

The competitiveness of the Austrian economy: a review of current assessments by international organizations

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Abstract The paper summarizes key findings and recommendations from recent monitoring reports on the competitiveness of the Austrian economy published by the European Commission, the OECD, and the IMF since 2019. The findings are categorized under three aspects: productivity and economic performance, fair and inclusive growth, and environmental sustainability. The review aims to provide a concise overview of the performance of the Austrian economy and the main challenges it faces, and to highlight proposals for addressing these challenges.

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1. The competitiveness of the Austrian economy: a review of current assessments by international organizations

In this section we review recent assessments of the performance of the Austrian economy by international organisations along three of the four dimensions of competitive sustainability set out in the European Commission's Annual Sustainable Growth Survey.¹ These four dimensions are

- macroeconomic stability,
- productivity and economic performance,
- fair and inclusive growth, and
- environmental sustainability.

They represent stable points of reference in the European Commission's coordination framework of economic policies across EU Member States in the context of the European Semester cycle. They are also a framework of reference of the first monitoring exercise of the Austrian economy undertaken by the Austrian Productivity Board.

In this paper, we examine evidence pertaining to three structural dimensions that impact the medium to long term competitiveness of the Austrian economy. Findings and recommendations concerning macroeconomic stability will not be discussed in this paper. This review aims to succinctly present recent insights into the performance of the Austrian economy and offer a broad overview of the key challenges facing Austria in the medium term. Additionally, it will highlight recommendations put forward to address these issues.

The following sections are a summary of the main findings and recommendations of international monitoring reports on Austria's economy in the period of 2020 to 2022. Whenever a report is published at annual frequency preference was given to the most recent publication. Findings and recommendations are reported and summarised as published. Current developments that may lead to a revision of findings and recommendations especially of the section on macroeconomic stability will be worked out in detail in other parts of the report. The policy recommendations outlined at the end of each section are based on the current state of knowledge at the time of publication of the related reports and primarily focus on structural issues. However, they may not reflect subsequent policy decisions made in 2022. This report does also not evaluate or discuss findings and policy recommendations.

2. Challenges for productivity growth and economic performance²

2.1 General assessment

The European Commission's Transition Performance Index for the year 2021 (TPI 2021)³ measures transition as the capability of a country to achieve and maintain high levels of economic prosperity along several economic, social, and ecological dimensions. In its economic transition sub-index, it combines indicators for wealth, the level of labor productivity, education, ICT use and skills, innovation activities and the industrial base of a country. In this dimension Austria is a good performer and ranks eighth out of 72 countries. It achieves the highest scores in internet use and education expenditures and the weakest scores in ICT use and skills, in the industrial based measured as share of gross value added in GDP,

¹ European Commission (2022a).

² This section also includes results of assessments of the institutional framework conditions (e. g. governance quality) as they are considered important enabling factors for economic performance and productivity growth.

³ European Commission (2022c). See https://research-and-innovation.ec.europa.eu/system/files/2022-03/ec_rtd_tpi-2021-country-profiles.pdf for specific data on Austria. The goal of the TPI is to monitor sustainability along the beyond GDP goals, as outlined by Stiglitz et al. (2009).

and patent filings. The industrial base has declined over time in recent years and scores lowest in the sub-index.

2.2 Productivity dynamics

The European Semester Country Report for Austria for 2022 (ESCRA 2022)⁴ argues that productivity growth in Austria was below the EU average. The decomposition exercises in the OECD Compendium of Productivity Indicators (OECD Prod 2021)⁵ provide further detail on this development. They indicate that the contribution of labor productivity to annual real GDP growth has diminished over the years. Prior to the economic and financial crisis of 2007 to 2009, labor productivity was the main driver of real GDP growth, however, its contribution has substantially decreased. In the period between 2017 and 2019 labor productivity contributed only 0.2 percentage points (pps) to average annual real GDP growth of 2%. Changes in hours worked and employment, otherwise known as changes on the extensive margin, made up the difference. This period saw labor productivity growth driven by changes in capital quality. The contribution of multifactor productivity (MFP) was a mere 0.1 pps.⁶

MFP has dropped over time. The comparison of the periods before and after the economic and financial crisis of 2007 to 2009 illustrates this: In the period 2010 to 2015 average labor productivity growth p. a. was 0.9% and the contribution of MFP amounted to 0.3 pps, whereas in the period 2000 to 2007 average labor productivity growth p. a. was 1.9% and the MFP contribution was 1.4 pps. The drop in labor productivity growth in Austria was thus accompanied by a decline of the contribution of MFP from three quarters to about one third. In the most recent periods this trend has continued.

The examination of labor productivity contributions by industry indicates that the manufacturing sector is the primary contributor. However, prior to the economic and financial crisis of 2007-2009, the business services sector (excluding real estate) was a substantial contributor, and its contribution relative to manufacturing declined from 2010 to 2015. In the period from 2015 to 2019, it even turned negative on average. During this recent period, per available OECD data, manufacturing was the leading driver of labor productivity. The OECD data also reveals that productivity growth primarily stemmed from improvements within sectors rather than shifts towards more productive, high-tech sectors, which is consistent with the findings of the ESCRA 2022. It remains uncertain at this time how productivity dynamics have been impacted by the COVID-19 pandemic and energy crises.

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In 2019, Austria's Gross Fixed Capital Formation (GFCF) was 24.7% of GDP, surpassing the EU27 average of 22% of GDP. Although GFCF experienced a decline following the economic and financial crisis, it has since recovered to pre-crisis levels. Austria's GFCF trend over the long-term parallels that of the EU27, which has seen a decline relative to levels recorded before 2000. Analysis of GFCF by asset classes reveals that the share of investment in dwellings (4.7 pps in 2019, compared to 5.3 pps in 2000), buildings and structures (7.8 pps in 2019, compared to 6.5 pps in 2000), and IT equipment (1.2 pps in 2019,

⁴ European Commission (2022b).

⁵ OECD (2021a).

⁶ The contribution of capital intensity has fallen, suggesting a decrease in labor intensity in the years before the COVID-19 pandemic.

compared to 1.9 pps in 2000) has dropped over time, while investment in machinery and equipment (4.7 pps in 2019 and 2000) and transportation equipment (2.4 pps in 2019, compared to 2.7 pps in 2000) has remained relatively stable. Notably, the share of investment in intellectual property (5.2 pps in 2019, compared to 3.3 pps in 2000) has grown relative to 2020, indicating the rising importance of research and innovation activities and the role of intangible assets in driving investment and productivity growth.

Several international institutions have expressed concern over the heavy reliance of non-financial corporations on bank loans for external financing (see ESCAR 2022). The market-funding ratio was rather low in 2020, standing at 34.2%. The IMF Country Report for Austria 2021 (IMF 2021)⁷ voiced concern over liquidity and inefficiencies in resource allocation among firms following the COVID-19 pandemic and its associated support schemes for firms. The corporate debt-to-income and equity-to-asset ratios have risen during the COVID-19 pandemic, leading to a widening of the equity gap and weakening of balance sheets. A recent analysis by Oesterreichische Nationalbank indicates that this concern may not be relevant.⁸ Broad financial support measures during the COVID-19 pandemic have contributed to more than off-set insolvency rates by increasing cash holdings and deposits as well as equity levels. An IMF analysis indicates that this misallocation of resources may have a negative impact on multifactor productivity and business sector investment. Data on marginal revenue productivity of capital shows a high degree of dispersion, indicating that there could be significant gains from reallocating capital. Another recent analysis by Oesterreichische Nationalbank shows that while capital misallocation is significant in Austria it has declined in the aftermath of the economic and financial crisis 2008.⁹ They also find that financing constraints play a significant role for the reallocation of capital.

2.3 Research and innovation

In 2019, Austria's investment in intellectual property exceeded the EU27 average by 4.8 pps, which aligns with its status as a strong innovator as reflected in the European Innovation Scoreboard 2022 (EIS 2022)¹⁰ and the Global Innovation Index 2022 (GII 2022)¹¹ published by the World Intellectual Property Organisation (WIPO). In the GII 2022, which evaluates the innovation capabilities of countries worldwide based on 81 indicators, Austria ranks seventh out of 132 countries. However, the EIS 2022 indicators indicate that while Austria is a strong innovator, it is not closing the gap to innovation leaders. The country's aggregate EIS score is increasing at a slower rate than the EU average, resulting in a shrinking performance lead and losing ground relative to innovation leaders.

Austria has several long-standing weaknesses in the input factors of the research and innovation process. Research and development (R&D) spending is high and reached 3.23% of GDP in 2021, driven mostly by the private sector. Business R&D expenditures (BERD) as a share of GDP are among the highest in the EU, but this is not matched by spending in higher-education R&D, indicating an imbalance between basic and applied (industrial) R&D. Additionally, the OECD Country Report 2021 (OECD AT 2021)¹² highlights that the share of business R&D in high-tech sectors in overall BERD is too low, due to Austria's industrial specialization in medium to high-tech sectors. A chronic weakness of the Austrian innovation system is the undersupply of private risk capital and equity funding for start-ups and scale-ups, which negatively impacts business dynamics, as noted in both the OECD AT 2021 and the European Innovation Scoreboard 2022 (EIS 2022)¹³. The EIS 2022 also points to unfavourable dynamics in business

⁷ International Monetary Fund (2021)

⁸ See Elsinger et al (2022).

⁹ See Sellner et al (2023).

¹⁰ European Commission (2022d).

¹¹ World Intellectual Property Organisation (2022).

¹² OECD (2021c).

¹³ European Commission (2022c).

process innovations, while the OECD AT 2021 further highlights that the participation rate in lifelong learning activities by the workforce is too low. Firms invest less in internal training compared to other OECD countries with similar levels of economic development.

On the output side, the ESCRA 2022 highlights that the high R&D investments do not result in equally high research and innovation outcomes. This is a well-known and long-standing issue in the efficiency of research investment. Using data from the Community Innovation Survey, the EIS 2022 shows that in recent years, sales of innovative products have been decreasing. Austria's overall ranking in WIPO's GII 2022 is negatively impacted by weak performance in the knowledge and technology outputs as well as creative outputs subindices when compared to peer countries. Additionally, various reports indicate that employment in fast-growing firms is below the EU average, which contributes to structural inertia in the Austrian business sector.

2.4 Digital transition

The IMF Country Report for 2022 (IMF 2022)¹⁴ and the OECD AT 2021 mirror key findings of the European Commission's Digital Economy and Society Index for 2022 (DESI 2022)¹⁵ and urge the Austrian government to accelerate the digital transition in areas where Austria lags EU peers. They note that progress in digital connectivity and the integration of digital technologies would have a positive impact on productivity and the growth potential of the country. The country-specific analysis in the DESI 2022 notes that Austria has already begun implementing several measures aimed at improving the development and adoption of advanced technologies.

Austria is among the leaders in the digitalization of public services in the EU. However, it scores below the EU average in overall fixed broadband uptake, despite above-average performance in the use of 5G mobile networks. The report notes that poor access to higher-speed networks in rural areas is the biggest obstacle to achieving nationwide Gigabit connectivity by 2030. The government's 2030 Broadband Strategy plans to address these issues through specific support measures and public investment in fibre networks in rural areas.

The DESI 2022 is also critical of the small fraction of enterprises using advanced digital technologies such as big data and cloud computing services, while the intensity of more basic digital technologies, especially in SMEs, is high. Generally, there is a shortage of ICT specialists on the labor market, which constrains investments for firms. The IMF 2022 also highlights this issue. The DESI 2022 finally shows that despite this shortage, the share of enterprises providing ICT training has been declining since 2015.

2.5 Enabling factors for economic performance

Enabling factors for economic performance include institutions that support efficient resource allocation, the efficiency and accountability of economic and political transactions, and an economy's ability to adapt to changing competitive, geopolitical, and natural environments in the short and long term.

In the TPI 2021, Austria ranks 14th out of 72 countries in its subindex for the quality of governance. The subindex includes measures for fundamental rights (rule of law, voice and accountability), security, transparency, and sound public finances. Austria scores low on the Basel-anti-money laundering index, negatively affecting its transparency score. Additionally, the increase of government debt as a percentage of GDP over the past years has negatively affected the sound public finances ranking.¹⁶ Scores for

¹⁴ International Monetary Fund (2022).

¹⁵ European Commission (2022e).

¹⁶ Austria has intervened spend more than most other countries on state aid to overcome the COVID-19 pandemic. The State Aid Scorecard (SAS 2021) issued by the European Commission indicates that between 2010 and 2020 Austria has spent 24,5 billion EUR on state aid (58.8%

voice and accountability have also declined over time. The OECD's Government at a Glance 2021 (OECD Gov 2021)¹⁷ study shows that citizen satisfaction with education and health, as well as confidence in the judiciary system is high, but satisfaction in health and education services has decreased since 2010. Confidence in the judiciary system, on the other hand, has increased between 2010 and 2020. The tax and fiscal transfer system also contributes to reducing inequality more than in most other OECD countries.

The ESCRA 2022 concludes that the Austrian public administration is among the most effective in the EU. However, inefficiencies in coordination between ministries and the fragmented responsibilities across different levels of government have a negative impact on government effectiveness. The legislative process is largely transparent, and government decisions and evaluations of legislation are publicly available. Reforms aim to improve public consultations for all legislative proposals throughout the legislative process. On the negative side, the ESCRA 2022 mentions that the duration of administrative cases in the justice system is too long, and complex and lengthy spatial planning and permitting procedures negatively affect investment (as seen also in the Single Market Scoreboard – SMSA 2022)¹⁸. This problem is particularly relevant for energy infrastructure, leading to underinvestment in the electricity grid and renewable energy generation, negatively impacting the ability to reach the renewable energy targets set for 2030.

There are also several issues with competition in Austria, including regulatory restrictiveness in certain professional services that acts as a barrier to entry and negatively affects productivity growth in related service sectors. The OECD AT 2021 also highlights the lack of competition in service sectors as a potential issue for productivity growth. The DESI 2022 also notes increasing difficulties for existing virtual mobile network operators to negotiate competitive wholesale access prices for 5G with their host networks. The ESCRA 2022 also points out that competition in public procurement has deteriorated.

Austria performs worse than most other EU member states in the Single Market Scoreboard, indicating that recent governments have neglected the European Integration process.¹⁹ Austria's transposition deficit has increased with the transposition of 12 directives overdue in 2020. The infringement incidence in Austria in 2020 was above the EU average with 35 pending cases (EU average 31). Compliance time with court rulings, however, is well above the EU average. The case load in 2019 for SOLVIT cases was large.²⁰ Handling time for cases not accepted within 20 days in the home center is very poor, and handling time in the lead center is poor in general. There was also a comparatively high number of technical barriers to Single Market trade notified through the Technical Regulation Information System (TRIS) in 2021 (55), most of which were concentrated in construction. The number of notifications has decreased in 2022.

for notified aid measures, 37.5% in the context of general block exemption regulation - GBER). In 2020 State aid was related to GBER articles on "remedy for serious disturbance in the economy" (60.7%), "environmental protection and energy savings" (21.4%), and "Research and development including innovation" (3.7%). Direct grants represent 60.7% of total State aid spending, 16.5% are interest rate subsidies and 14.5% take the form of guarantees.

¹⁷ OECD (2021d) and country sheet at <https://www.oecd.org/gov/gov-at-a-glance-2021-austria.pdf>.

¹⁸ European Commission (2022f).

¹⁹ Ibid.

²⁰ The SOLVIT network is an online platform within the European Union that helps individuals and businesses in resolving problems related to cross-border services and goods. It helps to address issues pertaining to the free movement of goods and services within the EU, including intellectual property rights, freedom of establishment, mutual recognition criteria, and public procurement regulations.

2.6 Summary of main findings

1. Productivity growth in Austria was below the EU average.
2. The contribution of labor productivity to annual real GDP growth has declined over the years, with changes on the extensive margin driving GDP growth most recently.
3. Multifactor productivity (MFP) has dropped over time.
4. Corporate debt-to-income and equity-to-asset ratios have increased.
5. In research and innovation Austria is not closing the gap to innovation leaders and has even started losing ground relative to them.
6. R&D spending is high and driven by the private sector, but there is an imbalance between spending in higher-education R&D and business R&D.
7. High R&D investments do not translate into equally high research and innovation outcomes.
8. Austria scores below the EU average in overall fixed broadband uptake and above average in the use of 5G mobile networks
9. Poor access to higher speed networks in rural areas is the hurdle to achieve Gigabit connectivity by 2030.
10. Only few enterprises use advanced digital technologies.
11. The shortage of ICT specialists is an investment constraint for firms.
12. The duration of administrative cases in the justice system is too long.
13. Complex and lengthy spatial planning and permitting procedures in turn seen as having a negative effect on investment, especially into renewable energy infrastructure.
14. The lack of competition in several domains is a potential issue for productivity growth
15. Austria performs worse than most other EU member states in the Single Market Scoreboard: the European Integration process has been neglected.

2.7 Policy recommendations²¹

The government should:

1. Implement structural measures to accelerate the digital transition could support productivity growth, raise the country's growth potential, and contribute to the green transition.
2. Design R&D grants for longer-term, higher-risk research and reduce R&D costs through tax incentives.
3. Implement measures supporting firm solvency, complemented by recapitalization programs.
4. Develop policies supporting equity financing and an effective set of insolvency and debt restructuring tools to ensure efficient reallocation of capital.
5. Increase access to high-quality internet to achieve Gigabit connectivity.
6. Strengthen digital competencies should be strengthened by:
 - a. Investing in digital infrastructure, such as expanding broadband access,
 - b. Promoting digitalization of businesses, and
 - c. Integrating digital skill development into school curriculum and training programs.

²¹ Summary of policy recommendations across all reviewed studies.

3. Challenges for fairness and inclusive growth

3.1 General assessment

Austria is widely recognized as one of the top countries for social welfare, as evidenced by various international monitoring exercises. For example, the OECD's Better Life Index for 2020 (OECD Life 2020)²² found that Austria scored above the OECD average for life satisfaction, and the European Commission's TPI 2021 ranking placed Austria among the top performers in the subindex for social transition (covering life expectancy, work and inclusion, time use and equality). However, there are areas where Austria's performance is weaker, such as the employment rate of the population aged 20-64 and the income share held by the poorest quintile.

In the United Nations' Sustainable Development Report Europe 2022 (SDRE 2022)²³, Austria ranks fifth out of 163 countries. While Austria is considered to have achieved the goal of no poverty, there are still challenges in areas such as education and gender equality, as well as in achieving full employment and reducing inequalities. The UN Report also highlights that progress on these issues has been stagnant or only moderately improving over time.

3.2 Income and wealth

While Austria has a high level of disposable household incomes in international comparison, its development has been stagnant. According to the OECD Life 2020, the average household real net adjusted disposable income per capita in Austria is above the OECD average (37,001 USD vs. 30,490 USD a year at purchasing power parities), while average household net wealth is below the OECD average. However, the Joint Employment Report 2022 (JER 2022)²⁴ and the ESCRA 2022 indicate that gross disposable household income per capita has been declining, falling below the level of 2008. The proposal for the Joint Employment Report for 2023 (JERP 2023)²⁵ classifies gross disposable household income growth as "critical" for Austria, in line with Greece, Italy, Spain, and Cyprus.

3.3 Labor market

According to the OECD Employment Outlook 2022(OECD Emp 2022)²⁶, Austria's long-term unemployment rate, defined as a duration of longer than one year, was 31.5% in 2021. This is above the OECD average of 28.4% and showing an upward trend from low absolute levels. However, the employment rate of the working age population (15 to 64 years) was higher than the OECD average at 72% in 2021, and further increased in 2022²⁷. The country assessment in the context of the OECD Better Life Index notes that earnings per year are above the OECD average and earnings losses in case of unemployment are lower compared to the OECD average. However, high labor tax wedges inflate employment costs.²⁸

The ESCRA 2022 states that the potential of the Austrian labor market is underutilized. Participation of women, low-skilled workers, older workers, and people with a migrant background in the labor market is too low. Austria has one of the highest rates of female part-time employment in the EU, and the employment rate of older workers is below the EU average. However, the employment of non-EU-born persons residing in the EU for less than five years has increased from 2020 to 2021.

²² OECD (2020).

²³ Lafortune et al. (2022).

²⁴ European Commission (2022g)

²⁵ European Commission (2022h).

²⁶ OECD (2022).

²⁷ <https://data.oecd.org/emp/employment-rate.htm>

²⁸ OECD (2022), op.cit.

The IMF 2022 highlights imbalances on the labor market. Unusually high vacancies and widespread labor shortages are evidence of increasing skill and regional mismatches that have become more pressing during the recovery phase of the COVID-19 pandemic. The digital transformation will further exacerbate existing skill gaps. Close to three quarters of firms reported having difficulty hiring ICT specialists, while less than 40% of the Austrian population is equipped with above-basic digital skills. The report calls for policies to support the reallocation of workers and reduce these mismatches, such as reskilling programs and relocation assistance, as well as long-term measures to increase labor force participation of older citizens. On the other hand, the report also argues that the COVID-19 pandemic could contribute to amplifying unemployment in vulnerable sectors, especially in employment profiles where a large share of working time could be automated, which is relevant for about 15% of total employment where more than 50% of working time could be automated.

According to the OECD Life 2020 data, Austria generally has a more favorable work-life balance than the average among OECD countries. Specifically, a smaller percentage of people in Austria work very long hours (5% compared to the OECD average of 10%). However, full-time workers in Austria tend to have slightly less personal and leisure time than those in other OECD countries on average (14.5 hours per week compared to 15 hours).

3.4 Education

According to the OECD's Education at a Glance 2021 Report (OECD Edu 2021)²⁹, Austria spends more on education per student than other OECD countries, but less in total. In 2018, public expenditure on primary to tertiary education institutions per full-time student in Austria amounted to 15,717 USD at purchasing power parity (compared to 10,000 US dollars on average among OECD countries). Expenditure at the tertiary level was 20,452 USD per student, which was 3,387 USD above the OECD average. However, the share of GDP devoted to education in Austria is below the OECD average (4.7% versus 4.8%). Between 2012 and 2018, spending per student increased at an average annual growth rate of 0.7%. In 2018, 72% of current expenditures were allocated to staff compensation (compared to 74% on average among OECD countries).

In Austria, socio-economic status has less impact on students' participation in education at levels that rely most heavily on private expenditure, such as Early Childhood Education and Care (ECEC) and tertiary education. Private education expenditures account for less of total education expenditure than on average across the OECD, both at ECEC and tertiary levels. This implies that public-to-private transfers are well below the OECD average at ECEC (0.6% versus 4%) and tertiary levels (1% versus 8%). However, as highlighted in a later section, the Austrian education system strongly perpetuates inequalities by gender and socio-economic background.

The European Commission's Education Training Monitor 2022 (ETM 2022)³⁰ and the OECD Life 2020 index point to high and increasing levels of educational attainment in Austria. The OECD data show that 86% of adults aged 25-64 have completed upper secondary education (compared to 79% on average among OECD countries). The average student scores in reading literacy, mathematics and sciences tend to be close to but slightly above the OECD average. The Vocational Education and Training (VET) system works well in international comparison but needs adjustments. Tertiary attainment of 24-to-35-year-olds has continuously increased (42.4% in 2021). Austria has also the highest shares of science, technology, engineering, and mathematics (STEM) graduates in EU27 (30.6% in 2020). However, no significant increases in women's STEM participation were observed. International student mobility in tertiary education has increased. Austria is successful in attracting foreign students in tertiary education. The share

²⁹ OECD (2021b).

³⁰ European Commission (2022i).

of graduates from abroad is high, but the share of students from low and lower-middle income countries is well below the OECD average (6% versus 29%).

The working load for teachers in Austria is higher in primary education and lower in secondary levels relative to the OECD. In 2020, the average number of teaching hours per year required of a typical teacher in public educational institutions was 814 hours (compared to 791 hours on average among OECD countries) at the primary level, 635 hours at the lower secondary level (compared to 723 hours on average among OECD countries) and 605 hours at the upper secondary level (compared to 635 hours on average among OECD countries). The demographics of teachers shows an unfavourable development in Austria: the proportion of teachers aged at least 50 years varies from 46% at the lower secondary level (compared to 36% on average among OECD countries) to 48% at the upper secondary level (compared to 40% on average among OECD countries) (see OECD Edu 2021).

According to various international monitoring exercises, there are significant deficits in ECEC in Austria. The ETM 2022 notes that ECEC participation (percentage share of children under 3 years old) is below the EU average and falls short of the EU target for early childhood education. Additionally, the ESCRA 2022 argues that the shortage of places in ECEC and the lack of a mandatory quality framework limit participation in early childhood education and negatively impact its quality. Furthermore, Austria is one of only six EU countries that train ECEC educators at a level below bachelor's degree. Staff recruitment for positions in ECEC is becoming increasingly difficult. The OECD AT 2022 also notes that the low density and the organization of the early childcare infrastructure negatively affects women's labor market participation.

The IMF 2022 also highlights that the COVID-19 pandemic has caused significant disruptions to schooling, with potentially negative long-term effects on the development of the labor force. Upper secondary general education was disrupted for 189 days between January 2020 and May 2021. The unemployment rate among 25-to-34-year-olds with below upper secondary attainment increased by 5pps to 20% in 2020 compared to the previous year. Participation of adults in formal and/or non-formal education and training decreased by 40% between the second quarter of 2019 and the second quarter of 2020 (see OECD Edu 2021). The IMF therefore urges the Austrian government to take measures to limit learning losses that can lead to long-term loss of human capital, future earning, and long-term health consequences.

3.5 Inequality in education and earnings

In 2019, Austria spent 26.9% of its GDP on social expenditures, which is higher than the OECD average of 20%³¹. Austria's spending on family and social benefits as well as pensions is above the OECD average. The ESCRA 2022 notes that social transfers have a significant and positive impact on poverty reduction in Austria, including during the COVID-19 pandemic and in response to high inflation and energy prices. However, the OECD Society at a Glance 2019 (OECD Soc 2019)³² found also highlights that transfers are often not well targeted, which leads to less significant impact on socio-economic status and income differences.

The Austrian education system does not significantly contribute to levelling socio-economic status and income differences. The OECD Edu 2021 study shows that the impact of socio-economic status on learning outcomes (PISA achievement in reading) is slightly above the OECD average. Additionally, the impact of educational attainment on earnings inequality is more pronounced in Austria compared to the OECD average.

³¹ These expenditures comprise cash benefits and in-kind provision of goods and services as well as tax breaks targeted at low-income households, the elderly, disabled or sick people, unemployed or young persons. <https://data.oecd.org/social-exp/social-spending.htm#indicator-chart>; see also OECD (2019).

³² OECD (2019), op.cit.

The OECD Life 2020 Index highlights that school choice and access to tertiary education in Austria is heavily influenced by socio-economic and educational family background. Disadvantaged pupils often confront education of lower quality, particularly in digital skills, and schools lack resources to adequately deal with increased diversity. A similar point is taken by the ESCRA 2022 that identified a negative impact on education outcomes for socio-economically disadvantaged people/ people with migrant background, partly due to insufficient resources in focal schools³³. The ETM 2022 of the European Commission notes that experienced teachers are over-represented in rural schools and urban schools with a more balanced socio-economic status of their pupils. However, the report also notes that government measures to increase non-teaching staff in schools, allowing teachers to focus on teaching, have been announced.

Gender differences in education in Austria are consistent with the OECD average. Boys are more likely to repeat a grade at lower secondary education than girls and men are more likely to pursue a vocational track at upper secondary level than women. 25- to 34-year-old women are more likely to achieve tertiary education than men but are underrepresented in STEM fields. Gender inequalities in Austria are most pronounced in earnings, where women with similar tertiary education earn 74% of male earnings.

People with migration background also face significant challenges to achieving self-sufficiency in Austria. The OECD Edu 2021 shows that foreign-born adults have more difficulty finding a job, have a higher likelihood of being neither employed or in education and training (NEET), and are more likely to earn less than their native-born peers. These findings are consistent across OECD countries. However, the variation of young people who are NEET is however considerably smaller in Austria than across the OECD (6 pps vs. 11 pps). The ETM 2022 indicates that migration will put stress on the education system. The number of pupils in the compulsory education system is expected to increase by 5% up to 2030 in the age group 6 to 9 years and by 7% for 10 to 14 years largely due to migration. In 2020/2021, 30.9% of primary school pupils did not use German as conversational language. This puts further stress on the ageing teacher work force.

The ESCRA 2022 also highlights economic disparities across regions. In 2019 GDP per capita as a percentage of the EU average was highest in territories with strong urban centres (149% in Vienna and 151% in Salzburg) and touristic regions in western Austria (136% in Tirol and 137% in Vorarlberg). Rural and peripheral Burgenland is at only 89% of EU's average GDP per capita. High-technology sectors are spatially concentrated. In 2020 Vienna had the highest value-added share (7.2%) followed by Carinthia (4.6%), considerably lower values were observed for Salzburg (2.8%) and Vorarlberg (2.1%). The variation of employment of adults with below upper secondary education varies also widely across regions (18 pps between highest and lowest), as does the enrolment rate in ECEC across regions.

3.6 Life expectancy, health and demography

In 2017, public spending related to old age in Austria was 12% of GDP³⁴, and changes in pension spending between 2010-2017 have increased by 1.2 pps of GDP, with demographics being the primary driving factor and the labor market being the most important moderating factor.³⁵ Total health spending in 2019 was 10.4% of GDP, which is above the EU average of 9.9%. According to the OECD Life 2020 Index, life expectancy at birth in Austria in 2019 was 82 years, slightly above the OECD and EU averages. However, the ESCRA 2022 notes that this has fallen due to excess deaths from COVID-19. Generally, the ESCRA 2022 highlights that access to high-quality care in Austria is elevated by EU standards, with lower treatable mortality rates than the EU average.

The health system in Austria provides a high number of hospital beds, and spending on hospital care per person is higher than in most EU countries. However, the delivery of health care is geographically

³³ These are schools with a disproportionate share of children from disadvantaged backgrounds.

³⁴ Latest year for which OECD data are available <https://stats.oecd.org/index.aspx>.

³⁵ See OECD (2021e); Table 1.1.

fragmented and hospital-centered. According to the 2021 Ageing Report of the European Commission (AGE 2021)³⁶, the demographic shift will put pressure on the sustainability of public expenditure for pensions, healthcare, and long-term care. The cost of long-term care is expected to rise by up to 30% by 2030, and a comprehensive reform of the long-term care system is still pending at the time of the report. Health spending is projected to increase faster in Austria than across the EU, raising concerns about long-term fiscal sustainability of public expenditures for pensions, healthcare, and long-term care. The slowdown in productivity also diminishes the capability to maintain high levels of social and health spending.

The OECD Life 2020 index emphasizes that the higher life expectancy makes long-term care a major policy priority. With declining fertility rates, the old-age dependency ratio³⁷ is expected to double to reach 50% by 2060. There is a need for diversity in care options to better manage work and care responsibilities. The OECD AT 2021 also mentions that long-term care arrangements need adjustments due to the need for an increased labor force participation of women and the generally higher geographical mobility of younger cohorts.

3.7 Summary of main findings

1. Despite high levels of disposable household income, there is a trend of stagnation.
2. The potential of the Austrian labor market is not being fully utilized, with low participation rates among women, low-skilled workers, older workers, and individuals with a migrant background.
3. Labor shortages are likely to become a hindrance to economic growth.
4. Socio-economic status has less impact on students' participation in education at levels that rely heavily on private expenditure.
5. Educational choices remain heavily influenced by socio-economic and educational family background, and access to tertiary education is also widely influenced by the socio-economic status of students' parents.
6. The impact of educational attainment on earnings inequality is more pronounced in Austria compared to the OECD average.
7. Individuals with a migration background face significant challenges in achieving self-sufficiency.
8. The demographic shift in the population will put pressure on the sustainability of public expenditure for pensions, healthcare and long-term care.

3.8 Policy recommendations

The government should:

1. Develop policies and measures to provide financial support for vulnerable households affected by increases in the cost of CO₂.
2. Improve social protection for self-employed individuals to ensure that they have access to the same level of benefits as employees.
3. Emphasize employer-driven training schemes to up-skill long-term unemployed individuals.
4. Implement policies to increase the labor market participation of women, such as providing affordable childcare and flexible work arrangements.

³⁶ European Commission (2021). See https://economy-finance.ec.europa.eu/system/files/2021-05/at_-_ar_2021_final_pension_fiche.pdf for specific data on Austria.

³⁷ The old-age dependency ratio is defined as the number of elderly people at an age when they are generally economically inactive (i. e. 65+) relative to the number of people of working age (i. e. 15- to 64-year-olds).

5. Encourage older workers to remain in the labor force by providing incentives for employers to hire and retain older workers.
6. Implement policies to improve labor market outcomes for disadvantaged groups, such as providing access to education and training opportunities.
7. Address labor market mismatch by increasing spending on training, hiring subsidies, and relocation grants to help address skills and regional mismatches.
8. Implement personalized coaching programs and post-monitoring programs after job placement to improve job search and job retention.
9. Improve the availability of early childcare.
10. Encourage a more balanced use of parental leaves between parents to promote gender equality.
11. Ensure that the long-term care system is adequate and financially sustainable to meet the needs of an aging population.

4. Challenges to achieve environmental sustainability

Austria's environmental performance in terms of sustainability and its ability to achieve carbon neutrality is inconsistent, according to various monitoring assessments.

4.1 General assessment

According to the TPI 2021 of the European Commission, Austria ranks 34th out of 72 countries in the subindex for environmental transition, placing it among the moderate to weak performing nations in the sample. The subindex includes measures for emission reduction, biodiversity, material use, and energy productivity. Austria performs poorly in material use and emissions reduction, and its use of pesticides has a negative impact on biodiversity. Other monitoring exercises provide a more detailed assessment of specific domains related to environmental sustainability.

4.2 GHG-emissions, climate action and the energy transition

According to the ESCRA 2022, while Austria is a leader in renewable energy, with over 80% of its electricity mix coming from renewables, significant investments are still required to reach the goal of 100% renewable electricity consumption by 2030. Austria is not on track to achieve its ambitious target of carbon neutrality by 2040, as emphasized by both the ESCRA 2022 and the OECD AT 2021 survey. Reductions in greenhouse gas (GHG) emissions are not sufficient to meet the binding target for GHG reductions in sectors outside of the EU Emissions Trading System (-36% in 2030 relative to 2005), even when considering measures planned for 2021-2030. The intensity of GHG emissions has decreased slightly relative to gross value added, but it still stood at 30% below the EU average in 2020. The ESCRA 2022 also highlights that Austria's energy efficiency targets for 2030 have a low level of ambition, and improvements in energy efficiency and decarbonization are important to preserve competitiveness in industrial processes in Austria.

The bulk of Austria's emissions come from GHG-intensive sectors active in basic metals, paper and paper products, chemicals and chemical products, petrol and petroleum products, and cement. These industries are concentrated in Upper Austria, Styria, Lower Austria, and Carinthia, meaning that a failure to decarbonize the economy would have strong asymmetric effects across regions and industries. Therefore, the ESCRA 2022 urges Austria to start actions for more sustainable medium-term energy solutions to address Austria's vulnerability to gas supply disruptions. Measures for a sustainable energy transition, centred around energy conservation and investments in green energy, should be scaled up.

The Environmental Implementation Review 2022 (EIR 2022)³⁸ by the European Commission notes that Austria's emissions outside of the Emission Trading Scheme (ETS) in 2019 were slightly above the 2020 target of reducing emissions by -36% relative to 2005. The Climate Action Report 2022 (CAR 2022)³⁹ highlights that Annual Emission Allocations (AEAs) inside the ETS system in 2019 exceeded saved surpluses from previous years used to cover the deficit, whereas for 2020 Austria had a surplus of AEAs. However, reported calculations indicate an emerging gap between the 2030 Effort Sharing Regulation (ESR) emission targets and projected emissions, ranging from -19% (with existing measures) to -9% (with additional measures) by 2030.

The EIR 2022 indicates a financing gap of at least 0.16% of GDP for environmental investments. Despite this, overall financing for environmental investments amounted to approximately 0.44% of GDP annually between 2014-2020. However, investment needs are estimated to be at 0.60% of GDP for 2021-2027 to meet reduction targets. The European Commission's ESCRA 2022 notes that the "eco-social" tax reform should provide a significant boost for the ecological transition, but revenues from

³⁸ European Commission (2022j).

³⁹ European Commission (2022k).

environmental taxes in Austria are still below the EU average, both as a percentage of GDP and of total taxation. The IMF 2022 urges the Austrian government to implement the carbon tax as soon as possible without distorting the planned revenue neutrality plan, as this is a critical step in aiding the energy transition and meeting GHG emission targets. The OECD AT 2021 states that carbon taxes and prices are too low in Austria compared to peer countries, and that climate action remains a major area of focus for Austria. The SDRE 2022 notes significant challenges for Austria in achieving Sustainable Development Goal (SDG) 13 on climate action. Despite these challenges, several reports highlight that national and European support measures have been mobilized or are planned to promote the ecological transformation, such as phasing out fossil fuel boilers with renewable energy-based heating systems supported by measures in the Austrian Recovery and Resilience Plan (RRP). There is awareness of the potential social impact of the green transition in several policy measures, such as allocations under the EC's Just Transition Fund⁴⁰, which also include measures to mitigate the social impact of ecological transition measures. The National Energy and Climate Plan (NECP) defines energy poverty, identifies energy-poor households, and advances an approach to address energy poverty. However, reports indicate that no specific target for reducing energy poverty has been set. The "eco-social" tax reform also includes elements to balance the cost and burden of the ecological transition for low-income households.

4.3 Material use and circular economy

The ESCRA 2022 highlights that while Austria has advanced levels of waste management with a recycling rate well above the EU average, the country has not yet fully decoupled economic growth from waste generation. According to the EIR 2022, the recycling rate for waste treatment was 58.2% in 2019, but progress in circular secondary-material usage has been slow. Austria is behind the EU's top performers in this area. The EIR 2022 also notes that municipal waste generation in Austria is well above the EU average and Austria scores lowest in the subindex for material use in the TPI 2021. This highlights the high material throughput in the Austrian economy and the need for measures supporting recycling, reuse, repair, and better waste management as outlined in the Austrian Recovery and Resilience Plan (RRP).

4.4 Biodiversity and ecosystem health

The health of a country's ecosystem and biodiversity are important indicators of its natural capital, a valuable resource. The ESCRA 2022 reports that while Austria generally has good water and air quality, with compliance in emission reduction commitments for pollutants except for ammonia, there is an imbalance in the management of biodiversity in the country. Austria is a leader in organic farming in the EU, however, there has been a decline in the share of biodiversity-rich agricultural areas and many protected habitats and species are in poor conservation status. The EIR 2022 also notes that the conservation status of more than 75% of forests is poor. Additionally, while air pollution by particulate matter is below the OECD average, it is above the limit set by the World Health Organization. Overall, while there are some positive assessments, there are still challenges to be addressed in preserving and protecting Austria's biodiversity and ecosystem.

4.5 Environmental governance

The EIR 2022 assesses the state of environmental governance in Austria and highlights areas for improvement. According to the report, while digital platforms for public participation in Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) have been established, there are still deficits that limit active participation. Additionally, access to justice to challenge administrative or regulatory decisions is limited and subject to procedural obstacles that may not be in line with EU

⁴⁰ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/finance-and-green-deal/just-transition-mechanism/just-transition-funding-sources_en

law and an infringement procedure by the European Commission related to the implementation of the Aarhus Convention is pending.⁴¹ Furthermore, the report notes that due to the decentralization of complaint handling in Austria, there is a lack of information on how to submit environmental complaints at the federal level, which negatively impacts the handling of such complaints.

4.6 Green jobs and innovation

The 2022 Eco-Innovation Scoreboard (ECO 2022)⁴² places Austria as a top performer in the field of eco-innovation, ranking 3rd in the EU. Austria excels in eco-innovation related patents and academic publications and has a strong performance in socio-economic outcomes such as turnover in eco-industries, which is above the EU average. Additionally, Austria has a high percentage of green jobs in total employment, and active labor market policies, upskilling, and reskilling opportunities are key to support a fair green transition and address labor and skill shortages. However, the sub-index score for eco-innovation activities is just above the EU average, with a low number of ISO14001 certified organizations negatively impacting this score.⁴³

4.7 Summary of main findings

1. Austria is a leader in renewable energy, with more than 80% of its electricity mix coming from renewables.
2. Despite this progress, significant investments are still required to reach the goal of 100% renewable electricity consumption by 2030.
3. Currently, Austria is not on track to achieve its ambitious target of carbon neutrality by 2040.
4. Reductions in greenhouse gas (GHG) emissions are not sufficient to meet the binding target for GHG reductions in sectors outside of the EU Emissions Trading System.
5. The government's energy efficiency targets for 2030 have a low level of ambition.
6. A financing gap of at least 0.16% of GDP for environmental investments has been identified.
7. The "eco-social" tax reform is seen as a potential solution, but revenues from environmental taxes in Austria are still below the EU average as a percentage of GDP and total taxation.
8. No specific target for reducing energy poverty have been set.
9. Austria's economic growth is not yet decoupled from the generation of waste.
10. Municipal waste generation in Austria is well above the EU average.
11. The economy has a high material throughput.
12. Environmental governance in Austria has several issues that need to be addressed.
13. Austria is strong in green innovation and green jobs, representing an opportunity for the country to lead in these areas.

4.8 Policy recommendations⁴⁴

The government should:

1. Accelerate the deployment of renewable energy production and related infrastructure.
2. Implement pricing for GHG emissions to accelerate the green transition.

⁴¹ The Aarhus Convention is an international agreement to protect environmental rights and public health, with a particular focus on the right to access information about the environment.

⁴² European Commission (2022).

⁴³ A discussion of the subindex for eco-innovation inputs is omitted because flawed data are used for this part of the scoreboard.

⁴⁴ In 2022, the Austrian government has taken significant steps towards adapting the country's energy system to align with the goals of the ecological transition. It is important to consider these efforts when interpreting the summary of policy recommendations.

3. Increase energy efficiency in the industry, building, and public sectors.
4. Implement measures to align CO₂ emissions with GHG reduction targets.
5. Ensure the sustainable use of biomass.
6. Implement measures for medium-to-long-term energy security, such as incentives for conservation and fuel switching, strategies to diversify gas supplies, and acceleration of domestic green energy production.
7. Expand public investment in the green and digital transitions, utilizing EU funds and quickly implementing the Austrian RRP.
8. Improve extended producer responsibility systems and increase coverage of waste streams in the circular economy strategy.
9. Prioritize reusable and recyclable waste over incineration.
10. Align national waste management and waste prevention with the revised Waste Framework Directive.
11. Continue to support mapping ecosystems and their services, and integrating ecosystem accounting into national accounts, as well as developing national business and biodiversity platforms, including natural capital accounting systems, and assessing the impact of business on biodiversity.
12. Meet EU air quality standards and maintain downward emissions trends of air pollutants.
13. Ratify the Gothenburg Protocol quickly.
14. Mitigate hydromorphological pressures and counteract nutrient pollution in agricultural areas.
15. Provide adequate funding for river basin management plan measures.
16. Improve access to courts for members of the public to challenge administrative or regulatory decisions related to water, nature, and air quality.
17. Ensure public access to justice to review self-executing regulatory acts that deviate from EU environmental law.
18. Monitor public participation in EIA and SEA processes.
19. Provide information on legislation on nature and nitrates to farmers and duty-holders.
20. Increase public awareness of measures to combat environmental crime.
21. Encourage public bodies at federal and regional levels to publicize options for reporting environmental concerns or violations.

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Appendix

Appendix A: List of referenced reports

	Full Title	Short Title	Full Citation	Reported in Chapter...
1	The 2021 Ageing Report	AGE 2021	European Commission (2021) [AGE 2021]. The 2021 Ageing Report. Publications Office of the European Commission, Luxembourg, DOI: 10.2765/84455, https://economy-finance.ec.europa.eu/system/files/2021-10/ip148_en.pdf	3.6
3	2022 County Report – Austria	ESCRA 2022	European Commission (2022b) [ESCRA 2022]. 2022 Country Report – Austria. SWD(2022) 601 final, https://commission.europa.eu/system/files/2022-05/2022-european-semester-country-report-austria_en.pdf	2.2, 2.3, 2.5, 3.2, 3.3, 3.4, 3.5, 3.6, 4.2, 4.3, 4.4
4	Transition performance index 2021	TPI 2021	European Commission (2022c) [TPI 2021]. Transitions performance index 2021. Publications Office of the European Commission, Luxembourg, DOI: 10.2777/09602, https://ec.europa.eu/assets/rtd/tpi/2021/index.html .	2.1, 2.5, 3.1, 4.3
5	European Innovation Scoreboard 2022	EIS 2022	European Commission (2022d) [EIS 2022]. European Innovation Scoreboard 2022. https://ec.europa.eu/research-and-innovation/en/statistics/performance-indicators/european-innovation-scoreboard/eis , accessed 10.01.2023.	2.3
6	Austria in the Digital Economy and Society Index	DESI 2022	European Commission (2022e) [DESI 2022]. Austria in the Digital Economy and Society Index. https://digital-strategy.ec.europa.eu/en/policies/desi-austria , accessed 10.01.2023.	2.4, 2.5
7	Single Market Scoreboard – Austria	SMSA 2022	European Commission (2022f) [SMSA 2022] Single Market Scoreboard – Austria, https://single-market-scoreboard.ec.europa.eu/countries/austria_en , accessed 10.01.2023.	2.5
8	Joint Employment Report 2022	JER 2022	European Commission (2022g) [JER 2022]. Joint Employment Report 2022, Publications Office of the European Commission, Luxembourg, https://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=8476 .	3.2
9	Proposal for a Joint Employment Report from the Commission and the Council	JERP 2023	European Commission (2022h) [JERP 2023]. Proposal for a Joint Employment Report from the Commission and the Council, COM(2022) 783 final, https://commission.europa.eu/publications/2023-european-semester-proposal-joint-employment-report-report_en .	3.2
10	Education and Training Monitor 2022 – Austria	ETM 2022	European Commission (2022i) [ETM 2022]. Education and Training Monitor 2022 – Austria. Publications Office of the European Commission, Luxembourg, https://op.europa.eu/en/publication-detail/-/publication/0951fc74-66f2-11ed-b14f-01aa75ed71a1/language-en .	3.4, 3.5
11	Environmental Implementation Review 2022 – Austria	EIR 2022	European Commission (2022k) [CAR 2022]. Accelerating the transition to climate neutrality for Europe’s security and prosperity EU Climate Action Progress Report 2022. COM(2022) 514 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0514 .	4.2, 4.3, 4.4, 4.5
12	EU Climate Action Progress Report 2022	CAR 2022	European Commission (2022k) [CAR 2022]. Accelerating the transition to climate neutrality for Europe’s security and prosperity. EU Climate Action Progress Report 2022. COM(2022) 514 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0514 .	4.2
13	European Eco-Innovation Scoreboard 2022 – Country Fiche Austria	ECO 2022	European Commission (2022l) [ECO 2022]. European Eco-Innovation Scoreboard 2022 – Country Fiche Austria, https://circabc.europa.eu/ui/group/96ccdecd-11b4-4a35-a046-30e01459ea9e/library/a4d81e13-566b-49eb-bcdd-5c766eac9b0/details .	4.6
15	State Aid Scoreboard 2021	SAS 2021	European Commission (2022n) [SAS 2021]. State Aid Scoreboard 2021. DG Competition, https://competition-policy.ec.europa.eu/system/files/2022-09/state_aid_scoreboard_note_2021.pdf .	2.5
16	Society at a Glance 2019	OECD Soc 2019	OECD (2019) [OECD Soc 2019], Society at a Glance 2019: OECD Social Indicators, OECD Publishing, Paris, https://doi.org/10.1787/soc_glance-2019-en .	3.5
17	How’s Life? 2020	OECD Life 2020	OECD (2020) [OECD Life 2020], How's Life? 2020: Measuring Well-being, OECD Publishing, Paris, https://doi.org/10.1787/9870c393-en .	3.1, 3.2, 3.3, 3.4, 3.5, 3.6

	Full Title	Short Title	Full Citation	Reported in Chapter...
18	OECD Compendium of Productivity Indicators	OECD Prod 2021	OECD (2021a) [OECD Prod 2021], OECD Compendium of Productivity Indicators, OECD Publishing, Paris, https://doi.org/10.1787/f25cdb25-en , accessed 10.01.2023.	2.2
19	OECD Education at a Glance 2021	OECD Edu 2021	OECD (2021b) [OECD Edu 2021]. Education at a Glance 2021: OECD Indicators, OECD Publishing, Paris, https://dx.doi.org/10.1787/69096873-en .	3.4, 3.5
20	OECD Economic Surveys: Austria 2021	OECD AT 2021	OECD (2021c) [OECD AT 2021]. OECD Economic Surveys: Austria 2021, Paris, https://doi.org/10.1787/eaf9ec79-en .	2.3, 2.4, 2.5, 3.4, 3.6, 4.2
21	Government at a Glance	OECD Gov 2021	OECD (2021d) [OECD Gov 2021]. Government at a Glance 2021, OECD Publishing, Paris, https://doi.org/10.1787/1c258f55-en .	2.5
22	OECD Employment Outlook 2022	OECD Emp 2022	OECD (2022) [OECD Emp 2022]. OECD Employment Outlook 2022: Building Back More Inclusive Labor Markets, OECD Publishing, Paris, https://doi.org/10.1787/1bb305a6-en .	3.3
23	Austria: Selected Issues, Country Report 2021	IMF 2021	International Monetary Fund (2021) [IMF 2021]. Austria: Selected Issues. Country Report No. 2021/204, https://www.imf.org/en/Publications/CR/Issues/2021/09/07/Austria-Selected-Issues-465353 .	2.2
24	Austria: Selected Issues, Country Report 2022	IMF 2022	International Monetary Fund (2022) [IMF 2022]. Austria: 2022. Country Report No. 2022/284, https://www.imf.org/en/Publications/CR/Issues/2022/08/31/Austria-2022-Article-IV-Consultation-Press-Release-Staff-Report-522764 .	2.4, 3.3, 3.4, 4.2
25	Europe Sustainable Development Report 2022	SDRE 2022	Lafortune, G., Fuller, G., Bermont Diaz, L., Kloke-Lesch, A., Koundouri, P., Riccaboni, A. (2022) [SDRE 2022]. Achieving the SDGs: Europe's Compass in a Multipolar World. Europe Sustainable Development Report 2022. SDSN and SDSN Europe, Paris, https://s3.amazonaws.com/sustainabledevelopment.report/2022/europe-sustainable-development-report-2022.pdf .	3.1, 4.2
26	Global Innovation Index 2022	GII 2022	World Intellectual Property Organisation (2022) [GII 2022]. Global Innovation Index 2022. Geneva, https://www.wipo.int/global_innovation_index/en/ .	2.3

Appendix B: Overview of key findings in the reports

2.1 General assessment	
TPI 2021	Austria is a good performer in economic transition (rank #8/72 in subindex), defined as the capability to balance high performances in terms of wealth, education and ICT use and skills, labor productivity, R&D intensity, and industrial base. Weakest scores are in ICT use and skills, in the industrial based measured as share of gross value added in GDP, and patent filings. The industrial base has declined over time and has the lowest score in the category.
EIS 2022	EIS-Score is increasing (4.6%-points) at a rate lower than that of the EU (9.9%-points). The country's performance lead over the EU is becoming smaller. Austria is not able to close the gap to the innovation leaders and is losing ground.
OECD Prod 2021	Contributions to annual GDP growth (2017-2019): Labor productivity: 0.2% (vs. 1.1% OECD average) ; hours worked: +0.4% (vs. -0.4% OECD average).
SDRE 2022	Overall rank: #5/163
GII 2022	Overall rank: #17/132
2.2 Productivity dynamics	
ESCRA 2022	Industrial specialization: The high-technology sectors in 2020 are spatially concentrated. Vienna has the highest value-added share (7.2%), Carinthia (4.6%), considerably lower values for Salzburg (2.8%) and Vorarlberg (2.1%).
DESI 2022	Advanced technologies: Austria is implementing several measures aimed at improving the development and take up of advanced technologies.
OECD Prod 2021	Industry contribution to labor productivity growth (2017-2019): Manufacturing: 0.5%; Mining & utilities: 0.1%; Business services: -0.0%; Construction: -0.1%; Persons employed: 1.4% vs. 1.3% OECD. Decomposition 2019: Multifactor productivity: 0.2%; Capital quality: 0.3%; Capital stock: 0.5%; Hours worked: 0.8%; Investment (gross fixed capital formation) by asset type 2019 (vs. 2000): Intellectual property: 5.2% (3.3%); Other machinery and equipment and weapons systems: 4.7% (4.7%); IT equipment: 1.2% (1.9%); Transport equipment: 2.4% (2.7%); Other buildings and structures: 6.5% (7.8%); Dwellings: 4.7% (5.3%)
IMF 2021, IMF 2022	Liquidity and resource allocation issues in firms following the COVID-19 pandemic: Containment policies led to a sharp fall in turnover especially amongst SMEs and service sector firms. State support policies buffered immediate liquidity needs by firms. Despite liquidity support for firms, the corporate debt-to-income and equity-to-asset ratios have worsened. The equity gap has widened, leading to weakening balance sheets. Unwinding of support could give rise to liquidity shortages, intensify insolvency rates, dampen investment, and negatively affect economic growth in the long run. Evidence indicates that resource misallocation may negatively impact total factor productivity and investment in the business sector. Marginal revenue productivity of capital shows a high dispersion. Gains from allocating capital re-allocation could be substantial.
SDRE 2022	Challenges remain in SDGs 4: quality education (moderately improving) and 9: industry, innovation and infrastructure (moderately improving)
2.3 Research and innovation	
ESCRA 2022	Persistent gap to group of innovation leaders: Austria is not able to close the gap to Innovation Leaders. Productivity growth is below EU average and slow. Productivity growth mostly due to improvements within sectors rather than shifts towards more productive high-tech sectors BERD/GDP: One of highest business expenditure shares on R&D (BERD) in the EU. R&D investments are mostly driven by the private sector; spending in higher-education R&D does not match BERD development Low effectiveness of R&D inputs: High R&D investments do not translate into equally high innovation outcomes. Fast-growing enterprises: Employment in fast-growing firms is below EU average. Equity funding: In undersupply for start-ups and scale-ups.
EIS 2022	Strong decreases since 2021: Job-to-job mobility of HRST, business process innovators, sales of innovative products.
DESI 2022	ICT workforce: The proportion of ICT specialists in the workforce is at the EU average. Below EU average for enterprises providing ICT training.
GII 2022	Human capital and research #11/132 (summary index of 12 indicators) Creative outputs: #26/132
2.4 Digital transition	
ESCRA 2022	ICT-specialists: Shortage of ICT specialists on labor market is potentially an important investment constraint for firms. Digital connectivity: Mixed performance: high 5G coverage but below EU-average household access to fixed high-capacity networks. Opportunities of new digital technologies: High basic level of digital intensity in SMEs but low deployment/use of cloud services, big data. Digitalisation of public sector: Strong e-government services, but in provision of digital services to businesses below EU average.
EIS 2022	Strong decreases since 2015: Enterprises providing ICT training, Innovative SMEs collaborating with others, Government support for business R&D.
DESI 2022	Digital connectivity: Access to higher speeds in rural areas biggest hurdle to achieve nationwide Gigabit connectivity by 2030. Government action planned through 2030 Broadband Strategy and public investments in fibre networks in rural areas. Recent upgrades achieved largely by upgrading already existing cable networks in urban areas as opposed to new investments in fibre.
IMF 2021, IMF	Digital transition: Accelerating the digital transition in areas where Austria lags EU peers, including in digital connecti-

2022 vity and integration of digital technology, will boost productivity and raise the growth potential. Austria is among the **frontrunners in the digitalization of public services and in human capital**. It performs significantly below the EU average for overall fixed broadband take-up. Only a small fraction of enterprises uses big data and cloud computing services. Digitalization in these areas could contribute to the green transition by reducing transport needs and curbing fossil fuel consumption.

SDRE 2022 **Achieved SDGs:** 1: no poverty (maintaining achievement), 7: affordable & clean energy (maintaining achievement)

2.5 Enabling factors for economic performance

ESCRA 2022 **Administrative burden:** High administrative burden (particularly for plant approval) discourages investment by SMEs. **Regulatory restrictiveness:** Is high in certain professional services and act as entry barriers; possibly linked to low productivity growth in services.

Spatial planning and permitting procedures: Complex and lengthy permitting procedures are a general problem, but most relevant for energy infrastructure. They lead to underinvestment in the electricity grid with negative impact on reaching renewable energy targets.

Public procurement: Competition in public procurement has deteriorated. Poor scores in measures of transparency and competition, quality of information as well as the participation of SMEs in procurement processes.

Global supply-chains: Negative effects of disruptions in international supply-chains on enterprises during the COVID pandemic and the Russian invasion of Ukraine.

DESI 2022 **Competition and regulation:** Increasing difficulties for existing mobile virtual network operators to negotiate competitive wholesale access prices for 5G with their host networks. Lack of clear procedures and guidelines for dealing with requests to block websites due to alleged copyright violations.

SMSA 2022 Austria performs worse than most EU member states in the Single Market Scoreboard. Transposition deficit: The transposition deficit of EU directives has worsened in 2022 with 12 directives overdue. Infringements: Infringement incidence in Austria (2020) is above EU average with 35 pending cases (EU average 31). Compliance time with Court rulings is well above EU average. SOLVIT cases: The case load (2019) for Austria is large. The handling time for cases not accepted within 20 days in the home centre is very poor. Handling time in lead center in general is poor. Urgent action is required for staffing.

Technical Regulations: Of 55 technical barriers to Single Market trade notified through TRIS in 2021 26 are concentrated in construction. Number of notifications in 2022 (down to 43).

GII 2022 Institutions: #8/132 (summary index of 7 indicators)

3.1 General assessment

TPI 2021 Austria is among the **global top performers** in this subindex (rank #15/72 in subindex). The subindex includes measures for life expectancy, work and inclusion, free time, and equality. **Weakest performance is in the employment rate** of population aged 20-64 as percent of total population (participation), and in the income share held by the poorest quintile in percent of total income.

OECD Life 2020 **Subjective well-being** measured by life satisfaction scores is **above OECD average** (Austria 7.2/10 vs. 6.7 OECD).

3.2 Income and wealth

ESCRA 2022 **Gross disposable household income** p. c. has been **declining** and since 2019 lies below the 2008 level.

JER 2022/JERP 2023 **Growth is considered "critical"** in Austria (as in Greece, Italy, Spain, and Cyprus). Potential data issues are related to this indicator. Real wages rebound in 2021 but they were decreasing again as of Q2 2022. Real wage growth was trailing behind labor productivity growth both in 2021 and Q2 2022.

OECD Edu 2021 In 2019 Austria spent **26.9% of its GDP on social expenditures** compared to 20% on average across the OECD. Public spending in Austria on family and social benefits as well as pensions are **all above the OECD average**. Austria spends more than most countries on redistribution measures both in the OECD and in the EU. **Transfers** are however **often not well targeted**.

OECD Life 2020 The average household net adjusted **disposable income** per capita is **above OECD average** (37,001 USD vs. 30,490 USD a year), whereas average household **net wealth** is **below OECD average** (309,637 USD vs. 323,960 USD).

Earnings are with 53,132 USD per year on average above OECD average (49,165 USD).

Earnings loss in case of unemployment with 2.3% lower than the OECD average of 5.1%.

SDRG 2022 **Achieved SDGs:** 1: no poverty (maintaining achievement), 7: affordable & clean energy (maintaining achievement). **Challenges remain** in SDG 10: reduced inequalities (stagnating)

3.3 Labor market

ESCRA 2022 **Labor market potential:** Participation of women, low-skilled, older workers, and people with a migrant background too low. One of the highest rates of female part-time employment in EU. Employment rate of older workers below the EU average.

Employment non-EU-born residing < 5 years increased from 2020 to 2021.

GII 2022 **Skills and regional mismatches** are **increasing**, as evidenced by unusually high vacancies and widespread labor shortages. Policies to support the reallocation of workers and reduce these mismatches such as reskilling programs and re-location assistance will ensure that labor supply problems do not further constrain production. Long-term measures to increase labor force participation of older citizens and lower long-term spending pressures from aging population would be advisable.

Labor market restructuring after COVID-19 pandemic: The pandemic could amplify unemployment in vulnerable sectors. About 15% of total employment is in the sectors where more than 50% of working time. could be automatable. Digital transformation will accelerate demand for digital skills, exacerbating existing digital skill gaps. In Austria 74% of firms reported having difficulty hiring ICT specialists, while less than 40 percent of the Austrian population is equipped

with above-basic digital skills.

OECD Life 2020 **Labor force participation** at 72% of working-age population (15 to 64 years) **higher than in OECD** (66%). Long-term unemployment (unemployment >1year) with 1.3% at OECD average. The Vocational Education and Training (VET) system work well in international comparison but needs adjustments. Work-Life-Balance: Fewer employees work very long hours in comparison to the OECD average (5% vs. 10%). Full-time workers devote slightly less of their time on personal care and leisure than OECD countries on average (14.5 hours vs. 15 hours OECD)

3.4 Education

ETM 2022 **School choice** remains **heavily influenced by socio-economic and educational family background**. Access to tertiary education remains widely influenced by the socio-economic status of parents. **Disadvantaged pupils** are often confronted with **digital education of lesser quality**. Schools lack resources to adequately deal with increased diversity reported. Experienced teachers are over-represented in rural schools and urban schools with fewer socio-economic complexities. Government measures to increase non-teaching staff in schools allowing teachers to concentrate on teaching have been announced. **Tertiary attainment** of 24-to-35-year-olds has **continuously increased** (42.4% in 2021). Increase at a 1 percentage point rate relative to 2020. **Highest shares of STEM graduates in EU27** (30,6% in 2020), but no significant increase in women’s STEM participation. **ECEC**: Participation (percentage share of under 3-year-old) **below EU average** and **below the set EU target** concerning early childhood education and tertiary educational attainment. Staff recruitment increasingly difficult in early childhood education and care. Austria remains one of only six EU countries to train **ECEC educators below bachelor level**.

OECD Edu 2021 Due to **transfers** socio-economic status has less impact on students’ participation in education, which is important to promote self-sufficiency by ensuring active social and economic participation of people.

OECD Gov 2021 **Participation in education**: Socio-economic status has less impact on students’ participation in education at levels that rely most heavily on private expenditure (ECEC; tertiary education). Private sources account for less of total expenditure than on average across OECD both at ECEC and tertiary levels. Public-to-private transfers are however well below OECD average at ECEC (0.6% vs. 4%) and tertiary levels (1% vs. 8%) **International student mobility** in tertiary education has increased, but the share of students from low and lower-middle income countries is well below the OECD average (6% vs. 29%). **Learning outcomes and socio-economic status**: The impact of socio-economic status on learning outcomes (PISA achievement in reading) by social status is slightly above OECD average. The impact of educational attainment on earnings inequality is more pronounced in Austria relative to OECD cross country average. **Education investments and working conditions for teachers**: Austria spends more on education per student than OECD peers but less in total: Public expenditure on primary to tertiary educational institutions per full-time student in Austria was 15,717 USD (USD at PPPs) in 2018 (OECD: 10,000 USD). At tertiary level expenditure was at 20,452 USD per student, 3,387 USD above the OECD average. Between 2012 and 2018 **spending per student increased**. The average annual growth rate of expenditures per student of 0.7% p.a. The **share of GDP devoted to education** is below OECD average (4.7% vs. 4.8%) at non-tertiary levels and a higher share at the tertiary level. In 2018 **72% of current expenditures** were allocated to **staff compensation** (OECD: 74%). **Teaching load** is higher in primary education and lower in secondary levels relative to relative to the OECD: The average number of teaching hours per year required of a typical teacher in public educational institutions is 814 hours (OECD: 791) at primary level, 635 hours at lower secondary level (OECD: 723) and 605 hours at upper secondary level (OECD: 635). **Teachers show unfavourable demographics**: The proportion of teachers aged at least 50 years varies from 46% at lower secondary level (OECD: 36%) to 48% at upper secondary level (OECD: 40%). Upper secondary general education was disrupted by 189 days between January 2020 and May 2021. The unemployment rate among 25–34-year-olds with below upper secondary attainment increased by 5 pps. to 20% in 2020 relative to the previous year. Participation of adults in formal and/or non-formal education and training decreased by 40% between the second quarter of 2019 and the second quarter of 2020.

3.5 Inequality in education and earnings

GII 2022 Impact of school closures during the COVID-19 pandemic: School closures caused a significant disruption to learning of the future labor force. Learning loss can transform into a long-term loss in earnings. The impact of the pandemic on human capital accumulation and future earning as well as long-term health consequences is not fully understood and should be monitored.

OECD Life 2020 86% of adults aged 25-64 have completed upper secondary education (OECD average 79%). In PISA Assessments the average student score was 491 in reading literacy, maths and sciences (OECD average 488). Austria’s Youth Coaching is functioning as a useful hub for careers.

SDRG 2022 Challenges remain in SDG 4: quality education (moderately improving)

ESCRA 2022 **Negative impact for socioeconomically disadvantaged people/** people with migrant background, partly due to insufficient resources in focal schools (schools with a disproportionate share of children from disadvantaged backgrounds). **Cross-regional disparities**: In 2019 GDP per capita as a percentage of the EU average was highest in territories with strong urban centres (Vienna: 149%, Salzburg: 151%) and touristic regions in western Austria (Tirol: 136%, Vorarlberg: 137%). Rural and peripheral Burgenland is at only 89% of EU’s average GDP per capita.

OECD Gov 2021	<p>Foreign-born adults have more difficulty finding a job, have a higher likelihood of being neither employed or in education and training (NEET), and are more likely to earn less than their native-born peers. These are consistent findings across OECD countries including Austria.</p> <p>Gender inequalities in Austria are consistent with findings across the OECD: Boys are more likely to repeat a grade at lower secondary education than girls. Men are also more likely to pursue a vocational track at upper secondary level than women. 25–34-year-old women are more likely to achieve tertiary education than men. Women are underrepresented in STEM fields in tertiary education.</p> <p>Gender inequalities in Austria relative to OECD peers are most pronounced in earnings where women with similar tertiary education earn 74% of male earnings. In post-secondary non-tertiary education women earn 84% of males with comparable education on average. Gender differences in employment are smaller in Austria relative to the OECD on average.</p> <p>Cross-regional disparities: The enrolment rate in ECEC varies from 82% in Styria to 95% in Lower Austria. High cross-regional variation is also observed for 15–19-year-old. The variation of employment of adults with below upper secondary education varies widely (18 pps between highest and lowest). The variation of young people who are NEET is considerably smaller in Austria than across the OECD (6 pps vs. 11pps).</p>
SDRG 2022	<p>Challenges remain in SDG 5: gender equality (moderately improving)</p> <p>Significant challenges for SDG achievement 2: zero hunger (moderately improving)</p>

3.6 Life expectancy, health and demography

ESCRA 2022	<p>Life expectancy: Higher than the EU average but fell in 2020 due to deaths from COVID-19.</p> <p>Total health spending: 10.4% of GDP in 2019, which is slightly above EU average (9,9%)</p> <p>Access to high quality care: Health system generally provides high number of hospital beds by EU standards and much higher spending on hospital care per person.</p> <p>Health-service delivery: It is geographically fragmented, and hospital centered.</p> <p>RRP investments in healthcare: 254 Mio Euro (5.6% total RRP).</p> <p>Social protection system and policy measures during COVID-19 pandemic: Social protection system and policy measures have contained social impact of the COVID-19 pandemic.</p> <p>Impact of social transfers on poverty reduction: Impact of social transfers on poverty reduction is considered to be positive and significant.</p> <p>Treatable mortality rates: Lower than the EU average.</p> <p>Demographic trends: The demographic development will put pressure on the sustainability of public expenditure for pensions, healthcare and long-term care.</p> <p>Long-term care spending: The cost is expected to rise by up to 30% by 2030. In 2019-2030, pension A comprehensive reform of the long-term care system is still pending.</p> <p>Health spending: Projected at a 1.2 pps increase by of GDP by 2070 (EU: 0.9 pps). The projection raises long-term fiscal sustainability concerns.</p>
ETM 2022	<p>Number of pupils: The number of pupils in the compulsory education system is expected to increase by 5% up to 2030 in the age group 6 to 9 years and by 7% for 10 to 14 years. This is largely due to migration. In 2020/2021, 30.9% of primary school pupils did not use German as conversational language.</p> <p>With an ageing teacher workforce, teacher shortages may emerge. About one third of all teachers in Austria are aged 55 or more, around the EU average of 31.7%</p>
OECD Edu 2021	<p>In the OECD men and women can expect to spend respectively 17.8 and 22.5 years in retirement on average. Expected years in retirement exceed 20 years for men in Austria and 25 years for women. Life expectancy in 2021 was 78.8 for men, and 83.76 for women, fertility rate was at 1.48 (see Statistics Austria – Demographische Zeitreihenindikatoren)</p>
OECD Life 2020	<p>Life expectancy at birth in Austria is 82 years (OECD average 81).</p> <p>Higher life expectancy makes long-term care a major policy priority. With declining fertility rates old-age dependency ratios are expected to double to reach 50% by 2060. Diversity in care options to better manage work and care responsibilities are needed.</p>
SDRG 2022	<p>Significant challenges for SDG achievement 3: good health and well-being (moderately improving)</p>

Additionally: Community, Safety and Housing

OECD Life 2020	<p>92% of people believe that they know someone they could rely on in a time of need (OECD average of 91%).</p> <p>The subjective feeling of personal security is above OECD average (86% vs. 74%). The homicide rate is well below OECD average (0.5 persons per 100k population vs. 2.6).</p> <p>Households spend slightly more than the OECD average of their gross adjusted disposable income on housing (approx. 21% vs. 20% in 2020). The average home is slightly smaller than OECD average (1.6 vs. 1.7 rooms per person).</p>
SDRG 2022	<p>Challenges remain in SDGs 11: sustainable cities and communities (on track for SDG achievement), 16: peace, justice and strong institutions (moderately improving)</p>

4.1 General assessment

TPI 2021	<p>Austria is in the group of moderate to weak performers (rank #34/72 countries) in the subindex for environmental transition. The subindex includes measures for emission reduction, biodiversity, material use, and energy productivity. Austria performs very poorly in the material (use) footprint in terms of tons per capita per year (consumption and production), resource productivity in terms of ppp\$ per kg, and emission reductions in terms of tons per capita. The use of pesticide per area of cropland (kg/ha) has been increasing negatively impacting biodiversity. The report highlights that this result reflects strongly national policy choices and priorities.</p>
ECO 2022	<p>In the Eco-Innovation Index 2021 Austria ranked 3rd in the EU.</p>

4.2 GHG-emissions, climate action and the energy transition	
ESCRA 2022	<p>Austria not on track to meet its ambitious target of climate neutrality by 2040. Reductions in greenhouse gas (GHG) emissions are not on a trajectory for the binding GHG-reduction target in sectors outside the EU Emissions Trading System (-36% in 2030 relative to 2005) considering measures planned for 2021-2030. The degree of electrification of road transport and railway lies above EU average. The intensity of GHG-emissions relative to gross value added decreased slightly and stood at 30% below the EU average in 2020.</p> <p>Energy efficiency targets for 2030 are low in ambition. The Austrian RRP supports the phasing out of fossil fuel boilers with renewable energy- based heating systems.</p> <p>Increase of energy efficiency and decarbonization important to preserve competitiveness in industrial processes. Austria is leading in renewable energy. More than 80% of the country's electricity mix comes from renewables. Significant investment still required to reach 100% renewable electricity consumption target by 2030.</p> <p>The majority of emissions in Austria come from GHG-intensive sectors: (i) basic metals, (ii) paper and paper products, (iii) chemicals and chemical products, (iv) petrol and petroleum products and (v) cement and are concentrated in Upper Austria, Styria, Lower Austria, and Carinthia.</p>
EIR 2022/CAR 2022	<p>Non-ETS emissions in 2019 were slightly above the 2020 target of reducing by -36 % compared to 2005. From Climate Action Report 2022: Annual emission allocation (AEAs) exceeded in 2019 saved surpluses from previous years used to cover the deficit. For 2020 Austria had a surplus of AEAs.</p> <p>Gap between 2030 Effort Sharing Regulation (ESR) emission targets and projected emissions between -19% (with existing measures) and - 9% (with additional measures).</p> <p>Overall financing for environmental investments approx. 0.44 % of GDP annually between 2014-2020. Investment needs are estimated at over 0.60 % of GDP for 2021-2027 resulting in a financing gap of at least 0.16 % of GDP.</p>
IMF 2021, IMF 2022	<p>Austria is vulnerable to gas supply disruptions. Measures for a sustainable energy transition, centered around energy conservation and investments in green energy are needed. The planned introduction of the carbon tax is a critical step to aid the energy transition and should be implemented soon, without distorting the envisaged revenue neutrality plan.</p>
SDRE 2022	<p>Achieved SDG: 7: affordable & clean energy (maintaining achievement).</p> <p>Challenges remain in SDG 11: sustainable cities and communities (on track for SDG achievement)</p>
4.3 Material use and circular economy	
ESCRA 2022	<p>Economic growth is not yet decoupled from the generation of waste. Austria has an advanced level of waste management; the municipal waste recycling rate is above EU average. Slow progress in circular secondary-material usage over the past decade. In this area Austria has reduced its gap to the EU average, but behind the EU's top performers.</p> <p>Development is in line with and stable around the EU average in recent years. The Austrian RRP includes measures supporting recycling, reuse, repair, and better waste management.</p>
EIR 2022/CAR 2022	<p>Austria is one of the leading countries for waste treatment (recycling rate 58.2 % in 2019). Its circular material use rate is below the EU average. Generation of municipal waste well above EU average (588 kg vs 502 kg p.c.).</p>
ECO 2022	<p>Ressource efficiency outcomes: The subindex score is above EU average. Below EU-average performance in the material productivity indicator.</p>
4.4 Biodiversity and ecosystem health	
ESCRA 2022	<p>Austria is a frontrunner in organic farming in the EU, but significant declines have been observed in the share of biodiversity-rich agricultural areas.</p> <p>Many protected habitats and species are in an unfavourable conservation status.</p>
EIR 2022/CAR 2022	<p>Austria's performance in this dimension is mixed. It has the highest share if ecological farming in the EU. The status of many habitats and species continue to deteriorate and the conservation status of more than 75% of forests is poor. Water and air quality are good. Austria complies with emission reduction commitments for pollutants apart from ammonia.</p>
SDRE 2022	<p>Significant challenges for SDG 15: life on land (stagnating)</p> <p>Challenges remain in SDG 6: clean water and sanitation (on track for SDG achievement)</p>
OECD Life 2020	<p>Satisfaction with water quality is higher than in the OECD on average (92% vs. 84%). PM2.5 levels are lower than the OECD average (12.2 micrograms per cubic meter vs. 14 micrograms per cubic meter), but higher limit of 10 micrograms per cubic meter set by the World Health Organization.</p>
4.5 Environmental governance	
EIR 2022/ CAR 2022	<p>While digital platforms for public participation in Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) have been set up, these show some deficits that limit participation. Access to justice to challenge several relevant administrative or regulatory decisions are in some cases restricted and subject to procedural obstacles incompatible with EU law. An infringement procedure related to the implementation of the Aarhus Convention is pending.</p>
4.6 Green jobs and innovation	
ESCRA 2022	<p>Awareness of the potential social impact of the green transition is present in several policy measures. The 'eco-social tax reform' and the allocation under the Just Transition Fund include measures to mitigate social impact of ecological transition measures. The National Energy and Climate Plan (NECP) defines energy poverty, identifies energy poor households and advances an approach to address energy poverty. However, no specific target for reducing energy poverty is set. Energy poverty reduction measures are planned in RRP.</p>
JER 2022/ JERP 2023	<p>The share of green jobs in total employment is one of the highest in the EU (at 4%) and increasing. Effective active labor market policies as well as upskilling and reskilling opportunities remain key to support a fair green transition and</p>

address labor and skills.

ECO 2022

Eco-innovation input: The subindex score is below EU-average. Results driven by Government environmental and energy R&D appropriations and outlays (GBARD) and the total value of green early-stage investments per capita. (Remark: Both indicators are potentially flawed, as data on socio-economic objectives in AT unreliable).

Eco-innovation activities: The subindex score is just above EU average. The low number of ISO14001 registered organisations negatively impacts the result.

Eco-innovation outputs: The subindex score is above the EU average. High performance in eco-innovation related patents and academic publications.

Socio-economic output: The subindex is well above the EU average. Highest deviation in the indicators for employment in eco-industries and the turnover in eco-industries.