less than half of gas demand from industry, transport, and district heating that will remain in 2040.	Support the use and production of hydrogen as renewable gas while allocating it to its most efficient use.
Fossil fuels still contribute to one-third of heat generation. Renewable sources for district heating are dominated by biomass.	Increase support for the deployment of large-capacity heat pumps for district heating companies.

Industrial processes and steel production	
Industrial processes, mostly from the production of iron and steel, represent more than a fifth of GHG emissions and are heavily concentrated.	Work with large steel producers towards a more ambitious, consistent and precise decarbonisation strategy for the private sector, in particular after 2027/2030.
Austria has banned projects to develop permanent geological storage of carbon dioxide since 2011. Carbon capture may be useful to reduce hard-to-abate emissions for industrial processes in steel and cement production in particular.	Review the ban on permanent geological storage of carbon. Provide a detailed feasibility analysis of the geological storage capacity for carbon in Austria.
Buildings and residential heating	
Austria's pace of small-scale heat-pump installation is relatively slow. In addition, the speed of building renovation to improve energy efficiency is slow despite a large share of old and poorly insulated buildings.	**At the subnational level, gradually set tighter requirements for heat generators in buildings, and identify and expand the set of trigger points for buildings renovation and efficiency requirements.**
Switching heating systems and building renovations have large upfront costs. Recent efforts to provide targeted support focus on the switching of heating systems by low-income homeowners.	**Target renovation grants to vulnerable households, and provide on-bill financing instruments for other households and SMEs.** Extend targeting for switching heating system to low-income tenants.
Austria's energy consumption and building emissions are high compared to countries with similar climate. Investment in renovation and system switching is hampered by the split incentive between renters and owners.	Adjust the incidence of the new carbon tax on building emissions depending on the emission performance of the building. Expand the coverage and publication of building efficiency standards and provide a long term trajectory for building efficiency requirements.
Adaptation to higher flood risk and reduction of land take	
Land take is high relative to other European countries. Flood exposure of population living in built-up areas is high.	**Finalise the Soil Strategy, launched in 2021 and which was due to be presented in 2022, to reduce land take based on a quantitative limit**. Leverage fiscal equalisation transfers to reduce land take. Increase the effectiveness of natural flood protection mechanisms by increasing forest protection and promoting nature-based solutions.
Public and private structural investment can significantly reduce flood risk.	Incentivise adaptation investments through adjustments in equalisation transfers and the coverage parameters of the Catastrophes Fund. Establish a system of «flood passports» for buildings.
The market penetration of comprehensive flood insurance is low.	Mandate comprehensive flood insurance in homeowners' insurance policies and set the Catastrophes fund as a public reinsurer.

References

ACEA (2022), "Electric cars: 6 EU countries have less than 1 charger per 100km of road; 1 charger in 7 is fast", *ACEA Press release*, https://www.acea.auto/press-release/electric-cars-6-eu-countries-have-less-than-1-charger-per-100km-of-road-1-charger-in-7-is-fast/. [80]

ACER (2023), "Security of EU electricity supply 2023", *European Union Agency for the Cooperation of Energy Regulators*, https://acer.europa.eu/Publications/Security_of_EU_electricity_supply_2023.pdf. [100]

ACER/CEER (2022), "Annual Report on the Results of Monitoring the internal electricity and natural gas market in 2021", https://www.acer.europa.eu/Publications/ACER_Gas_Market_Monitoring_Report_2021.pdf. [169]

Agora Energiewende and Wuppertal Institute (2021), "Breakthrough Strategies for Climate-Neutral Industry in Europe: Policy and Technology Pathways for Raising EU Climate Ambition", https://www.agora-energiewende.org/publications/breakthrough-strategies-for-climate-neutral-industry-in-europe-study. [129]

Amann, W. (2022), "Can decarbonisation of the Austrian building stock be achieved by 2040?", *Housing Finance International*, http://www.iibw.at/en/resources/projectdatabase/search/results. [147]

Anderson, A. and H. Hong (2022), *Welfare Implications of Electric-Bike Subsidies: Evidence from Sweden*, National Bureau of Economic Research, Cambridge, MA, https://doi.org/10.3386/w29913. [48]

Austrian Energy Agency (2022), "Austria: Strategic options for gas supply without imports from Russia", https://www.energyagency.at/fileadmin/1_energyagency/presseaussendungen/allg._pa/2022/04_independence_from_russian_gas_analysis_aea_bmk_2022.pdf. [85]

Austrian Energy Agency (2022), "Update of the roadmap for the decarbonisation of district heating in Austria", https://www.gaswaerme.at/media/medialibrary/2022/11/FGW-Roadmap2-Endbericht-Final_2022-11-07.pdf. [141]

Austrian Energy Agency (2021), "Renewable gas in Austria 2040 - Quantitative assessment of demand and supply", https://www.energyagency.at/aktuelles/studie-gruenes-gas. [106]

Austrian Parliament (2023), "Finanzausgleich 2024", https://www.parlament.gv.at/fachinfos/budgetdienst/Finanzausgleich-2024. [20]

Austrian Parliament (2022), "Impact Assessment of the Renewable Heat Act", https://www.parlament.gv.at/dokument/XXVII/ME/212/fname_1451880.pdf. [142]

Averfalk, H. et al. (2017), "Large heat pumps in Swedish district heating systems", *Renewable and Sustainable Energy Reviews*, Vol. 79, pp. 1275-1284, https://doi.org/10.1016/j.rser.2017.05.135. [114]

Banasiak, J., C. Najdawi and J. Maarja Tiik (2022), "Barriers and Best Practices for Wind and Solar Electricity in the EU27 and UK", *RES Policy Monitoring Database*, https://images.resmonitor.eu/RES-POLICY-MONITORING-DATABASE_Final%20Report_01.pdf. [91]

Bard, J. et al. (2022), "The Limitations of Hydrogen Blending in the European Gas Grid", *Fraunhofer Institute for Energy Economics and Energy System Technology (IEE)*, https://www.iee.fraunhofer.de/content/dam/iee/energiesystemtechnik/en/documents/Studies-Reports/FINAL_FraunhoferIEE_ShortStudy_H2_Blending_EU_ECF_Jan22.pdf. [110]

Bertoldi, P. et al. (2020), "How to finance energy renovation of residential buildings: Review of current and emerging financing instruments in the EU", *WIREs Energy and Environment*, Vol. 10/1, https://doi.org/10.1002/wene.384. [158]

Bétin, M. and V. Ziemann (2019), "How responsive are housing markets in the OECD? Regional level estimates", *OECD Economics Department Working Papers*, No. 1590, OECD Publishing, Paris, https://doi.org/10.1787/1342258c-en. [39]

Bittschi, B. et al. (2024), "Fiscal Equalisation System 2024 to 2028. First Steps Towards Performance Orientation", *WIFO-Monatsberichte*, https://www.wifo.ac.at/en/publications/search_for_publications?detail-view=yes&publikation_id=71402. [22]

Blake, H. and T. Bulman (2022), "Surging energy prices are hitting everyone, but which households are more exposed?", *OECD Ecoscope*, https://oecdecoscope.blog/2022/05/10/surging-energy-prices-are-hitting-everyone-but-which-households-are-more-exposed/. [34]

BMF (2023), "Budgetbeilage Klima- und Umweltschutz", https://www.bmf.gv.at/themen/klimapolitik/green_Budgeting/budgetbeilage_klima--und_umweltschutz.html. [11]

BMK (2023), "Integrierter nationaler Energie- und Klimaplan für Österreich: Periode 2021-2030", *Entwurf zur öffentlichen Konsultation*, https://www.bmk.gv.at/dam/jcr:34c13640-4532-4930-a873-4ececc4d3001/NEKP_Aktualisierung_2023_2024_zur_Konsultation_20230703.pdf. [63]

BMK (2023), "Integrierter österreichischer Netzinfrastrukturplan: Entwurf zur Stellungnahme", https://www.bmk.gv.at/themen/energie/energieversorgung/netzinfrastrukturplan.html. [97]

BMK (2023), "Unabhängigkeit von russischem Gas", https://energie.gv.at/hintergrund/unabhaengigkeit-von-russischem-gas#gas-aus-russland. [83]

BMK (2022), "Hydrogen strategy for Austria", https://www.bmk.gv.at/themen/energie/energieversorgung/wasserstoff/strategie.html. [104]

BMK (2022), "Laden so einfach wie Tanken: Sofortprogramm beschleunigt Ausbau der E-Mobilität", https://infothek.bmk.gv.at/laden-so-einfach-wie-tanken-sofortprogramm-beschleunigt-ausbau-der-e-mobilitaet/. [79]

BMK (2022), "Masterplan Gehen 2030: Strategie zur Förderung des Fußverkehrs in Österreich", https://www.bmk.gv.at/themen/mobilitaet/fuss_radverkehr/publikationen/masterplangehen.html. [46]

BMK (2021), "Klima- und Energieziele: Monitoringreport gemäß §§ 7 und 30 Bundes-Energieeffizienzgesetz", https://www.bmk.gv.at/themen/energie/publikationen/monitoringreport/monitoringreport21.html. [133]

BMNT and BMVIT (2018), "Austrian Climate and Energy Strategy #mission2030", https://gruenstattgrau.at/wp-content/uploads/2020/10/mission2030_oe_climatestrategy_ua.pdf. [150]

BMSGPK (2021), "Soziale Folgen des Klimawandels in Österreich", https://www.sozialministerium.at/dam/jcr:514d6040-e834-4161-a867-4944c68c05c4/SozialeFolgen-Endbericht.pdf. [25]

BMVT (2016), "Österreich unterwegs 2013/2014", https://www.bmk.gv.at/dam/jcr:fbe20298-a4cf-46d9-bbee-01ad771a7fda/oeu_2013-2014_Ergebnisbericht.pdf. [51]

Borenstein, S. and L. Davis (2016), "The Distributional Effects of US Clean Energy Tax Credits", *Tax Policy and the Economy*, Vol. 30/1, pp. 191-234, https://doi.org/10.1086/685597. [74]

Borgonovi, F. et al. (2023), "The effects of the EU Fit for 55 package on labour markets and the demand for skills", *OECD Social, Employment and Migration Working Papers*, No. 297, OECD Publishing, Paris, https://doi.org/10.1787/6c16baac-en. [28]

BPIE (2023), "Minimum standards, maximum impact: How to design fair and effective minimum energy performance standards", https://www.bpie.eu/wp-content/uploads/2023/05/Minimum-standards-maximum-impact_Final.pdf. [146]

BPIE (2020), "A review of EU Member States' 2020 Long-term Renovation Strategies", https://www.bpie.eu/wp-content/uploads/2020/10/LTRS-Assessment_Final.pdf. [151]

Braungardt, S. et al. (2023), "Banning boilers: An analysis of existing regulations to phase out fossil fuel heating in the EU", *Renewable and Sustainable Energy Reviews*, Vol. 183, p. 113442, https://doi.org/10.1016/j.rser.2023.113442. [143]

Breitenfellner, A., M. Lahnsteiner and T. Reininger (2021), "Österreichs Klimapolitik: Vom Vorbild zum Nachzügler in der EU", *Oesterreichische Nationalbank Konjunktur aktuell – Dezember 2021*, pp. 53-58, https://www.oenb.at/Publikationen/Volkswirtschaft/konjunktur-aktuell.html. [66]

Büchele, R. et al. (2021), "Potential for efficient heating and cooling", *Technical University of Vienna and Centre for Energy Economics and Environment (e-think)*, https://energy.ec.europa.eu/topics/energy-efficiency/heating-and-cooling_en. [112]

Busch, J. et al. (2021), "A global review of ecological fiscal transfers", *Nature Sustainability*, Vol. 4/9, pp. 756-765, https://doi.org/10.1038/s41893-021-00728-0. [17]

Castellazzi, L. et al. (2022), "Assessment of the first long-term renovation strategies under the Energy Performance of Building Directive (Art. 2a)", *JRC Science for Policy Report*, https://data.europa.eu/doi/10.2760/535845. [152]

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://doi.org/10.1787/4777e29a-en. [33]

Chateau, J., R. Bibas and E. Lanzi (2018), "Impacts of Green Growth Policies on Labour Markets and Wage Income Distribution: A General Equilibrium Application to Climate and Energy Policies", *OECD Environment Working Papers*, No. 137, OECD Publishing, Paris, https://doi.org/10.1787/ea3696f4-en. [29]

Clarke, Z. et al. (2022), "Carbonomics: The clean hydrogen revolution", *Goldman Sachs Equity Research*, https://www.goldmansachs.com/intelligence/pages/gs-research/carbonomics-the-clean-hydrogen-revolution/carbonomics-the-clean-hydrogen-revolution.pdf. [108]

Clemens, M. and T. Clemens (2022), "Scenarios to Decarbonize Austria's Energy Consumption and the Role of Underground Hydrogen Storage", *Energies*, Vol. 15/10, p. 3742, https://doi.org/10.3390/en15103742. [105]

Climate Action Tracker (2022), "Decarbonising buildings: achieving zero carbon heating and cooling.", https://climateactiontracker.org/publications/decarbonising-buildings-achieving-net-zero-carbon-heating-and-cooling/. [163]

Clinton, B. and D. Steinberg (2019), "Providing the Spark: Impact of financial incentives on battery electric vehicle adoption", *Journal of Environmental Economics and Management*, Vol. 98, p. 102255, https://doi.org/10.1016/j.jeem.2019.102255. [73]

Coutinho, F. et al. (2020), "Impacts of replacing a fixed public transport line by a demand responsive transport system: Case study of a rural area in Amsterdam", *Research in Transportation Economics*, Vol. 83, p. 100910, https://doi.org/10.1016/j.retrec.2020.100910. [54]

Covéa (2023), "Livre Blanc - Risque Climatique : Quelles préventions ?", https://www.covea.com/sites/default/files/2023-05/livre_blanc_covea_risque_climatique_quelles_preventions_202305.pdf. [181]

Cremona, E. (2023), "Breaking borders: The future of Europe's electricity is in interconnectors", https://ember-climate.org/insights/research/breaking-borders-europe-electricity-interconnectors/. [98]

D'Arcangelo, F. et al. (2022), "A framework to decarbonise the economy", *OECD Economic Policy Papers*, No. 31, OECD Publishing, Paris, https://doi.org/10.1787/4e4d973d-en. [37]

D'Arcangelo, F. et al. (2022), "Estimating the CO2 emission and revenue effects of carbon pricing: New evidence from a large cross-country dataset", *OECD Economics Department Working Papers*, No. 1732, OECD Publishing, Paris, https://doi.org/10.1787/39aa16d4-en. [5]

Davis, L. (2023), *The Economic Determinants of Heat Pump Adoption*, National Bureau of Economic Research, Cambridge, MA, https://doi.org/10.3386/w31344. [138]

De Mello, L. (2023), "Real Estate in a Post-Pandemic World: How Can Policies Make Housing More Enviromentally Sustainable and Affordable?", *Hacienda Pública Española/Review of Public Economics*, Vol. 244/1, https://ideas.repec.org/a/hpe/journl/y2023v244i1p111-139.html. [162]

Diana, M., L. Quadrifoglio and C. Pronello (2007), "Emissions of demand responsive services as an alternative to conventional transit systems", *Transportation Research Part D: Transport and Environment*, Vol. 12/3, pp. 183-188, https://doi.org/10.1016/j.trd.2007.01.009. [56]

Dotterud Leiren, M. and K. Skollerud (2015), "Public Transport Provision in Rural and Sparsely Populated Areas in Norway", *International Transport Forum Discussion Papers*, No. 2015/8, OECD Publishing, Paris, https://doi.org/10.1787/5jrvzrrgg6lv-en. [55]

Dougherty, S. and H. Kim (eds.) (2023), *Bricks, Taxes and Spending: Solutions for Housing Equity across Levels of Government*, OECD Fiscal Federalism Studies, OECD Publishing, Paris, https://doi.org/10.1787/7a22f9a6-en. [41]

Economidou, M., V. Todeschi and P. Bertoldi (2019), "Accelerating energy renovation investments in buildings", *JRC Science for Policy Report*, https://publications.jrc.ec.europa.eu/repository/handle/JRC117816. [157]

Egner, L., C. Klöckner and G. Pellegrini-Masini (2021), "Low free-riding at the cost of subsidizing the rich. Replicating Swiss energy retrofit subsidy findings in Norway", *Energy and Buildings*, Vol. 253, p. 111542, https://doi.org/10.1016/j.enbuild.2021.111542. [155]

EIB (2023), "Climate Survey 2023-2024", https://www.eib.org/en/surveys/climate-survey/all-resources.htm. [36]

Element Energy and Clean Air Task Force (2023), "Unlocking Europe's CO2 Storage Potential", https://www.catf.us/resource/unlocking-europes-co2-storage-potential/. [125]

ENTSO-E (2023), "Opportunities for a more efficient European Power System in 2030", *System Needs Study*, https://needs.entsoe.eu/. [101]

European Commission (2023), "2023 Country Report - Austria", *European Economy Institutional Papers* 244, https://economy-finance.ec.europa.eu/publications/2023-country-report-austria_en. [148]

European Commission (2023), "Austria Country Report", https://economy-finance.ec.europa.eu/system/files/2023-05/AT_SWD_2023_620_en.pdf. [84]

European Commission (2023), "Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify)", *Publications Office of the European Union*, https://data.europa.eu/doi/10.2833/894296. [87]

European Commission (2022), "Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions EU 'Save Energy'", https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A240%3AFIN. [144]

European Commission (2022), "Country Report 2022: Austria", https://commission.europa.eu/publications/2022-european-semester-country-reports_en. [88]

European Commission (2022), "Environmental Implementation Review", https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0274_FIN. [171]

European Commission (2022), "EU transport in figures – Statistical pocketbook 2022", *Publications Office of the European Union*, https://op.europa.eu/en/publication-detail/-/publication/f656ef8e-3e0e-11ed-92ed-01aa75ed71a1/language-en. [49]

European Commission (2022), "Implementing the REPower EU Action Plan: Investment Needs, Hydrogen Accelerator and Achieving the Bio-methane Targets", https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=SWD%3A2022%3A230%3AFIN. [130]

European Commission (2021), "European Network of Public Employment Services, Greening of the labour market. Impacts for the Public Employment Services : small scale study", https://op.europa.eu/en/publication-detail/-/publication/a5ce471b-f0dd-11eb-a71c-01aa75ed71a1/language-en. [30]

European Commission (2021), “New EU Forest Strategy for 2030”, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=SWD:2021:652:FIN. [177]

European Commission (2021), “Preliminary analysis of the long-term renovation strategies of 13 Member States”, https://data.consilium.europa.eu/doc/document/ST-7394-2021-INIT/en/pdf. [166]

European Environment Agency (2023), “Economic losses from weather- and climate-related extremes in Europe”, https://www.eea.europa.eu/en/analysis/indicators/economic-losses-from-climate-related. [186]

Eurostat (2022), “Housing in Europe: 2022 Interactive Edition”, https://ec.europa.eu/eurostat/cache/digpub/housing/bloc-1d.html?lang=en. [134]

Eurostat (2021), “Passenger mobility statistics”, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_mobility_statistics. [59]

EY Law (2022), “The new road vehicle procurement law”, https://www.eylaw.at/das-neue-strassenfahrzeug-beschaffungsgesetz/. [72]

Fan, Z. and S. Friedmann (2021), “Low-carbon production of iron and steel: Technology options, economic assessment, and policy”, *Joule*, Vol. 5/4, pp. 829-862, https://doi.org/10.1016/j.joule.2021.02.018. [117]

Fisher, B. et al. (2021), “Dienstwagen auf Abwegen”, https://www.agora-verkehrswende.de/fileadmin/Projekte/2021/Dienstwagen-Besteuerung/Dienstwagen_auf_Abwegen.pdf. [62]

Frick, N. et al. (2017), “Evaluation of U.S. Building Energy Benchmarking and Transparency Programs: Attributes, Impacts, and Best Practices”, https://emp.lbl.gov/publications/evaluation-us-building-energy. [168]

Gerarden, T., R. Newell and R. Stavins (2017), “Assessing the Energy-Efficiency Gap”, *Journal of Economic Literature*, Vol. 55/4, pp. 1486-1525, https://doi.org/10.1257/jel.20161360. [159]

GIE (2023), “Aggregated Gas Storage Inventory”, https://agsi.gie.eu/. [82]

Global Infrastructure Hub (2020), “InfraCompass2020”, https://infracompass.gihub.org/ind_country_profile/aut/#country-overview-data. [15]

Gonzales, L., K. Ito and M. Reguant (forthcoming), “The Investment Effects of Market Integration: Evidence from Renewable Energy Expansion in Chile”, *Econometrica*, https://t.co/NXXdOMSKL3. [99]

Government of Canada (2023), *Climate Lens - General Guidance*, Infrastructure Canada, https://www.infrastructure.gc.ca/pub/other-autre/cl-occ-eng.html (accessed on 20 July 2023). [19]

Hanger, S. et al. (2017), “Insurance, Public Assistance, and Household Flood Risk Reduction: A Comparative Study of Austria, England, and Romania”, *Risk Analysis*, Vol. 38/4, pp. 680-693, https://doi.org/10.1111/risa.12881. [183]

Harding, M. (2014), “Personal Tax Treatment of Company Cars and Commuting Expenses: Estimating the Fiscal and Environmental Costs”, *OECD Taxation Working Papers*, No. 20, OECD Publishing, Paris, https://doi.org/10.1787/5jz14cg1s7vl-en. [58]

Heinrich-Böll-Stiftung (2021), “European Mobility Atlas”, https://eu.boell.org/en/public-and-intermodal-transport-unite-rural-and-urban-areas. [52]

Held, V. (2023), “Our path to a green future”, *Voestalpine Corporate Blog*, https://www.voestalpine.com/blog/en/commitment/greentec-steel/our-path-to-a-green-future/. [118]

Hoeller, P. et al. (2023), “Home, green home: Policies to decarbonise housing”, *OECD Economics Department Working Papers*, No. 1751, OECD Publishing, Paris, https://doi.org/10.1787/cbda8bad-en. [135]

Hoffmann, C., M. Hoey and B. Zeumer (2020), “Decarbonization challenge for steel”, *McKinsey & Company*, https://www.mckinsey.com/industries/metals-and-mining/our-insights/decarbonization-challenge-for-steel#/. [123]

Holub, M. and S. Fuchs (2009), “Mitigating mountain hazards in Austria – legislation, risk transfer, and awareness building”, *Natural Hazards and Earth System Sciences*, Vol. 9/2, pp. 523-537, https://doi.org/10.5194/nhess-9-523-2009. [175]

ICCT (2021), “European Vehicles Market Statistics Pocketbook 2021/22”, https://theicct.org/wp-content/uploads/2021/12/ICCT-EU-Pocketbook-2021-Web-Dec21.pdf. [65]

IEA (2023), “CCUS Policies and Business Models: Building a Commercial Market”, https://www.iea.org/reports/ccus-policies-and-business-models-building-a-commercial-market. [122]

IEA (2023), “Global EV Data Explorer”, https://www.iea.org/data-and-statistics/data-tools/global-ev-data-explorer. [81]

IEA (2023), “Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach”, *2023 Update*, https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach. [120]

IEA (2022), “World Energy Outlook 2022”, https://www.iea.org/reports/world-energy-outlook-2022. [136]

IEA (2021), “Is carbon capture too expensive?”, https://www.iea.org/commentaries/is-carbon-capture-too-expensive. [121]

IEA (2021), *Net Zero by 2050: A roadmap for the energy sector*, International Energy Agency, https://www.iea.org/reports/net-zero-by-2050 (accessed on 8 December 2021). [139]

IEA (2020), “Austia 2020: Energy Policy Review”, https://www.iea.org/reports/austria-2020. [57]

IEA (2020), *Energy Technology Perspectives 2020 - Special Report on Carbon Capture Utilisation and Storage : CCUS in clean energy transitions*, OECD Publishing, Paris, https://doi.org/10.1787/208b66f4-en. [126]

IEA (2019), “The Future of Hydrogen: Seizing today’s opportunities”, https://www.iea.org/reports/the-future-of-hydrogen. [109]

Insurance Europe (2022), “Property catastrophe insurance - Austria”, https://assets.foleon.com/eu-central-1/de-uploads-7e3kk3/48290/property_catastrophe_insurance_-_austria.9122c134f1a1.pdf. [185]

International Forum on Pumped Storage Hydropower (2021), "Austria - Europe", https://pumped-storage-forum.hydropower.org/resources/publications. [95]

IOGP (2022), "CCUS projects in Europe", https://iogpeurope.org/wp-content/uploads/2022/10/Map-of-EU-CCS-Projects-draft-221024.pdf. [124]

IRENA (2023), "Global Hydrogen Trade to Meet the 1.5°C Climate Goal: Green Hydrogen Cost and Potential", *Part II: Technology Review of Hydrogen Carriers*, https://www.irena.org/Publications/2022/May/Global-hydrogen-trade-Cost. [111]

ITF (2021), *ITF Transport Outlook 2021*, OECD Publishing, Paris, https://doi.org/10.1787/16826a30-en. [38]

ITF (2021), "Transport Climate Action Directory – On-demand public transport", https://www.itf-oecd.org/policy/demand-public-transport. [53]

Jedwab, R., J. Barr and J. Brueckner (2022), "Cities Without Skylines: Worldwide Building-Height Gaps and their Possible Determinants and Implications", *Journal of Urban Economics*, Vol. 132, p. 103507, https://doi.org/10.1016/j.jue.2022.103507. [40]

Kanellopoulos, K. et al. (2022), "Blending hydrogen from electrolysis into the European gas grid", *Publications Office of the European Union*, https://publications.jrc.ec.europa.eu/repository/handle/JRC126763. [107]

Kastrop, C. et al. (2019), "The Urban-Rural Divide and Regionally Inclusive Growth in the Digital Age", https://global-solutions-initiative.org/policy_brief/the-urban-rural-divide-and-regionally-inclusive-growth-in-the-digital-age/. [50]

KDZ (2023), "The New Financial Equalization Law – A Compromise With Homework", https://www.kdz.eu/de/aktuelles/blog/das-neue-finanzausgleichsgesetz-ein-kompromiss-mit-hausaufgaben. [21]

KDZ (2021), "Local Government in Austria: Responses to Urban-Rural Challenges", https://issuu.com/kdz_austria/docs/logov_austria_cr0. [44]

Kettner, C. et al. (2023), "Modelling the economy-wide effects of unilateral CO2 pricing under different revenue recycling schemes in Austria - Part B: Potentials for a triple dividend", *FARECarbon Working Paper*, https://farecarbon.joanneum.at/wp-content/uploads/2023/07/FARECarbon_Working_Paper_No_1.pdf. [35]

Kletzan-Slamanig, D. et al. (2023), "Climate-counterproductive subsidies in Austria - an economic and legal assessment of the status quo and reform options", *Unpublished*. [9]

Kletzan-Slamanig, D. et al. (2023), "Fiscal equalization as a lever for implementing the Austrian climate goals. Fields of action and conceptual foundations", https://www.wifo.ac.at/news/der_finanzausgleich_als_hebel_zur_umsetzung_der_oesterreichischen_klimaziele. [16]

Kletzan-Slamanig, D. et al. (2022), "Analyse klimakontraproduktiver Subventionen in Österreich", https://www.wifo.ac.at/news/klimakontraproduktive_subventionen_in_oesterreich. [10]

Klimaactiv (2020), "Heating matrix for single and two-family homes", https://www.energieinstitut.at/tools/matrixweb/. [140]

Koolen, D., M. De Felice and S. Busch (2022), "Flexibility requirements and the role of storage in future European power systems", *Publications Office of the European Union*, https://publications.jrc.ec.europa.eu/repository/handle/JRC130519. [102]

Kreibich, H. et al. (2005), "Flood loss reduction of private households due to building precautionary measures – lessons learned from the Elbe flood in August 2002", *Natural Hazards and Earth System Sciences*, Vol. 5/1, pp. 117-126, https://doi.org/10.5194/nhess-5-117-2005. [180]

Kuik, O. et al. (2017), "Insurance of weather and climate-related disaster risk – Inventory and analysis of mechanisms to support damage prevention in the EU – Final report", *European Commission, Directorate-General for Climate Action*, https://data.europa.eu/doi/10.2834/40222. [188]

Li, B. et al. (2021), "A Brief Climatology of Dunkelflaute Events over and Surrounding the North and Baltic Sea Areas", *Energies*, Vol. 14/20, p. 6508, https://doi.org/10.3390/en14206508. [96]

Maes, M. et al. (2022), "Monitoring exposure to climate-related hazards: Indicator methodology and key results", *OECD Environment Working Papers*, No. 201, OECD Publishing, Paris, https://doi.org/10.1787/da074cb6-en. [170]

Markart, G. et al. (2022), "Flood Protection by Forests in Alpine Watersheds: Lessons Learned from Austrian Case Studies", in *Protective Forests as Ecosystem-based Solution for Disaster Risk Reduction (Eco-DRR)*, IntechOpen, https://doi.org/10.5772/intechopen.99507. [176]

Mayer, P. and J. Tallat-Kelpšaitė (2020), "Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify) - Austria", https://www.eclareon.com/sites/default/files/res_simplify_national_report_at_0.pdf. [92]

Nadel, S. and A. Hinge (2020), "Mandatory Building Performance Standards: A Key Policy for Achieving Climate Goals", *American Council for an Energy-Efficient Economy White Paper*, https://www.aceee.org/white-paper/2020/06/mandatory-building-performance-standards-key-policy-achieving-climate-goals. [165]

Nicholas, M. and M. Bernard (2021), "Success Factors for Electric Carsharing", *ICCT Working Paper*, https://theicct.org/publication/success-factors-for-electric-carsharing/. [75]

Nijs, W., D. Tarvydas and A. Toleikyte (2021), "EU challenges of reducing fossil fuel use in buildings", *European Commission Joint Research Centre*, https://publications.jrc.ec.europa.eu/repository/handle/JRC127122. [137]

Oakley, M. and J. Ahern (2020), "Flood performance certificates", *WPI Economics*, https://wpieconomics.com/site/wp-content/uploads/2020/12/Flood-Performance-Certificates-20201208-Pages.pdf. [182]

OECD (2023), *Assessing and Anticipating Skills for the Green Transition: Unlocking Talent for a Sustainable Future*, Getting Skills Right, OECD Publishing, Paris, https://doi.org/10.1787/28fa0bb5-en. [31]

OECD (2023), *Brick by Brick (Volume 2): Better Housing Policies in the Post-COVID-19 Era*, OECD Publishing, Paris, https://doi.org/10.1787/e91cb19d-en. [43]

OECD (2023), "Governance of Infrastructure: Infrastructure Toolkit", https://infrastructure-toolkit.oecd.org/country/austria/. [13]

OECD (2023), *Job Creation and Local Economic Development 2023: Bridging the Great Green Divide*, OECD Publishing, Paris, https://doi.org/10.1787/21db61c1-en. [27]

OECD (2023), "OECD Affordable Housing Database", https://www.oecd.org/housing/data/affordable-housing-database/. [160]

OECD (2023), *OECD Economic Surveys: European Union and Euro Area 2023*, OECD Publishing, Paris, https://doi.org/10.1787/7ebe8cc3-en. [1]

OECD (2023), *OECD Economic Surveys: Germany 2023*, OECD Publishing, Paris, https://doi.org/10.1787/9642a3f5-en. [89]

OECD (2023), *OECD Economic Surveys: Greece 2023*, OECD Publishing, Paris, https://doi.org/10.1787/c5f11cd5-en. [167]

OECD (2023), *OECD Environmental Performance Reviews: Germany 2023*, OECD Environmental Performance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/f26da7da-en. [4]

OECD (2023), *OECD Inventory of Support Measures for Fossil Fuels: Country Notes*, OECD Publishing, Paris, https://doi.org/10.1787/5a3efe65-en. [6]

OECD (2023), "Patents in environment-related technologies: Technology indicators", *OECD Environment Statistics* (database), https://doi.org/10.1787/e478bcd5-en (accessed on 9 December 2023). [24]

OECD (2023), *Regional Industrial Transitions to Climate Neutrality*, OECD Regional Development Studies, OECD Publishing, Paris, https://doi.org/10.1787/35247cc7-en. [32]

OECD (2022), *Aligning Regional and Local Budgets with Green Objectives: Subnational Green Budgeting Practices and Guidelines*, OECD Multi-level Governance Studies, OECD Publishing, Paris, https://doi.org/10.1787/93b4036f-en. [12]

OECD (2022), *Decarbonising Buildings in Cities and Regions*, OECD Urban Studies, OECD Publishing, Paris, https://doi.org/10.1787/a48ce566-en. [145]

OECD (2022), *Housing Taxation in OECD Countries*, OECD Tax Policy Studies, No. 29, OECD Publishing, Paris, https://doi.org/10.1787/03dfe007-en. [161]

OECD (2022), *OECD Economic Surveys: Norway 2022*, OECD Publishing, Paris, https://doi.org/10.1787/df7b87ab-en. [77]

OECD (2022), *Pricing Greenhouse Gas Emissions: Turning Climate Targets into Climate Action*, OECD Series on Carbon Pricing and Energy Taxation, OECD Publishing, Paris, https://doi.org/10.1787/e9778969-en. [64]

OECD (2021), *Brick by Brick: Building Better Housing Policies*, OECD Publishing, Paris, https://doi.org/10.1787/b453b043-en. [132]

OECD (2021), *Effective Carbon Rates 2021: Pricing Carbon Emissions through Taxes and Emissions Trading*, OECD Series on Carbon Pricing and Energy Taxation, OECD Publishing, Paris, https://doi.org/10.1787/0e8e24f5-en. [68]

OECD (2021), *OECD Economic Surveys: Denmark 2021*, OECD Publishing, Paris, https://doi.org/10.1787/86f7b2d9-en. [113]

OECD (2021), *OECD Regional Outlook 2021: Addressing COVID-19 and Moving to Net Zero Greenhouse Gas Emissions*, OECD Publishing, Paris, https://doi.org/10.1787/17017efe-en. [18]

OECD (2021), "Strengthening adaptation-mitigation linkages for a low-carbon, climate-resilient future", *OECD Environment Policy Papers*, No. 23, OECD Publishing, Paris, https://doi.org/10.1787/6d79ff6a-en. [178]

OECD (2020), "2020 OECD Survey on the Governance of Infrastructure", https://qdd.oecd.org/subject.aspx?Subject=GOV_INFRA. [14]

OECD (2020), *Financing Water Supply, Sanitation and Flood Protection: Challenges in EU Member States and Policy Options*, OECD Studies on Water, OECD Publishing, Paris, https://doi.org/10.1787/6893cdac-en. [184]

OECD (2018), *OECD Reviews of Innovation Policy: Austria 2018*, OECD Reviews of Innovation Policy, OECD Publishing, Paris, https://doi.org/10.1787/9789264309470-en. [23]

OECD (2018), *Rethinking Urban Sprawl: Moving Towards Sustainable Cities*, OECD Publishing, Paris, https://doi.org/10.1787/9789264189881-en. [42]

OECD (2016), *Financial Management of Flood Risk*, OECD Publishing, Paris, https://doi.org/10.1787/9789264257689-en. [173]

OECD (2015), *Governing the City*, OECD Publishing, Paris, https://doi.org/10.1787/9789264226500-en. [45]

OECD (2013), *OECD Environmental Performance Reviews: Austria 2013*, OECD Environmental Performance Reviews, OECD Publishing, Paris, https://doi.org/10.1787/9789264202924-en. [60]

OIB (2020), "Austria Long-term Renovation Strategy", https://energy.ec.europa.eu/system/files/2022-01/at_2020_ltrs_en_0.pdf. [149]

Paetzold, J. (2019), "Do commuting subsidies increase commuting distances? Evidence from a Regression Kink Design", *Regional Science and Urban Economics*, Vol. 75, pp. 136-147, https://doi.org/10.1016/j.regsciurbeco.2019.02.004. [61]

Pelaez Jara, M. (2020), "The Ascending and Fading of a Progressive Policy Instrument: The Climate Change Factor in Southern Germany", *Water*, Vol. 12/4, p. 1050, https://doi.org/10.3390/w12041050. [179]

Plank, K. et al. (2023), "Berücksichtigung der Effective Carbon Rate bei der CO2-Bepreisung", *IHS Policy Brief*, Vol. 2/2023, https://irihs.ihs.ac.at/id/eprint/6589/. [7]

Planoptimo and Verracon (2022), "Investitionsbedarf Radverkehr", https://www.klimaaktiv.at/dam/jcr:2b491b3f-b342-4e7b-8cfd-35701dbee814/Investitionsbedarf_Radverkehr.pdf. [47]

Radu, D. (2022), "Disaster Risk Financing: Limiting the Fiscal Cost of Climate-Related Disasters", *European Commission Discussion Paper* 174, https://economy-finance.ec.europa.eu/publications/disaster-risk-financing-limiting-fiscal-cost-climate-related-disasters_en. [187]

REScoop.eu (2022), “Austria - REC/CEC definitions”, https://www.rescoop.eu/policy/austria-rec-cec-definitions. [93]

Richstein, J. (2017), “Project-Based Carbon Contracts: A Way to Finance Innovative Low-Carbon Investments”, *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.3109302. [127]

Risch, A. (2020), “Are environmental fiscal incentives effective in inducing energy-saving renovations? An econometric evaluation of the French energy tax credit”, *Energy Economics*, Vol. 90, p. 104831, https://doi.org/10.1016/j.eneco.2020.104831. [156]

Sartor, O. and C. Bataille (2019), “Decarbonising basic materials in Europe”, *IDDRI Study* 6, https://www.iddri.org/en/publications-and-events/study/decarbonising-basic-materials-europe. [128]

Sartor, O. and C. Bataille (2019), “Decarbonising basic materials in Europe”, *IDDRI Study* 6, https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Etude/201910-ST0619-CCfDs_0.pdf. [131]

Schamann, M. (2022), “First Soil Strategy of Austria”, *SURFACE Final Conference*, https://www.ufz.de/export/data/464/262037_First%20Soil%20Strategy%20of%20Austria.pdf. [172]

Schnabl, A. et al. (2021), “CO2-relevante Besteuerung und Abgabenleistung der Sektoren in Österreich”, *Wirtschaft Und Gesellschaft*, Vol. 47/2, https://journals.akwien.at/wug/article/view/2021_47_2_0197. [8]

SolarPower Europe (2023), “Global Market Outlook for Solar Power 2023-2027”, https://www.solarpowereurope.org/insights/outlooks/global-market-outlook-for-solar-power-2023-2027. [94]

SolarPower Europe (2022), “European Market Outlook for Residential Battery Storage 2022-2026”, https://www.solarpowereurope.org/insights/thematic-reports/european-market-outlook-for-residential-battery-storage-1. [103]

Somers, J. (2022), “Technologies to decarbonise the EU steel industry”, *Publications Office of the European Union* JRC127468, https://publications.jrc.ec.europa.eu/repository/handle/JRC127468. [119]

Stede, J., M. Blauert and N. May (2021), “Way Off: The Effect of Minimum Distance Regulation on the Deployment and Cost of Wind Power”, *Discussion Papers of DIW Berlin*, https://ideas.repec.org/p/diw/diwwpp/dp1989.html. [90]

Studer, S. and S. Rieder (2019), “What Can Policy-Makers Do to Increase the Effectiveness of Building Renovation Subsidies?”, *Climate*, Vol. 7/2, p. 28, https://doi.org/10.3390/cli7020028. [154]

Sunderland, L. and A. Jahn (2021), “Considering minimum energy performance standards for Germany”, *Regulatory Assistance Project*, https://www.raponline.org/knowledge-center/considering-minimum-energy-performance-standards-for-germany/. [164]

Transport & Environment (2022), “The good tax guide: A comparison of car taxation in Europe”, https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide.pdf. [71]

Umweltbundesamt (2023), “Austria´s National Inventory Report 2023”, https://www.umweltbundesamt.at/studien-reports/publikationsdetail?pub_id=2474&cHash=682457cf175c26a3d9639b6ef68c1c3b. [115]

Umweltbundesamt (2023), “Austria’s Annual Greenhouse Gas Inventory 1990–2021”, https://www.umweltbundesamt.at/fileadmin/site/publikationen/rep0841.pdf. [67]

Umweltbundesamt (2023), “Klimaschutzbericht 2023”, https://www.umweltbundesamt.at/fileadmin/site/publikationen/rep0871bfz.pdf. [2]

Umweltbundesamt (n.d.), “Questions & answers about speed limits”, https://www.umweltbundesamt.at/umweltthemen/mobilitaet/mobilitaetsdaten/tempo/faq-tempolimits. [78]

Unterberger, C. et al. (2019), “Future Public Sector Flood Risk and Risk Sharing Arrangements: An Assessment for Austria”, *Ecological Economics*, Vol. 156, pp. 153-163, https://doi.org/10.1016/j.ecolecon.2018.09.019. [174]

Voestalpine (2023), “Air Emissions”, *Corporate Responsibility Report 2022/23*, https://reports.voestalpine.com/2023/cr-report/environment/air-emissions.html. [116]

Volt, J., M. Fabbri and S. Zuhaib (2020), “Technical study on the possible introduction of optional building renovation passports”, *European Commission, Directorate-General for Energy*, https://data.europa.eu/doi/10.2833/760324. [153]

Wappelhorst, S. (2020), “The end of the road? An overview of combustionengine car phase-out announcements across Europe”, *ICCT Briefing*, https://theicct.org/publication/the-end-of-the-road-an-overview-of-combustion-engine-car-phase-out-announcements-across-europe/. [76]

Wappelhorst, S. et al. (2020), “Analyzing policies to grow the electric vehicle market in european cities”, *International Council on Clean Transportation White Paper*, https://theicct.org/publication/analyzing-policies-to-grow-the-electric-vehicle-market-in-european-cities/. [70]

Wirtschaftsforschungsinstitut (2024), “Der Ökosozialstaat. Handlungsfelder Eines Ökologisch Nachhaltigen Sozialstaates”. [26]

World Bank (n.d.), “Climate Change Knowledge Portal”, *Climate Projections - Mean Projections*, https://climateknowledgeportal.worldbank.org/country/austria/climate-data-projections. [3]

Zabala, C. and A. Diallo (2022), “Study on the performance of support for electricity from renewable sources granted by means of tendering procedures in the Union 2022”, *Publications Office of the European Union*, https://op.europa.eu/en/publication-detail/-/publication/e04f3bb2-649f-11ed-92ed-01aa75ed71a1/language-en?WT_mc_id=Searchresult&WT_ria_c=37085&WT_ria_f=3608&WT_ria_ev=search&WT_URL=https%3A//energy.ec.europa.eu/. [86]

Zimmer, A. and N. Koch (2016), “Fuel Consumption Dynamics in Europe - Implications of Fuel Tax Reforms for Air Pollution and Carbon Emissions from Road Transport”, *SSRN Electronic Journal*, https://doi.org/10.2139/ssrn.2813534. [69]

OECD Economic Surveys

AUSTRIA

Austria's economy performed well over the past two decades. The country's GDP per capita ranks among the highest in the OECD. Income inequalities are relatively low thanks to high redistribution through public transfers, which contributes to a relative poverty rate well below many other OECD countries. The domestic production of energy has a low carbon content largely due to significant hydropower resources. The economy is set to recover from a recession in 2023, but it will do so only slowly and remains fragile. The inflation shock in the wake of Russia's war of aggression against Ukraine is taking time to subside. Public debt has increased substantially, while the public deficit remains close to 3%. Greater capacity of the economy to adapt to future shocks and address structural challenges is needed. Sound public finances and low government debt provide fiscal space and strengthen a country's resilience against short- and long-term shocks. Pension system reforms and efficiency measures in health care can help to mitigate long-term fiscal pressures. Public revenues need to be more friendly to sustainable and inclusive growth by shifting away from high levies on labour towards less growth-distortive taxes. Easing regulation, including strict entry requirements for certain professional services will help efficient allocation of resources towards promising activities and firms. Reducing the gap in skills for disadvantaged students and improving the integration of immigrants will be essential to provide equal access to the labour market. Achieving net zero emissions by 2040 will require a clear and comprehensive strategy including higher and more harmonised carbon prices. High exposure to future climate risks, in particular floods, needs to be addressed, and insurance coverage against natural disasters should be expanded.

SPECIAL FEATURE: ACHIEVING A SUCCESSFUL GREEN TRANSFORMATION IN AUSTRIA

Volume 2024/16
July 2024

PRINT ISBN 978-92-64-34200-2
PDF ISBN 978-92-64-68427-0

ISSN 0376-6438
2024 SUBSCRIPTION
(18 ISSUES)

9 789264 342002