WIFO ■ REPORTS ON AUSTRIA
2/2025

The WIFO Radar of Competitiveness for the Austrian Economy 2024

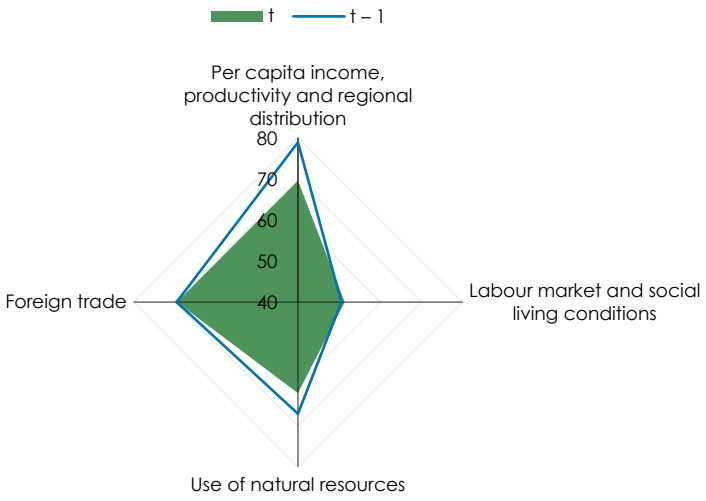
Michael Peneder, Benjamin Bittschi, Anna Burton,
Angela Köppl, Thomas Url

The WIFO Radar of Competitiveness for the Austrian Economy 2024

Michael Peneder, Benjamin Bittschi, Anna Burton, Angela Köppl, Thomas Url

- Austria is steadily losing ground in the WIFO Radar of Competitiveness. Across 24 indicators, it recently only achieved an average percentile rank of 61.6 (–3.7 percentile ranks compared to the previous year). The decline amounts to 4.7 percentile ranks in a three-year comparison and 7.4 percentile ranks in a ten-year comparison.
- In the dimension of "real income, productivity and regional distribution", Austria is only just in the top third of the European comparison countries. The recent loss of position is primarily due to the significant decline in multi-factor productivity.
- In the "foreign trade" dimension, Austria deteriorated by 6.7 points relative to the comparison countries to a percentile rank of 60.0, mainly due to the relatively weaker momentum of Austrian goods exports and small market share losses in tourism.
- Austria also lost ground in of the dimension "use of natural resources" (–4.4 percentile ranks to 63.1), only recently catching up in terms of the indicator on energy intensity.
- In the dimension of "labour market and social living conditions", Austria still only ranks in the middle of the European field (percentile rank 51.3), but improved slightly compared to the previous year.

Austria's position in four dimensions of competitiveness



The average percentile ranks indicate the proportion of all countries that are equally or less competitive than Austria. Austria's position has deteriorated compared to the previous year in terms of both volume per capita income and the utilisation of natural resources (source: WIFO).

"Austria continues to slip down the WIFO Radar of Competitiveness."

The WIFO Radar of Competitiveness for the Austrian Economy 2024

Michael Peneder, Benjamin Bittschi, Anna Burton, Angela Köppl, Thomas Url

January 2025

The WIFO Radar of Competitiveness for the Austrian Economy 2024

The WIFO Radar of Competitiveness tracks Austria's performance as a business location, taking into account economic, social and ecological targets. On average across 24 indicators, Austria has fallen behind both year-on-year and in a longer-term comparison. The main reasons for this were the particularly poor productivity performance compared to the benchmark countries, the slower growth in goods exports and the loss of position in the efficient use of natural resources. In the dimension of labour market and social conditions, Austria's position remained unchanged compared to the previous year.

JEL-Codes: E22, E23, E24, O52 • **Keywords:** Competitiveness, quality of location, productivity, social living conditions, resource efficiency, intensity of competition

This article is based on the interdisciplinary cooperation of the WIFO thematic platform "Competitiveness": https://www.wifo.ac.at/en/research/thematic-platforms/competitiveness/.

Scientific referee: Stefan Ederer • **Research assistance:** Anna Albert (anna.albert@wifo.ac.at), Ursula Glauninger (ursula.glauninger@wifo.ac.at), Susanne Markytan (susanne.markytan@wifo.ac.at), Maria Riegler (maria.riegler@wifo.ac.at), Anna Strauss-Kollin (anna.strauss-kollin@wifo.ac.at) • **Cut-off date:** 10 January 2025

Contact: Michael Peneder (michael.peneder@wifo.ac.at), Benjamin Bittschi (benjamin.bittschi@wifo.ac.at), Anna Burton (anna.burton@wifo.ac.at), Angela Köppl (angela.koeppl@wifo.ac.at), Thomas Url (thomas.url@wifo.ac.at)

Imprint: Publisher: Gabriel Felbermayr • Editor-in-Chief: Hans Pitlik (hans.pitlik@wifo.ac.at) • Editorial team: Tamara Fellinger, Christoph Lorenz, Tatjana Weber • Media owner (publisher), producer: Austrian Institute of Economic Research • 1030 Vienna, Arsenal, Objekt 20 • Tel. (+43 1) 798 26 01-0, https://reportsonaustria.wifo.ac.at/ • Place of publishing and production: Vienna • 2025/RoA/7496

1. Introduction

The WIFO Radar measures Austria's ability to earn high real incomes and continuously improve social and ecological living conditions.

The annual WIFO Radar measures the competitiveness of the Austrian economy in a European comparison along four dimensions (see box "The WIFO Radar of Competitiveness"):

- volume of income and productivity, including regional distribution,
- labour market and social living conditions,
- use of natural resources and
- foreign trade.

In addition to the description of the indicators, Table 1 also contains the data sources, the number of comparison countries and the most recent year for which the respective data series is available. Most of the "Radar" indicators are available until 2023, but some are only available until 2022 or 2021. Figure 1 summarises the results for the main indicators, while Figure 2 shows selected additional indicators. The homepage of the WIFO thematic platform "Competitiveness" also offers the possibility of interactive use of the WIFO Radar for targeted queries (e.g. by restricting the time period or the European comparison countries)[1]. The selection of current publications available online on the thematic platform[2] refers to the numerous in-depth analyses by WIFO on selected aspects of competitiveness. This year's focus topic summarises selected results of an investigation into the intensity of competition based on Austrian company data.

[1] See https://www.wifo.ac.at/en/research/thematic-platforms/competitiveness/.

[2] Recent examples of in-depth studies by WIFO on the topic of competitiveness include Bärenthaler-Sieber et al. (2024), Bittschi and Meyer (2024), Breuss (2024), Christen (2024), Fidrmuc et al. (2024), Kügler et al. (2024), Janger (2024), Oberhofer et al. (2024), Peneder (2024), Wolfmayr et al. (2024) and Woolford et al. (2024).

Table 1: **Selected key figures for competitiveness**

	Definition of	Source	Last available year *t*	Number of countries[1]
Main indicators				
Economic output	GDP per capita, in real terms in € at 2015 prices	WDS – WIFO Data System, Macrobond	2023	31
Labour productivity	GDP per hour worked, value, EU 27 = 100[2]	Eurostat	2023	28
Multifactor productivity	Growth contribution in percentage points, two-year average	TED – Total Economy Database, Conference Board	2023	31
Energy intensity	Final energy use per unit of GDP, PJ per billion €, at 2015 prices	IEA World Energy Balances; WDS – WIFO Data System, Macrobond	2022	31
CO_2 intensity	CO_2 emissions per unit of GDP, kt per billion €, at 2015 prices	UNFCCC GHG Data Interface; WDS – WIFO Data System, Macrobond	2022	31
Share of renewable energy sources	Share of renewable energy sources in final energy consumption in percent[3]	Eurostat	2022	29
Risk of poverty	Percentage of persons with 60 percent or less of median equivalised income, by social benefits[4]	Eurostat	2023	29
Unemployment rate	Percentage of unemployed as a percentage of total labour force aged 15 to 64[5]	Eurostat	2023	30
Employment rate	Percentage of employees among all 15- to 64-year-olds[5]	Eurostat	2023	30
Income distribution	Ratio of the disposable income of the 20 percent of the population with the highest to the 20 per-cent with the lowest disposable income[4]	Eurostat	2023	29
Regional cohesion	Coefficient of variation of gross regional product per capita at purchasing power parities by NUTS 3 regions[6]	ARDECO – Annual Regional Database of the European Commission	2021	27
Current account balance	Current account balance as a percentage of GDP[5]	Eurostat	2023	30
Supplementary indicators				
Per capita income (adjusted for purchasing power)	GDP per capita at purchasing power parity, at 2021 prices	Conference Board, TED – Total Economy Database	2023	31
GDP per capita metropolitan regions	Gross regional product per capita at purchasing power parities for the metropolitan regions of the EU[6]	ARDECO – Annual Regional Database of the European Commission	2021	27
GDP per capita non-metropolitan regions	Gross regional product per capita at purchasing power parities for the non-metropolitan regions of the EU[6]	ARDECO – Annual Regional Database of the European Commission	2021	27
Employment rate in full-time equivalents	Percentage of employees in full-time equivalents, of all 15- to 64-year-olds[5]	Eurostat, Labour Force Survey, special evaluation	2023	30
Employment gender gap	Difference in the employment rate between men and women (25 to 44-year-olds, full-time equivalents) in percentage points[5]	Eurostat, Labour Force Survey, special evaluation	2023	30
NEET rate	Percentage of inactive persons not participating in education or training out of all 18- to 24-year-olds[5]	Eurostat	2023	30
Further training	Percentage of persons taking part in education or training out of all 25- to 64-year-olds[5]	Eurostat	2023	30
Energy dependency	Share of net energy imports in gross domestic energy consumption in percent[7,8]	Eurostat; IEA	2022	30
Modal split freight transport	Ratio of transport by rail to transport by road in tkm[5]	Eurostat	2022	30
Environmental patents	Percentage of environmental and climate-related patent applications out of all patent applications at the European Patent Office (EPO; average of the last 3 years)	Patstat, OECD definition	2021	31
Market share of goods exports	Percentage market share of global goods exports	WDS - WIFO Data System, Macrobond	2023	31
Market share of tourism exports	Percentage market share of global exports of travel services (excluding passenger transport)	Macrobond, WIFO calculations	2023	31

Source: WIFO presentation. – [1] EU 27, Switzerland, Iceland, Norway, UK. – [2] Excluding France, Malta, UK; Switzerland: latest figure for 2020; Belgium, Croatia, Iceland, Norway: latest figure for 2021. – [3] Excluding Switzerland, UK. – [4] Excluding Iceland, UK. – [5] Excluding the UK. – [6] Excluding Cyprus, Malta, Luxembourg, Iceland. – [7] Excluding Norway. – [8] Malta: most recent value 2022.

The WIFO Radar of Competitiveness

The WIFO Radar provides a brief classification of the competitiveness of the Austrian economy in comparison with around 30 European countries, over four time periods and for 24 performance indicators (Peneder et al., 2020). In order to make the indicators measured in different units comparable, only Austria's relative position is shown for each indicator and standardised to a percentile rank[1]. Unlike simple ranking figures, these values are comparable even if observations are not available for the same number of comparison countries for all indicators. In addition, the percentile rank directly indicates the relative position in a distribution and allows the simple formation of mean values to aggregate the results.

For each indicator, the percentile rank indicates the proportion of countries with the same or less favourable values than Austria in the population of comparison countries. All indicators are defined in such a way that the most favourable values in terms of competitiveness are on the outside of the beam and correspond to a percentile rank of 100. The lower Austria's percentile rank, the less favourable its relative ranking. For example, a percentile rank of 60 means that 60 percent of all countries in the comparison group perform equally well or worse and 40 percent better than Austria. In addition to this comparison across the countries for the last available year t, the WIFO Radar also shows Austria's relative position at the points in time $t-1$, $t-3$ and $t-10$. This enables a short, medium and long-term comparison.

[1] Figures 1 and 2 show the percentile ranks for 24 key figures, while in the foreign trade dimension another indicator (or a group of related key figures) is shown separately due to the specific measurement method.

2. Indicators and results

2.1 Real income, productivity and regional distribution

The percentile rank is the proportion of all countries with equal or less favourable values than Austria.

With a percentile rank of 71.0, Austria is just in the top third of 31 European countries in terms of economic output measured by volume **per capita**. Its position has not changed over the past three years and has deteriorated by one place over the past ten years (Figure 1). **Adjusted for purchasing power**, Austria performs better in terms of GDP per capita: with a percentile rank of 83.9 in 2023, it was in the top fifth of the comparison countries, as it was three and ten years earlier (Figure 2).

Stable relative growth in GDP per capita and labour productivity was offset by a significant deterioration in multifactor productivity in 2023.

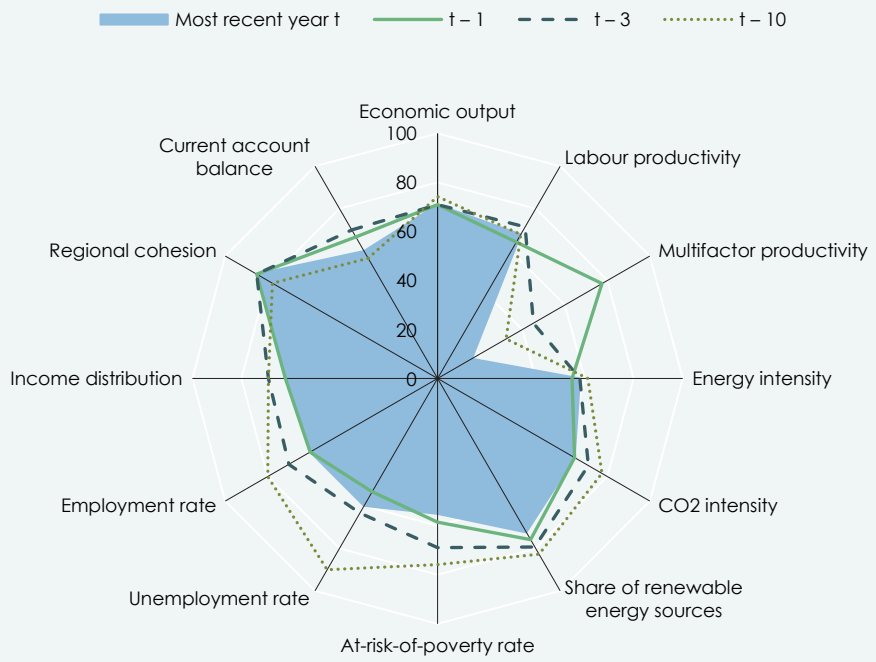
In terms of **labour productivity**, measured as the value of GDP per hour worked, Austria again improved slightly compared to the previous year with a percentile rank of 67.9 and was most recently in the same position as 10 years ago. In contrast, the development of **multifactor productivity** shows by far the greatest annual fluctuations of the indicators analysed. Contrary to theoretical assumptions, this indicator, which is the residual value after deducting the contributions of all input factors from the value added, reacts strongly to economic fluctuations and thus also to the 1.0 percent decline in economic output in 2023 (Schiman-Vukan & Ederer, 2024). Following an increase of 1.9 percent in 2022, Austria's multifactor productivity fell by –2.7 percent in 2023, according to estimates by the Conference Board[3], significantly faster than the average for comparable countries (–1.1 percent). This resulted in a slump in the percentile rank from 77.4 (2022) to 16.1 (2023). As the indicator measures annual changes, there can always be major shifts in position compared to the comparison countries.

The variation in purchasing power-adjusted per capita income is a key indicator of **regional cohesion**, i.e. social and economic cohesion in a region through shared values, social integration and balanced economic development. Austria has established itself in the top fifth in a European comparison: in 2021 – the last year for which data is available – Austria once again achieved fifth place with a percentile rank of 85.2, a position it has held since 2017[4]. This success underlines the positive momentum over the last two decades: between 1995 and 2015, Austria improved by 10 ranks and reached 7th place (77.8 points) in the early 2010s. This means that, alongside Norway, Austria has achieved the largest relative increase in Europe since 1995, which indicates the long-term effectiveness of the measures for regional equalisation. In contrast, countries such as the Czech Republic (–21 places), Romania (–12 places), Ireland and Bulgaria (–11 places each) have fallen significantly since 1995. The ranking has been led by Finland since 2016, after Sweden had previously held the top position for two decades.

[3]) https://www.conference-board.org/data/economydatabase.

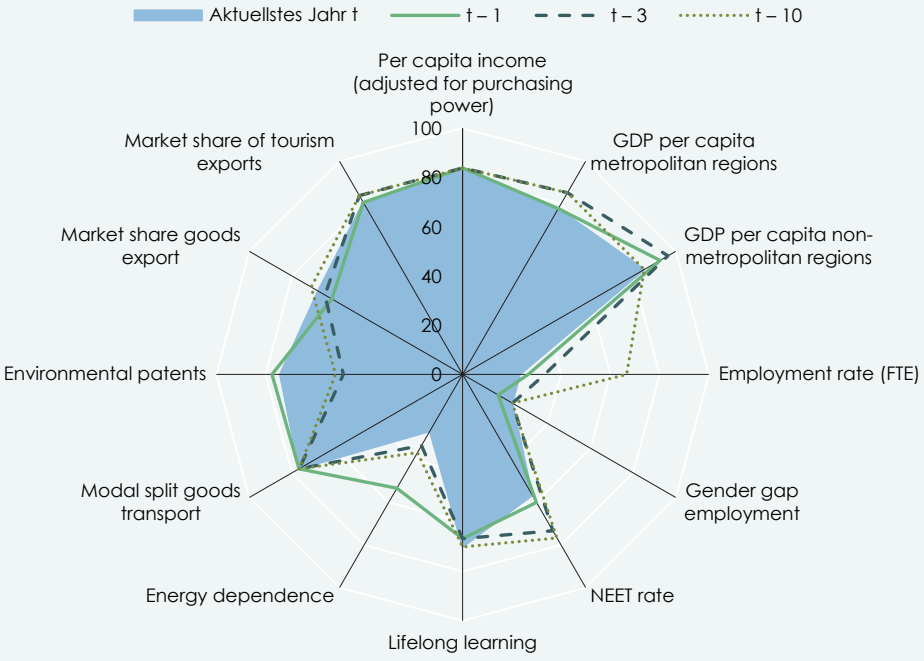
[4]) The analysis is based on data for 1,379 NUTS 3 regions in 27 countries. These include the EU 27 as well as Norway, the UK and Switzerland. Luxembourg, Cyprus and Malta are not included in the analysis due to their size and the associated imprecision in the data. In Austria, a distinction is made between 35 NUTS 3 regions.

Figure 1: **Austria's competitiveness in a European comparison – percentile rank of the main indicators**



Source: Eurostat; Statistics Austria; WIFO calculations, Macrobond. The production indices (base year 2021) and gross value added (base year 2015) were rebased to 2017 = 100 for better comparability.

Figure 2: **Austria's competitiveness in a European comparison – percentile rank of the complementary indicators**



Source: WIFO. For the definition of the indicators, see Table 1. All indicators were ranked in such a way that a higher percentile rank corresponds to higher competitiveness.

Per capita income varies significantly between **metropolitan regions and non-metropolitan regions**[5]. Data at regional level (NUTS 3) is only available with some delay and could therefore only be analysed for the years up to 2021. In the Austrian metropolitan regions, the gross regional product (GRP) per capita adjusted for purchasing power has deteriorated noticeably in the last two years compared to urban areas in other European countries. After ranking 4th in 2019, Austria fell to 7th place in 2020 and 2021, with a percentile rank of just 77.8 (2019: 88.9). Austria's non-metropolitan regions have also slipped in the European comparison since 2019. In 2021, for the first time since 2012, they no longer reached the top 3 and, with a percentile rank of 85.2, only ranked 5th. In Switzerland, Denmark, Norway and the Netherlands, the purchasing power-adjusted per capita income in non-metropolitan regions was higher than in Austria in 2021. This development underlines the growing challenge of securing Austria's long-term competitiveness in both urban and rural areas.

The labour market indicators show a continuous deterioration in Austria's relative position over the last ten years.

2.2 Labour market and social living conditions

The use of labour and the volume of work performed, together with the use of capital and productivity, determine per capita income. The development of the labour market is important in a competitive analysis, as it shows how well the labour force potential in an economy is being utilised. In addition, labour force participation figures provide information on social participation and the spread of social risks. In terms of the **unemployment rate**[6] and the **employment rate**, Austria was in the European midfield in 2023 with percentile ranks of 60.0 in each case and well behind the leaders. In the case of the unemployment rate (2023: 5.2 percent), Austria lags behind many Central and Eastern European countries, where the rate is much lower – partly due to a faster ageing of the labour force and the emigration of workers. However, Western European countries such as the Netherlands and Switzerland also have lower rates. With total unemployment rates low, even small differences between countries determine their positioning, and cyclical fluctuations in the unemployment rate are reflected more strongly in the ranking. In this respect, it is necessary to take an additional look at other indicators. For example, if we look at the proportion of long-term unemployed as a percentage of the total unemployed, Austria performs significantly better than the EU average.

The employment rate in Austria rose slightly year-on-year to 74.1 percent in 2023. An increase in the employment rate does not result in any welfare-economic improvements if the level of labour market participation does not reflect the preferences of employees. However, as the other indicators also show, there is a correlation between employment, social participation and the risk of poverty. In this respect, a high employment rate facilitates improvements in other social indicators. In a European comparison, Austria ranked 13th in terms of both unemployment rate and employment rate in 2023. This represents a slight improvement in the unemployment rate (2022: 15th place) and stagnation in the employment rate. In a long-term comparison, however, Austria has fallen back significantly (2013: 4th and 7th place respectively).

In addition to the employment and unemployment rates, other indicators provide information on the extent and distribution of labour market participation. Measured by the **employment rate in full-time equivalents**[7], Austria is only in 24th place out of 30 comparable countries with a percentile rank of 23.3 (2023). This poor performance can be explained by the high part-time employment rate in Austria. Over the last 20 years, the employment rate in full-time equivalents has barely increased in Austria (2003: 62.4 percent, 2023: 64.0 percent), while full-time employment has risen steadily in most other European countries. This has resulted in a significant drop in position from 11th to 24th in the last 10 years. Although the employment rate adjusted for working hours has also stagnated in some Scandinavian countries (Denmark, Iceland, Norway), this is at a significantly higher level than in Austria. Only a few countries (including Greece and Italy) have not been able to increase the rate in the last 20 years despite low levels.

The indicator value for **the gender gap in the employment rate** of 25- to 44-year-olds (in full-time equivalents) reflects a pronounced difference in the employment behaviour of men and women in Austria (percentile rank 23.3, 24th place among 30 comparison countries). In 2023, the working time-adjusted employment rate of women of prime working age in Austria was 18.7 percentage

[5] Eurostat defines metropolitan regions as all city regions with a population of more than 250,000 in the agglomeration area. According to this definition, there are 294 metropolitan regions in the European countries analysed here, including the 5 Austrian city regions of Vienna, Graz, Linz, Salzburg and Innsbruck. The non-metropolitan regions include all other regions, i.e. industrially characterised regions outside the agglomeration areas as well as rural areas (see https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Territorial_typologies_manual_-_metropolitan_regions).

[6] Since all indicators were ranked in such a way that a higher percentile rank corresponds to higher competitiveness, a high employment rate and a low unemployment rate each mean a high percentile rank.

[7] The full-time equivalent is defined by Eurostat on the basis of the average working hours of a full-time employee. It is therefore not a fixed figure, but varies depending on the country and time.

points lower than that of men and thus far lower than in most other European countries.

Especially in the longer term, social equalisation, protection against poverty and, in particular, participation in education contribute to an efficient economic and living location. However, Austria has clearly lost ground in terms of the risk of poverty and income distribution in recent years. **The at-risk-of-poverty rate**, which as a relative measure of poverty is also linked to the inequality of income distribution, deteriorated again in 2023 compared to the previous year, reaching 14.9 percent (after 14.8 percent in 2022). In terms of percentile rank (2023: 55.2), there was also a continuous deterioration in the medium and long term (2013: 75.9, 2020: 69.0). In an international comparison, Austria ranked 14th out of 29 countries in 2023. The at-risk-of-poverty rate is particularly low in some Nordic (Finland, Denmark) and Eastern Central European countries (Czech Republic, Slovenia).

The ratio between the disposable income of the fifth of the population with the highest income and the fifth with the lowest income serves as an indicator of **income distribution**. Austria achieves a percentile rank of 62.1 and 12th place among 29 comparable countries. Apart from minor fluctuations, this indicator has stagnated for 10 years; Austria's position has hardly changed. The comparatively solid position is due to the fact that many southern, central and eastern European countries are ranked lower than Austria. Frequently used comparative countries ("peers") in Scandinavia, Belgium and the Netherlands tend to perform better than Austria in terms of income distribution.

Education indicators cover an important aspect of social participation and play a key role in determining future competitiveness. The **NEET rate** is the proportion of adolescents and young adults (aged 15 to 29) who are not in employment, education or training (NEET). In Austria, it was at a relatively low level of 8.3 percent in 2019 before the COVID-19 crisis and has risen steadily since then. For 2023, this results in a percentile rank of 56.7 and 14th place among 30 comparative countries. In an international comparison, this means a deterioration in the short, medium and long term (2013: 8th place, 2020: 9th place, 2022: 13th place).

While educational deficits in younger cohorts will primarily have an impact in the future, the participation of the adult population (aged 25 to 64) in education and **training** is an indicator of the qualifications of those currently in employment. Since the COVID-19-related lockdowns in 2020 and 2021, participation in further education and training has increased significantly in Austria and, at 17.1 percent in 2023, exceeded the peak value from 2017. However, as many comparable countries recorded similar increases, Austria was only able to improve by one rank. In the long term, Austria's percentile rank and position remained unchanged (2013: 70.0 and 10th place respectively).

2.3 Use of natural resources

The energy crisis has brought energy costs more into focus as a factor influencing competitiveness. The extent to which energy costs affect competitiveness depends not least on **energy intensity**, measuring how productive energy is used in an economy. Weather and climate conditions also have an impact on energy intensity. Both very hot summers and particularly cold winters increase energy demand.

A reduction in energy intensity was achieved in 2022 by 26 of the 31 countries compared, including Austria. Energy intensity remained the same in three countries and increased in two. The countries still differed significantly in terms of absolute levels. Despite an improvement, Bulgaria continues to be last in place. At 7.5 PJ per billion €, almost seven times as much energy flows into the production of a unit of GDP than in Ireland and Switzerland (1.1 PJ per billion €), which topped the ranking in 2022.

Austria is still in the European midfield in terms of the at-risk-of-poverty indicator, but deteriorated again in 2023 compared to the previous year.

With 2.9 PJ per billion € in 2022, Austria moved up one place to 14th compared to the previous year, but remains in the lower midfield of the comparison countries. In a ten-year comparison, no position gain was achieved (percentile rank 2012: 61.3, 2022: 58.1). Ireland and Switzerland remain the frontrunners in the long term.

CO_2 emissions account for around 84 percent (2022) of total greenhouse gas emissions in Austria. The **CO_2 intensity** measures emissions per unit of GDP. It is determined by the use of fossil fuels in an economy. In 2022, Austria achieved an unchanged percentile rank of 64.5 compared to the previous year. However, it fell significantly in a ten-year comparison. Measured in terms of percentile rank, 77.4 percent of the countries compared emitted more or the same amount of CO_2 per unit of GDP as Austria in 2012. In 2022 it was only 64.5 percent. Austria therefore slipped four places from 8th to 12th place between 2012 and 2022. At 159.7 t of CO_2 per unit of GDP (2022), emissions fell by 20.1 t compared to the previous year. Despite this improvement, there is still a need for action for further emission reductions.

In a long-term European comparison, Austria could not improve its competitive position in terms of energy and CO_2 intensity, although it achieved a reduction in absolute levels.

The European leaders in terms of CO_2 intensity in 2022 were again Switzerland, Sweden and Ireland. There were no changes in the last places either: Bulgaria once again came last, behind Poland and the Czech Republic. The difference between the countries in first and last place was even more pronounced in 2022 than in previous years.

While Switzerland emitted around 46 t of CO_2 per unit of GDP, Bulgaria emitted 844 t (Poland 553 t, Czech Republic 482 t).

Substituting fossil fuels with renewable energy sources is an important strategy for limiting climate change. Renewable energy sources are used to provide heat and generate electricity, whereby Austria is favoured due to its topography with a high proportion of hydropower. Other renewable energy sources for electricity generation are photovoltaics, wind energy and biomass. The **share of renewable energy sources** in Austria's total final energy consumption (electricity and heat generation) was 33.8 percent in 2022. This put Austria in 9th place and in the top third of 29 comparison countries. Measured by percentile rank, 72.4 percent of countries had an equal or lower share of renewable energy sources than Austria. In a longer-term comparison, however, Austria has lost competitiveness (percentile rank 2012: 82.8). As in previous years, Iceland recorded the highest share of renewable energy sources in final consumption in 2022, not least due to its strong use of geothermal energy. Norway, which continues to cover three quarters of its energy consumption from renewable sources, remained in second place ahead of Sweden in 2022, while Belgium, Malta and Ireland came last in Europe with shares of renewable energy sources in final energy consumption of around 13 to 14 percent.

Austria covers a large part of its energy requirements by importing fossil fuels. Since 2001, Austria has also been a net importer of electricity. The level of import dependency in the energy sector is measured by the **energy dependency** indicator[8], which expresses net energy imports as a proportion of gross domestic consumption. In the recent past, the indicator has fluctuated considerably, which can be partly explained by changes in stocks. Among the 30 countries compared, Austria is one of the economies with a relatively high dependency on imports. This was particularly high in 2022. In 2021, around 53 percent of the comparison countries were still equally or more dependent on energy imports than Austria, whereas in 2022 only 27 percent were. Although Austria has tended to improve slightly over the last ten years, a direct comparison of 2012 (percentile rank 36.7) and 2022 (percentile rank 26.7) shows a marked deterioration.

Road freight transport in particular is associated with external costs such as greenhouse gas emissions, air pollution, noise and congestion. The external costs of transporting goods vary depending on the mode of transport (rail, lorry, ship). By land, rail freight transport performs better than road freight transport. Nevertheless, the majority of goods are transported by truck. The WIFO Radar uses the **modal split by land**, i.e. the ratio of rail freight transport to road freight transport, as an indicator of the country-specific importance of environmentally friendly freight transport.

In the long-term perspective, Austria remained in the same position among 30 comparative countries for this indicator (8th place, percentile rank 76.7). The Baltic countries Lithuania and Latvia took the top two places in 2022. While Estonia was still in third place in 2021, it slipped four places in 2022. Countries without railway infrastructure, such as Iceland, Malta and Cyprus, were naturally at the bottom of the ranking. Ireland and Greece also hardly transport any goods by rail.

How active and successful a country is in developing sustainable technologies is measured by the indicator on the share of **patent applications for environmental technologies** in a country's total patent applications at the European Patent Office. The delimitation follows the OECD definition: in addition to technologies for reducing emissions, those for adapting to climate change are also taken into account. ICT patents with environmental relevance are also included. Three-year averages are used to smooth out the strong fluctuations of this indicator, particularly for small countries. Over the last ten years, Austria has shown a clearly positive development. Measured in terms of percentile rank, Austria improved by 22 points. At 9th place, it was recently in the top third of 31 comparison countries. Denmark is the long-term leader in patent applications for environmental technologies.

2.4 Foreign trade

European natural gas prices fell in 2023, while the prices of other commodities stagnated. The fall in the price of natural gas was not reflected in the terms of trade, which remained almost stable compared to the previous year (+0.1 percent). As a net energy importer, Austria spent significantly less on imports of raw materials and energy than in 2022 – partly due to the gas volumes stored in 2022 as a precautionary measure. In contrast, Austrian machinery and equipment were in strong demand abroad, especially in the first half of 2023 (Friesenbichler et al., 2024). The contribution of travel to the foreign trade balance also improved in 2023, so that the **current account balance** turned positive again: Austria achieved a current account surplus of 1.3 percent of GDP, improving the balance by 2.2 percentage points compared to the previous year. In an international comparison, Austria

[8] Norway occupies a special position as a major exporter of crude oil and natural gas and was therefore not included in the country comparison as an outlier.

nevertheless fell from 11th to 13th place (Figure 1). The percentile rank of 60.0 is significantly below the value of the two previous years, but still exceeds the long-term comparative value.

The country rankings shifted considerably in 2023. Lithuania, for example, climbed 12 places, but remained 14th behind Austria in 2023. Poland improved by 6 places, moving one place ahead of Austria; Slovenia (+2 places) also overtook Austria. Norway continues to benefit from comparatively high gas prices and leads the ranking. Another special effect relates to Denmark, where the successful pharmaceutical industry continues to have a positive impact on the current account balance (+9.8 percent of GDP).

Austria's export success in machinery and plant engineering is also reflected in an increase in its **market share** of global **goods exports** (to around 190 countries). After a temporary deterioration in 2022, Austrian exporters were able to return their market shares to the pre-COVID-19 pandemic level in 2023 (+0.1 percentage points compared to 2022) by reducing their margins (Wolfmayr, 2024). Accordingly, Austria regained the ranks it had recently lost (Figure 2). In contrast to goods exports, Austria's **market share** of global **tourism exports** (to around 170 countries) fell slightly short of the previous year (–0.1 percentage points), but this did not result in a loss of position (Figure 2). In addition to the continued buoyant demand in the summer season, the resurgence of winter tourism following the COVID-19 pandemic also had a positive impact on the development of domestic tourism exports (Burton et al., 2024a; Burton et al., 2024b). Austria maintained its position in 2023 with 7th place and a percentile rank of 80.6 among 31 European comparison countries, but was still below the level of the years 2000 to 2020 (84.0; 6th place).

In the short term, exchange rate fluctuations between the euro and the national currencies of trading partners influence the prices of Austrian exports in foreign currencies and thus price competitiveness. An appreciation of the euro tends to increase export prices, while a depreciation reduces them. However, the passing on of exchange rate fluctuations to export prices depends on competitive pressure on the foreign market and the price elasticity of foreign demand. In the medium term, the dynamics in the income and price formation processes of two trading partners equalise the appreciation or depreciation of the bilateral exchange rate. The **real-effective exchange rate indices** supplement the information on bilateral exchange rate changes with relative price and wage fluctuations. Table 2 shows the development of the overall index deflated by the harmonised consumer price index or unit labour costs and the sub-index for industrial goods (deflated with consumer or producer prices) for Austria[9].

Austria made up for lost market share in global goods exports. Its share of the global tourism market decreased slightly.

Table 2: **Comparison of real effective exchange rate indices for Austria**

	2022-23	2020-2023	2013-2023
	Average annual change in percent		
Total index			
Deflated with harmonised consumer price indices	+ 3.0	+ 0.4	+ 0.4
Deflated with unit labour costs	+ 2.3	– 0.4	+ 0.1
Industrial goods index			
Deflated with harmonised consumer price indices	+ 3.4	+ 0.6	+ 0.5
Deflated with producer price indices	+ 0.2	– 1.3	– 0.4

Q: WDS - WIFO Data System, Macrobond.

Austria's price competitiveness deteriorated by 0.2 to 3.4 percent in 2023 – depending on the price index chosen – and thus hardly or considerably (Table 2). Nominal devaluations against the dollar area and Turkey were more than offset by appreciations against Switzerland and Eastern Europe. This was compounded by the significant inflation differential between Austria and its trading partners in the wake of the energy price shock. In terms of economic policy, Austria relied less on price regulation and more on subsidies and transfers to compensate for higher costs and the loss of purchasing power (Baumgartner et al., 2022). During the rebound after the COVID-19-induced slump in economic activity, the energy price shock was passed on to standard wages and consumer prices with a time lag in 2022, which was reflected in a real-effective appreciation of the exchange rate index in 2023. The ability to pass on higher energy costs in producer prices was limited in goods production due to the high competitive pressure on

Due to high inflation, Austria's competitive price position deteriorated in 2023.

[9] WIFO calculates real-effective exchange rate indices in cooperation with the OeNB. The properties, construction, advantages and disadvantages of these indices, which differ according to the type of trade flows and the price and cost indices analysed, were described in more detail in Url et al. (2023). Due to the specific measurement method, the exchange rate indices are presented separately (Table 2) and not shown as a percentile rank.

the international market and the already slowing business cycle, meaning that part of the cost increase was absorbed by falling margins (Wolfmayr, 2024). In a three-year comparison, Austria's inflation differential relative to trading partners is not so clearly visible, and even in a long-term comparison (2013-2023), the real appreciation remains low; measured in terms of producer prices, Austria was even able to improve its price competitiveness somewhat.

3. Focus topic: development of the intensity of competition

For a long time, Austria lacked systematic empirical evidence on the intensity of competition and its change across a large number of sectors. The establishment of Statistics Austria's Austrian Micro Data Centre (AMDC) in 2023 enabled an empirical investigation of selected key indicators of competition intensity for the first time as part of the OECD project "Multiprod 2.0" (Peneder & Unterlass, 2024a, 2024b). The period from 2008 to 2020 was analysed on the basis of microdata. The population comprises Austrian companies that carry out their main activity according to NACE 2008 classification in sections B to N or division S95, are employers and/or generated a turnover of more than 10,000 € in the reporting year.

The strongest growth in markups was seen in real estate and in typical business services.

The study focussed on three dimensions of competition intensity: company concentration, markups (price premiums on marginal costs) and corporate dynamics. Depending on the variables and methods required for the respective calculations, the indicators cover different years from 2008 to 2020 and refer to different levels of sectoral aggregation. The most important results can be summarised as follows:

In many sectors, the micro data show a self-reinforcing dynamic, with the companies with the highest price premiums being able to further increase their markups.

- **Concentration**: at least at the level of the NACE 2008 groups (191 three-digit organisations), the data does not show a general trend of increasing supplier concentration. The average production shares of the four, eight and twenty largest companies in 2020 were 52.9 percent, 65.3 percent and 79.0 percent respectively, with an average Herfindahl-Hirschman index[10] of 0.16. The index value remained practically unchanged in a ten-year comparison.
- **Company dynamics**: for the broadly defined non-financial market services sector, the study confirmed that more productive companies were able to increase their share of total production (reallocation). Accordingly, they created more jobs. From 2013 to 2020, employment growth was by far the strongest in the 10 percent of companies with the highest labour or multifactor productivity.
- **Markups**: in 2020, the average markups (on the econometrically estimated marginal costs) of individual companies in the 26 sectors of the OECD classification (STAN) amounted to a good 33 percent, which corresponded to an increase of around 1.5 percentage points compared to 2008. In 2020, markups were highest in non-financial market services (39.6 percent), ahead of manufacturing (18.7 percent) and construction (13.0 percent). From 2008 to 2020, they rose in non-financial services and construction, while they fell slightly in manufacturing (Figure 3, top graph).
- **Self-reinforcing dynamics**: markups rose most strongly in the property sector and in typical business services such as legal and tax advice, advertising and market research, administration and other support activities. Here, as in other sectors, the microdata analysis reveals a self-reinforcing dynamic: companies that had already recorded the highest markups in the initial year were able to increase their markups significantly more than companies in the lower percentiles of the initial distribution (Figure 3, bottom graph).

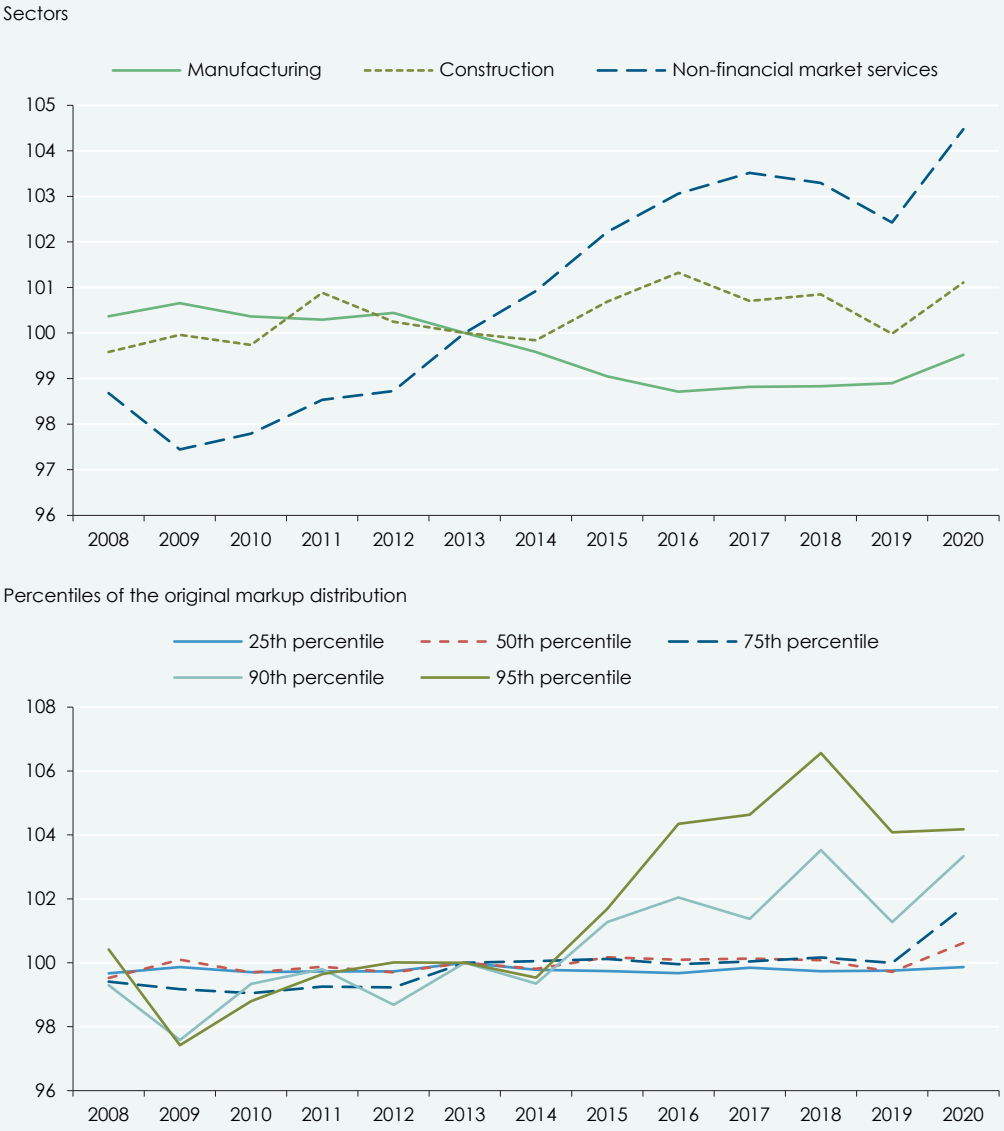
The breadth and scope of the empirical trends observed do not allow simple conclusions to be drawn about the presumed anti-competitive behaviour of individual companies. Rather, the results point to more general structural factors that shift the balance in certain sectors and make effective competition more difficult. Peneder and Unterlass (2024a, 2024b) interpret this as the result of technological changes, in combination with specific strategic and organisational responses by companies. On the one hand, more sophisticated technologies may require greater investment and thus higher price premiums. Many of these innovations, e.g. in the area of digitalisation and artificial intelligence (AI), also dampen marginal costs in production. In addition, the introduction of new technologies often requires considerable complementary investments, e.g. in qualifications, company organisation or new business models, in order to actually realise their economic potential (Bresnahan et al., 2002). This not only reinforces the two mechanisms mentioned above, but also makes the diffusion of new technologies more difficult and slower in total, as the complexity of adoption increases (Akcigit &

[10] The Herfindahl-Hirschman Index (HHI) measures concentration. For this purpose, the market shares of all companies in an industry are squared and then totalled.

Ates, 2023). Finally, market-leaders have a strategic incentive to escalate such investments with a high proportion of sunk costs in order to prevent entry of new competitors and maintain their own market power (Sutton, 1991).

Figure 3: **Development of average markups**

2013 = 100



Source: Peneder and Unterlass (2024b).

4. Summary

Austria has fallen further behind in the WIFO Radar of Competitiveness. The radar uses 24 selected indicators to measure Austria's relative position compared to around 30 European countries. On average across all indicators, Austria achieved a percentile rank of 61.6 in the last year of available data, putting it behind the top third of the comparison countries in total. One year earlier, Austria's relative position had been 3.7 percentile ranks better, three years earlier by 4.7 percentile ranks and ten years earlier by 7.4 percentile ranks.

The most pronounced losses in 2023 were in multifactor productivity, which fell more sharply in Austria than in most of the comparative countries[11]. Austria also lost ground in terms of GDP per capita in both metropolitan and non-metropolitan regions, albeit

The WIFO Radar shows a continuous deterioration in Austria's competitiveness.

[11] See also the latest report of the Productivity Council (2024).

starting from a high level. Overall, Austria is only just in the top third of the comparative countries in terms of "**real income, productivity and regional distribution**" with an average percentile rank of 69.6.

With an average percentile rank of 51.3, Austria is only in the middle of the field when it comes to indicators on the **labour market and social living conditions**. The low employment rate (in full-time equivalents) and the high gender gap in labour market participation continue to have a dampening effect. However, there was at least a slight improvement compared to the previous year, which can be attributed to gains in the unemployment rate, labour force participation in a gender comparison and continuing education. By contrast, the full-time equivalent employment rate, the at-risk-of-poverty rate and the NEET rate continued to deteriorate.

With regard to the targeted ecological transformation, Austria was unable to improve its relative position in a longer-term European comparison, although it was able to reduce its energy and CO_2 intensity. Compared to the previous year, Austria lost ground in terms of its utilisation of natural resources relative to the other countries, but has recently improved in terms of energy intensity.

Although Austria's current account balance turned positive again in 2023, the increase lagged behind other countries in Eastern Central Europe, meaning that Austria lost two ranks in the international comparison of **foreign trade flows** (percentile rank 60.0). In contrast, it increased its global market share of goods exports to 1 percent and achieved a percentile rank of 67.7. The volume-effective exchange rate reacted to the comparatively high domestic inflation rate and collective wage agreements with a significant appreciation in 2023. The increase in domestic producer prices only remained within the international framework due to a reduction in margins.

This year's special topic focussed on the development of **competition** in Austria. As an analysis of microdata for the period 2008 to 2020 shows, the average supplier concentration remained stable, while the estimated markups on marginal costs increased in many sectors, in some cases significantly. An increase in markups was achieved in particular by those companies that had already achieved the highest markups at the beginning of the period under review.

5. References

Akcigit, U., & Ates, S. T. (2023). What Happened to US Business Dynamism? *Journal of Political Economy*, *131*(8), 2059-2124.

Bärenthaler-Sieber, S., Bilek-Steindl, S., Bock-Schappelwein, J., & Böheim, M. (2024). Digitalisierung in Österreich: Fortschritt und Nutzung künstlicher Intelligenz in Unternehmen. *WIFO-Monatsberichte*, *97*(12), 661-672. https://www.wifo.ac.at/publication/pid/55990806.

Baumgartner, J., Scheiblecker, M., & Url, T. (2022). *Maintaining credibility is currently the top priority*. Monetary Dialogue Papers. European Parliament. https://www.europarl.europa.eu/cmsdata/258100/Maintaining credibility is currently the top priority.pdf.

Bittschi, B., & Meyer, B. (2024). Deutlicher Anstieg der relativen Lohnstückkosten in Österreich. *WIFO-Monatsberichte*, *97*(10), 573-587. https://www.wifo.ac.at/publication/pid/55113938.

Bresnahan, T. F., Brynjolfsson, E., & Hitt, L. M. (2002). Information Technology, Workplace Organisation, and the Demand for Skilled Labor: Firm-level Evidence. *Quarterly Journal of Economics*, *117*(1), 339-376.

Breuss, F. (2025). Austria, Finland, and Sweden in the EU: Who performed better? https://fritz.breuss.wifo.ac.at/Breuss_%20AUT_FIN_SWE_in_EU_2025.pdf.

Burton, A., Ehn-Fragner, S., & Fritz, O. (2024a). Tourismusanalyse: Starke Nachfrage im bisherigen Winter, jedoch kaum Dynamik bei realen Umsätzen. *WIFO Research Briefs*, (9). https://www.wifo.ac.at/publication/pid/51714596.

Burton, A., Ehn-Fragner, S., Fritz, O., Streicher, G., Laimer, P., Ostertag-Sydler, J., Pfeifer, T., & Weiß, J. (2024b). *Auswirkungen von COVID-19 auf die österreichische Tourismus- und Freizeitwirtschaft – Schlussbericht*. WIFO, Statistics Austria. https://www.wifo.ac.at/publication/pid/55104653.

Christen, E. (2024). EU-Grenzausgleich. Ambitionierte Klimaziele und Wettbewerbsfähigkeit in Einklang bringen? *WIFO Research Briefs*, (2). https://www.wifo.ac.at/publication/pid/50907112.

Fidrmuc, J., Hainz, C., & Hölzl W. (2024). Individual Credit Market Experience and Beliefs About Bank Lending Policy: Evidence from a Firm Survey. *Scandinavian Journal of Economics*, *126*(2), 387-414.

Friesenbichler, K., Hölzl, W., & Wolfmayr, Y. (2024). Exporte trotzen schwacher Industriekonjunktur. *WIFO-Monatsberichte*, *97*(5), 283-298. https://www.wifo.ac.at/publication/pid/51810181.

Janger, J. (2024). Großforschungsinfrastruktur für Innovation nutzen. *WIFO Research Briefs*, (13), https://www.wifo.ac.at/publication/pid/53814635.

Kügler, A., Friesenbichler, K., & Hirsch, C. (2024). Labour Market Effects of Trade in a Small Open Economy, in: *Region*, *11*(1), 1-26.

Lane, P. R. (2024). The 2021-2022 inflation surges and the monetary policy response through the lens of macroeconomic models. *SUERF Policy Note*, (364), https://www.suerf.org/wp-content/uploads/2024/12/SUERF-Policy-Note-364_Lane.pdf.

Oberhofer, H., Astrov, V., Stehrer, R., & Wolfmayr, Y. (2024). *FIW-Jahresgutachten. Die österreichische Außenwirtschaft 2024*. FIW – Forschungsschwerpunkt Internationale Wirtschaft. https://www.wifo.ac.at/publication/pid/50915379.

Peneder, M. (2024). Evolutionary Economic Policy and Competitiveness. In Dopfer, K., Nelson, R. R., Potts, J., & Pyka, A. (Eds.), *Handbook of Evolutionary Economics* (S. 299-315), Routledge.

Peneder, M., Köppl, A., Leoni, T., Mayerhofer, P., & Url, T. (2020). A WIFO Radar of Competitiveness for the Austrian Economy. *WIFO Reports on Austria,* (3). https://www.wifo.ac.at/publication/pid/4155540.

Peneder, M., Bittschi, B., Burton, A., Köppl, A., & Url, T. (2025). *Standort Österreich: Wettbewerbsfähigkeit und nachhaltige Entwicklung*. Springer (erscheint demnächst).

Peneder, M., & Unterlass, F. (2024a). Industry Concentration, Firm-level Markups and Business Dynamics from Austrian Microdata. *WIFO Working Papers*, (683). https://www.wifo.ac.at/publication/pid/53238660.

Peneder, M., & Unterlass, F. (2024b). Winners-take-more: Firm-Level Evidence on the State of Competition in Austria. *WIFO Research Briefs*, (15). https://www.wifo.ac.at/publication/pid/53502116.

Produktivitätsrat (2024). *Produktivitätsbericht 2024. Strategien für nachhaltiges Wachstum, Wettbewerbsfähigkeit und Resilienz in Zeiten von Transformation und Rezession*.

Schiman-Vukan, S., & Ederer S. (2024). Recession in Austria Persists Stubbornly. Economic Outlook for 2024 and 2025. *WIFO Reports on Austria*, (11). https://www.wifo.ac.at/publication/pid/54846535.

Sutton, J. (1991). *Sunk Costs and Market Structure: Price Competition, Advertising, and the Evolution of Concentration*. MIT Press.

Url, T., Vondra, K., & Glauninger, U. (2023). Energy price shock poses additional challenge to Austria's price competitiveness. *Monetary Policy & the Economy,* (Q2-3/23), 67-97.

Wolfmayr, Y. (2024). Lage der österreichischen Außenwirtschaft bis zum 3. Quartal 2023. In Oberhofer, H., Astrov, V., Stehrer, R., & Wolfmayr, Y. (Hrsg.), *FIW-Jahresgutachten. Die österreichische Außenwirtschaft 2024* (S. 15-30). FIW – Forschungsschwerpunkt Internationale Wirtschaft.

Wolfmayr, Y., Meyer, B., & Christen, E. (2024). Chancen und Herausforderungen der neuen EU-Außenhandelspolitik am Beispiel ausgewählter Instrumente. *WIFO-Monatsberichte*, *97*(6), 333-244. https://www.wifo.ac.at/publication/pid/53063835.

Woolford, J., Bachtrögler-Unger, J., Burton, A., Lalanne, M., & Gulda, K. (2024). *Skills for Smart Specialisation. An Analysis of ERDF and ESF Support for S3 Skills in the 2014-2020 Programming Period*. European Commission. https://op.europa.eu/en/publication-detail/-/publication/c96de1bd-2a01-11ef-9290-01aa75ed71a1/language-en.