Energy price shock poses additional challenge to Austria's price competitiveness

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Refereed by: Benjamin Bitschi (WIFO), Julia Grübler (UNCTAD)

This article reports on the latest update of Austria's effective exchange rate indices, which aggregate bilateral exchange rates and relative prices or costs into indicators of Austria's short- to medium-term international competitive position. The weighting scheme on which the indicators are based uses bilateral trade data for Austria's 55 most important trading partners. With the latest update, the three-year averaging period was moved forward to 2016-2018. The main results are as follows: Based on the recalculated country weights, we confirm the preliminary finding of a medium-term worsening of Austria's competitive position, although alternative price indices would appear to provide conflicting signals. In particular, measures based on producer prices and unit labor costs indicate competitiveness gains, while the HICP/CPI-based index shows marked losses. These diverging signals, however, merely reflect data availability at the current edge. With regard to the geographical focus of Austria's international trade relations, we observe a further shift toward overseas markets in the US dollar area and China, away from Western Europe and Russia. The real effective exchange rate for the tourism industry, which we developed during the previous update and enhanced during this update, reflects a more pronounced appreciation in the tourism sector than in the service sector as a whole. However, according to the latest figures on overnight stays this loss in price competitiveness has had no significant dampening effect on tourism demand in recent months. Finally, we address the economic costs of Austria's current inflation differential to the euro area, which has induced a real appreciation. In two simulations, we quantify realized effects and calculate expected future losses driven by higher unit labor costs. In total, we find that the loss in price competitiveness may cause the Austrian economy to shrink by around ¾ to 1 percentage point between 2022 and 2025.

International trade in goods and services usually implies a corresponding payment stream in foreign currency, requiring the trading partners to exchange domestic currency into foreign currency or vice versa. An exemption from this are cross-border transactions within a currency union like the euro area, where both trading partners use the same currency. Cross-border payments outside currency unions will be either based on the respective bilateral exchange rate or on a vehicle currency from a third country – like the US dollar, the euro, the yen or increasingly the renminbi yuan (Gopinath and Itskhoki, 2022; Boz et al., 2022).

Fluctuations in the bilateral exchange rate will affect the terms of trade between the exporting and the importing firm, i.e. they have an impact on the profitability of the exporter or the costs of foreign inputs for the importer. To get a more general – economy-wide – perspective on the development of the terms of trade, bilateral exchange rates of the key trading partner countries are mapped into a nominal effective exchange rate index. The mapping of bilateral exchange rates into an index is based on weights reflecting the importance of a partner country in

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cross-border trade. Thus, the nominal effective exchange rate index is a trade-weighted basket of currencies expressed as an index and it shows the relative price of the domestic currency vis-à-vis the currencies of the main trading partners.

From a consumer perspective, a rising exchange rate index implies an appreciation and thus a gain in purchasing power because in the short term – i.e. for given prices in foreign currency – consumers will pay less for a given bundle of goods and services upon conversion into domestic currency. A falling index implies a depreciation and hence a loss in purchasing power. From the perspective of producers, an upward movement in the nominal effective exchange rate index signals that the relative price between domestic and foreign goods and services has increased; hence a rising index implies a short-term deterioration of price competitiveness.[2] In turn, a declining index signals an improvement in price competitiveness.

When we add relative price indices from the home and foreign country pairs to the nominal effective exchange rate, we can take the development of domestic and foreign prices into account. The resulting real effective exchange rate index allows to apply a medium to longer-term perspective, accounting for price adjustments. The OeNB and WIFO (Austrian Institute of Economic Research) compile and update the effective exchange rate indices based on bilateral exchange rates between the euro and the currencies of Austria's 55 biggest trading partners, including 37 non-euro area countries. The computation is based on the harmonized Eurosystem methodology (ECB, 2020). We continue to use the conceptual framework outlined in Köhler-Töglhofer and Magerl (2013) and Köhler-Töglhofer (1999) and implement the 2021 release of OECD-TiVA (Trade in Value Added) input-output tables on bilateral foreign trade flows to update the country weights. With the current update, the three-year averaging period for adjusting the bilateral exchange rate weights is moved forward from 2013–2015 to 2016–2018, a period not yet affected by the COVID-19-induced turbulences in foreign trade. The previous update of the Austrian indices was based on the 2018 release of the OECD-TiVA input-output tables (Glauninger et al., 2021). The new weights based on the 2016–2018 period apply to all observations beginning with January 2016. Earlier observations have been chain-linked to the new exchange rate indices; i.e. we freeze previous country weights based on successive waves of three-year averages.

The aggregate index is a trade-weighted average of four subindices calculated separately for
• manufactured goods,
• food and beverages,
• raw materials/energy products, and
• services,
each subindex featuring country weights reflecting Austria's bilateral export and import flows in this subcategory. The individual country weights in the subindex for manufactured goods continue to be calculated on the basis of single (bilateral) import and double (multilateral) export weights. Double export weights reflect competition on third markets from domestic firms as well as from firms of other trading partners (depicted in competition matrices; see table A2 in the annex). The

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[2] At the same time, producers benefit from an upward movement of the exchange rate if they use large amounts of imported components or energy in their production process.

share of each subcomponent in total exports reflects the relative importance of each subindex for the effective exchange rate index. For example, manufactured goods account for 61.3% of total exports, food and beverages for 5.1%, raw materials/energy products for 3.7%, and finally services for 29.9%.

The computation of the real effective exchange rate index needs pairs of relative price indices between Austria and each trading partner. This requirement – in combination with the number of countries included in the basket – limits the set of available price indices. The HICP/CPI (Harmonized Index of Consumer Prices, Consumer Price Index) is the only price index published by all 55 countries included in the basket which enables us to compute real effective exchange rates based on HICP/CPI indices for the four subindices as well as for the aggregate index.[3] The current sample of 55 countries covers 96% of Austrian exports. We continue to add the export shares of countries not included in the index (rest of the world, RoW) to the weight of the USA, based on the assumption that these trade flows are invoiced in US dollars (Gopinath and Itskhoki, 2022; see table A1 in the annex).

We also use three additional price indices reflecting the competitive position of more narrow sectors of the Austrian economy vis-à-vis a less comprehensive group of countries.[4]

For many activities, wages are the largest cost component. A real effective exchange rate index based on unit labor costs (ULC) – rather than consumer prices – will therefore provide a better indication of shifts in the cost competitiveness of Austrian firms. Data on the economy-wide wage bill are only available for 31 countries out of the total sample of 55 countries. We compute the real effective exchange rate deflated with unit labor costs for the total economy and for the service sector.[5]

The key advantages of the HICP/CPI are timely availability and international comparability. The HICP/CPI, however, covers goods and services consumed by private households. Hence, the prices of nontradable goods are also included, making them an imperfect indicator of variations in international price competitiveness. The producer price index (PPI) measures the development of the average selling prices received by domestic producers of goods and services. It is focused on producers and thus mirrors their pricing behavior with respect to trade flows better. The PPIs are published for 26 countries accounting for 80% of foreign trade in goods, and we use the PPI to compute an alternative real effective exchange rate subindex for manufacturing.

Austria's surplus in international trade of tourism services warrants a separate effective exchange rate more closely related to travel expenditures. We improve the effective exchange rate index for international trade in tourism services presented in Glauninger et al. (2021) by extracting tourism-related services from total international trade in services and compute a basket with country weights

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[3] We use deflators provided by the OECD, the IMF and Eurostat. In case of missing data, we complete the time series with information from national statistical offices.

[4] For a thorough discussion of the merits and demerits of each deflator, see Köhler-Töglhofer (1999).

[5] For the full list of countries, see table A1 in the annex. Unit labor costs are available for Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, the United Kingdom, Norway, Switzerland, Australia, Canada, Israel, Japan, New Zealand, South Korea, and the United States.

Table 1

Overview of composition and publication frequency for real exchange rate indices based on different deflators

	HICP (CPI)	COICOP 11	ULC	PPI
Number of countries	55	40	31	26
Representing .. percent of AT trade	96% of total trade	92% of trade in tourism services	82% of total trade	79% of trade in goods
Frequency	monthly	monthly	quarterly	quarterly
Latest available data	July 2023	July 2023	Q1 23	Q4 22

Source: OeNB/WIFO.

based purely on bilateral tourism exports and imports. The weights based on trade in tourism services should better reflect the competitive position vis-à-vis direct competitors in this market. We combine the nominal effective exchange rate index with price indices for restaurants and hotels in the HICP/CPI (COICOP division 11). The resulting real effective index covers changes in the competitive position of Austria's tourism sector better than headline inflation rates. The COICOP 11 division of the HICP/CPI is available for 40 countries accounting for 92% of Austria's trade in tourism services.[6]

Table 1 compares the four real effective exchange rate indices with respect to their composition and their timeliness of publication. In what follows, section 1 addresses the recalculation of the country weights based on the trade relations prevailing during the period 2016–2018. In section 2, the developments of the different exchange rate specifications are presented and described. Section 3 is dedicated to the current inflation differential of the Austrian economy to the euro area and the possible consequences for Austria's price competitiveness.

1 Country weights – ranking of Austria's trading partners comparatively stable

After joining the European Union, Austria integrated well into the EU-manufacturing core and benefited strongly from the prevailing agglomeration and specialization trends (Stehrer, 2020). Between 1995 and 2022, the ratio of exports to GDP increased by 28 percentage points to 61.6%. This ratio also reflects the growing volume of inter- and intra-firm trade, i.e. imported intermediate goods that are further processed in Austria and reexported. Consequently, the share of foreign value added embodied in Austrian gross exports increased from 21.1% in 1995 to 31.8% in 2020.[7] Higher foreign trade volumes were associated with a geographical redistribution of trading activities away from Western Europe towards CESEE countries (Central-, Eastern and Southeastern Europe) and overseas destination. Both directions fit well to the outcomes predicted by the gravity theory of foreign trade (Anderson and van Wincoop, 2003). While a stronger concentration on neighboring CESEE countries results from the opening of borders and relatively

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[6]   These countries are: Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Australia, Canada, Chile, Iceland, Israel, Japan, Mexico, New Zealand, Norway, South Korea, Switzerland, Turkey, the United Kingdom, and the United States.

[7]   Source OECD Trade in Value Added data base (preliminary release 2022).

lower transport costs, increased trade with overseas markets is concentrated on large destination countries.

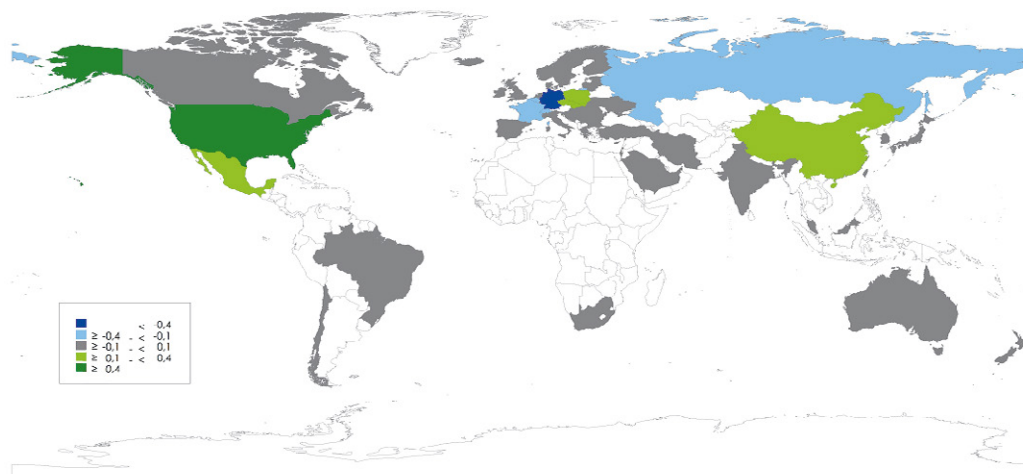## 1.1 Short-run changes in country weights

When we look at the changes between the reference periods 2013–2015 and 2016–2018, we see that trade in manufactured goods between Austria and its single largest trading partner, Germany, has been trailing behind the aggregate. In sum, the weight of Germany declined by 0.7 percentage points (to 30.4%). The only other countries with a sizable decline in their weights between the two reference periods were Russia (–0.4 percentage points) and Switzerland and France (–0.2 percentage points). Russia's downturn was to a large extent triggered by sanctions imposed by the EU on trade with Russia after the annexation of Crimea in 2014. The Swiss franc was subject to a sizable appreciation during the European government debt crisis, while Austrian manufacturing exports with France suffered from a decline of beverages and passenger cars exports.

Reflecting the continuing shift towards overseas and CESEE markets, the short-run gains are concentrated on the USA-RoW (+0.8), Poland (+0.4), and Czechia (+0.3). The USA-RoW (8%) and China (7.8%) continued their neck-and-neck race for the second largest weight in the trade basket, with the USA-RoW benefiting from the role of the US dollar as a reference currency in international trade, while China's position is firmly based on its competitive position on third markets.

Figure 1 gives an overview of the short-run rebalancing of Austria's international trade pattern: Countries showing sizable gains in their weight are colored in green while countries experiencing trade divergence are colored in blue. All countries with a minor variation in their weights (+/– 0.1 percentage points) are presented in grey. Beyond the USA and CESEE, Austrian firms intensified their trading relations with Mexican and Chinese firms.

Figure 1

Short-run changes in country weights for the Austrian effective exchange rate index (2016–2018 versus 2013–2015)

Source: OeNB/WIFO.

Note: Double weights based on imports and exports of manufactured goods with 55 countries.

1.2 Long-run changes in country weights

Comparing the data from the current reference period 2016–2018 with the base period 1998–2000, we see a substantial decline in the weight of Austria's EU trading partners (by 7.5 percentage points to 65.1%) and an even more pronounced decline for members of the euro area (EA19: by 10.3 percentage points to 52.9%). The shift away from the euro area reflects the rebalancing of trade relations towards CESEE countries in Austria's close neighborhood featuring high income growth. With respect to the base period, CESEE countries gained 5.7 percentage points and now hold a trade weight of 16.6%. This shift was mainly due to higher trade volumes with countries outside the euro area but within the EU-27[8] (2.8 percentage points to 12.1%). For these countries, the positive effects from trade integration outweigh higher nominal exchange rate uncertainty, which is absent for countries with a stable nominal exchange rate against the euro. Southeast and East Asian countries also benefitted from highly dynamic economic growth and the more intensified international division of labor. The trade weight of this group of countries moved up by 5.4 percentage points to 13%.

1.3 The role of competition from third countries on foreign markets

The calculation of the weights for the manufactured goods subindex relies on double export weights because Austrian firms face competition from foreign firms located in third countries on every destination market. For instance, Austrian exports to Germany face competition from German firms and so do Austrian exports to other countries. The strength of competition from a trading partner can be illustrated by comparing the single export weights of a country with its double export weights. This is done in chart 1, where the axis has been cut at 10% due to the outsized weight of Germany. Cutting the axis facilitates the comparison between single and double weights for countries having smaller weights. For exact numbers, including the exact figures for Germany, see table A3 in the annex.

In countries where the single export weight is bigger than the double export weight, local firms are strong competitors for Austrian firms on their home market, but they are less important with respect to other destination markets. For example, Germany has a single export weight of 31.4% and a double weight of 23.3%, which means that German firms compete more intensively with Austrian firms on the German market itself, rather than on third country markets. One explanation for this pattern could be that German lead firms manage the activities of exporters within the integrated supply chains of the central European manufacturing core (Stehrer and Stöllinger, 2015). The manufacturing core comprises Germany, Austria and the four Visegrad countries. As can be seen in chart 1, the single export weight is above the double export weight for most members of the manufacturing core. Similarly, Switzerland as a home base for large multinational firms shows a distinctively higher single export weight.

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[8] *Bulgaria, Croatia, Czechia, Denmark, Hungary, Poland, Romania, and Sweden; throughout the paper, we use the EU-27 post-Brexit aggregate for the EU countries; meanwhile, Croatia joined the euro area in January 2023.*

Chart 1

Single and double export weights in the Austrian manufactured goods subindex (2016–2018)

%
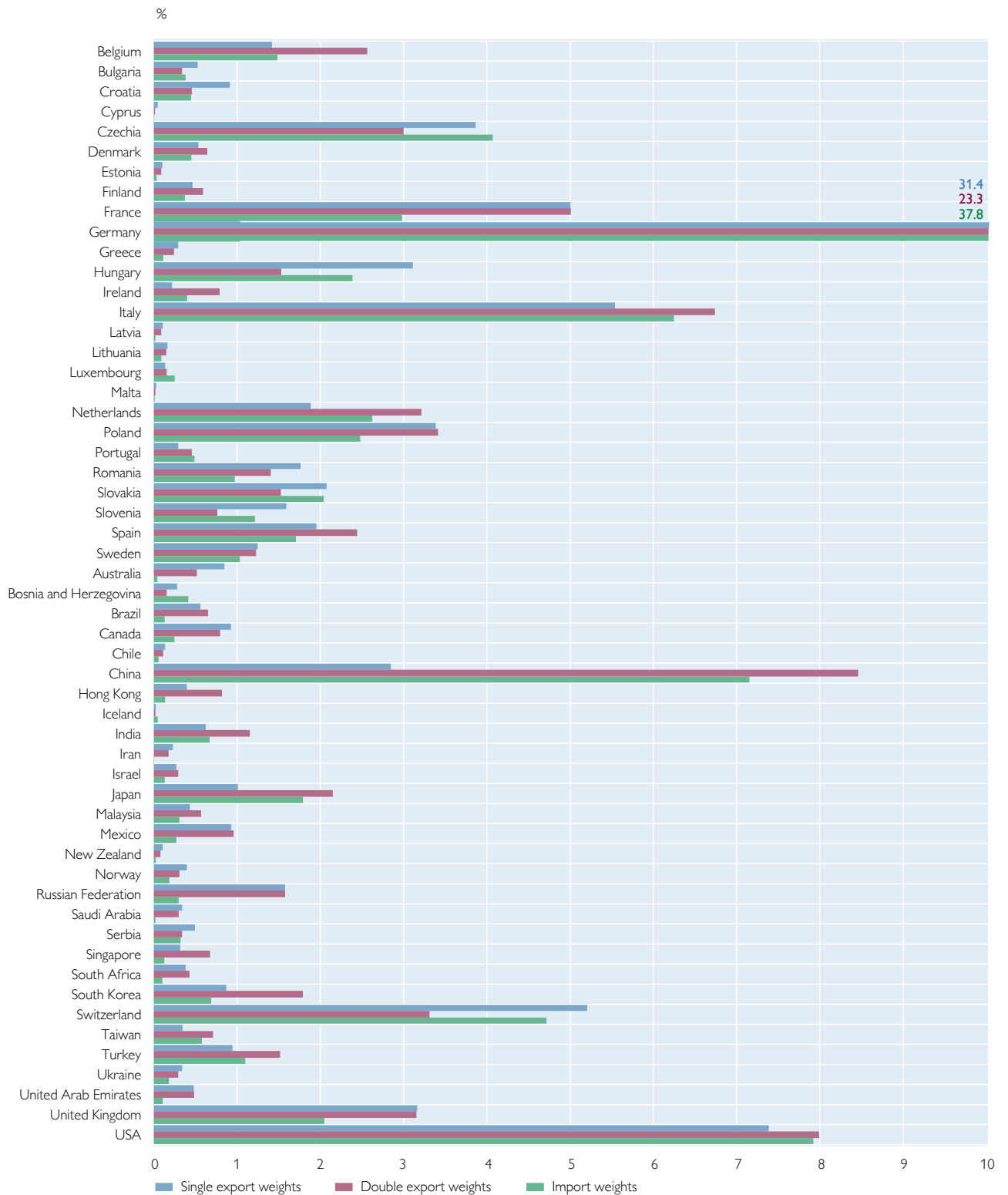
Source: UN Comstat, OECD, authors' calculations.

Note: The axis is cut at 10% to facilitate the comparison for countries with smaller weights. The values for Germany are 31.4 (single weights), 23.3 (double weights) and 37.8 (imports).

There are several countries in the basket for the effective exchange rate with a relatively higher double export weight. China stands out as a country with a particularly high double export weight; the difference being two times its single weight. This shows the strong competitive pressure for Austrian firms emanating from Chinese exporters, while China's home market for manufactured products appears relatively less penetrated. To a lesser extent, this also holds for firms from the Netherlands, Italy, Belgium and Japan.

Table A3 in the annex compares the values for the current reference period 2016–2018 with values from the base period 1998–2000, thus reflecting the development of double export weights over the last two decades. French and US exporters have become smaller competitors on Austrian destination markets. To a weaker extent, producers domiciled in Germany, Japan, the UK or Italy have also shifted their focus toward alternative markets. The competitive pressure from Chinese firms on Austrian export markets, on the other hand, moved from almost irrelevant at the turn of the century into the range of the fiercest competitors in recent years. The Netherlands moved from a neutral toward a more competitive position, while firms from Hungary and Switzerland intensified their pressure on established Austrian export markets.

The country weights for Austria's international trade in services are based on single export and imports weights. They show only small changes over time and – compared to goods – Austria's foreign trade in services is more concentrated on the EU27. The share of exports/imports concerning the EU27 was 73.1%, and that for the euro area (EA19) 58.7%. Individual countries showing a high trading intensity with Austria are Germany (35.4%), the USA-RoW (7.5%) and Switzerland (6.2%). The biggest category among Austria's services exports are expenditures by foreigners for travel. According to current account data for the average from 2016 through 2018, this category amounted to 30.7% of total services exports. Exports of other business-related services reached 22.7%, while transport captured 23.2% and telecommunication made up 9.8% of services exports.

The computation of the weights for imports and exports of raw materials and energy is also based on single export weights. Due to the geographical distribution of raw material producers, non-EU27 countries have a higher share (41%) in total imports. Again, Germany tops the country ranking with 29.4%. Other important source countries for energy and raw material imports include the USA-RoW (16.2%) and Russia (14.5%).

The weights in the subindex for food and beverages are very concentrated on countries in close proximity to Austria. The EU27 receives 72.6% of Austria's exports and accounts for 82% of its imports. Austria's main trading partner is Germany with a share of 34.6% in exports and 37.6% imports, followed by Italy with a share of 11.5% in exports and 10.9% in imports.

2 Price competitiveness after the European government debt crisis

The reference period 2016–2018 covers the aftermath of the European government debt crisis with financial markets becoming calmer. Contrary to the previous update of weights for the effective exchange rate indices (Glauninger et al., 2021), this round did not change the overall impression of developments over time: The adjustment to the weights from the new 2016–2018 reference period modified the index after 2015 just by around one tenth of a percentage point.

The development from the beginning of 2016 until July 2023 was characterized by a nominal and real appreciation of 4½%. The wave-like pattern shows peaks in September 2018, December 2020 and the most recent observation from July 2023, and troughs in February 2017, January 2020 and 2022. Yearly changes in the nominal and real effective exchange rate closely follow variations in the euro-dollar relation (see chart 7 in Url, 2023).

The relative monetary policy stance between the central banks in America and Europe has a strong short-term influence on the nominal exchange rate. The US Federal Reserve Bank (Fed) started to lift its target rate in December 2015, well ahead of the European Central Bank (ECB). The sudden reversal of the Fed's policy from a tightening cycle to providing cheap liquidity to the markets at the start of the COVID-19 pandemic supported the euro, and Austria's effective exchange rate appreciated swiftly over the course of the year. Extensive disruptions of international trade flows and supply chains due to the COVID-19-related lockdowns did not weigh heavily on the euro's nominal exchange rate. The surge in energy prices after the Russian attack on Ukraine put inflationary concerns back on the agenda of monetary policy committees. As the Fed started tightening its monetary policy stance earlier and with bigger steps, we recorded nominal exchange rate movements along the tightening process. On top, we notice a special effect in the Austrian effective exchange rate, namely the development of the Turkish lira. Turkey's exceptionally expansive monetary policy generated a devaluation of the lira vis-à-vis the euro by 800% between the start of 2016 and July 2023. Despite the small weight of the lira in the Austrian index (1.16%) the large devaluation contributed significantly to the nominal appreciation of the Austrian effective exchange rate. In real terms, however, the appreciation of the euro vis-à-vis the lira was compensated by the considerable inflation differential.

2.1 Energy price shock widened inflation differential in the euro area

The recent development in the real effective exchange rate is also characterized by the energy price shock resulting from several waves of EU sanctions against Russia and retaliatory cuts in the supply of Russian gas to Europe. Besides structural differences regarding the energy mix (renewable, fossil, nuclear), those countries whose retail contracts for energy are closely linked to wholesale prices faced a quick and considerable upward adjustment of energy prices, followed by a wave of pass-throughs into other products and services (Netherlands and the Baltic countries). Additionally, the regulatory and fiscal policy response of European governments to the energy price shock either depressed price hikes or let them happen. Baumgartner et al. (2022) review 60 interventions that were implemented in 2022 by 18 members of the euro area. Some countries, like France, Spain and Malta, introduced caps on energy prices and lowered energy taxes. These countries experienced a comparatively low inflation episode. Other countries, like Austria, instead implemented compensating fiscal transfers to households and businesses (see Fenz et al., 2023).

The varying degree of indexation and implementation of regulatory measures to cap prices created large inflation differentials within the euro area. The maximum spread occurred in August 2022 with a span in the inflation rate of 18.6 percentage points between Estonia and France. The direct effect on energy-related items in the consumer basket was considerably larger in the Baltic countries, and

Chart 2

Chained aggregate nominal and real index of Austria's price competitiveness since 1999

Q1 99 = 100

Source: OeNB/WIFO.

Legend: Nominal — Real, deflated by the relative HICP/CPI
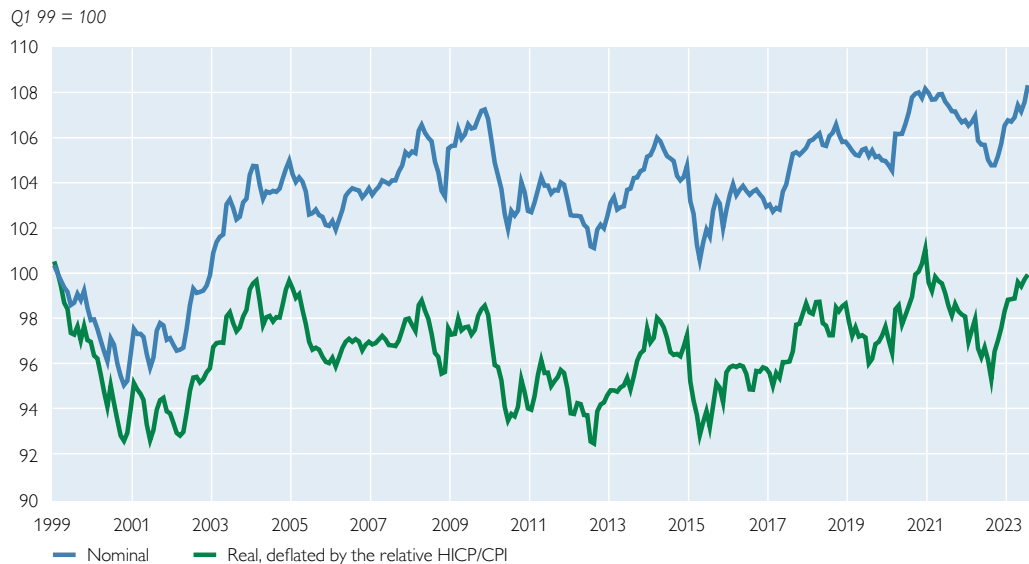
the Netherlands. France, Spain and Malta, on the other hand, experienced a low contribution of energy-related inflation to the general inflation rate. During the year 2022, the contribution of energy prices to the general inflation rate was lower in Austria than the euro area average. This pattern changed in early 2023, when falling wholesale price for energy were not fully passed on to Austrian customers. Moreover, the pass-through of higher energy costs into other product and services prices accelerated and, finally, wage demands in negotiations between employers and unions responded to the drop in purchasing power.

2.2 Real appreciation reinforced by positive inflation differential

The real effective exchange rate index deflated by the HICP/CPI (chart 2) follows the short-term dynamics of its nominal counterpart but it does not drift upward. In Austria, nominal appreciations have been offset by comparatively lower domestic inflation rates in the medium term. Nominal appreciations have typically been compensated by higher productivity growth and lower wage inflation (Marin, 1985) as is evidenced by chart 2: between January 1999 and June 2023, the nominal effective exchange rate index gained 7.2%, while the real effective exchange rate remained quite stable (−0.8%). Moreover, the depreciation between 2021 and autumn 2022 was even reinforced by relatively lower inflation in Austria.

However, this picture reverses at the end of the sample. A positive inflation differential emerged between Austria and the euro area, and the loss in price competitiveness due to the nominal appreciation since the start of the Ukraine war was reinforced by higher inflation in Austria. Furthermore, Austria has seen a comparatively stronger pass-through of high energy prices into the prices of other items covered in the consumer basket. Measured in nominal terms, the competitive position of Austria has deteriorated only slightly since February 2022 (+0.8%

appreciation). In real terms, however, Austria's HICP/CPI-deflated index gained 2.3% until June 2023.

The HICP/CPI covers selling prices for consumers across the most important items in the consumer basket. Besides the fact that such an index includes many non-traded goods and services, variations in selling prices can also result from adjustments in the trading margin of domestic retailers. Such changes affect neither Austria's exporters nor its import-competing firms. The use of alternative price indices allows a closer view on the competitive position of Austrian firms from different angles. For example, the use a unit labor cost (ULC) index opens a perspective more related to cost competitiveness. Unit labor costs show the ratio between the gross compensation paid to employees and the output produced. Increases in wages will drive up unit labor costs while higher productivity will dampen unit labor costs. We use unit labor costs for the total economy for a sample of 31 countries at the quarterly frequency.

Chart 3 presents quarterly data for the HICP/CPI-deflated and the ULC-deflated real effective exchange rate indices for the total economy. The two indices have moved grossly in tandem, and their levels have been converging over the last few years – except in the second quarter of 2020 and the following winter season, when the widespread use of short-term work measures led to a spike in Austria's relative unit labor costs. Additional factors creating a bias in international comparisons of unit labor costs during the COVID-19 pandemic are summarized by Ragacs and Vondra (2021, box 4). Due to a publication lag, the ULC-based exchange rate index ends in the first quarter of 2023. In this specific quarter, consumer prices diverged strongly from unit labor costs, because Austrian wage contracts covering the year 2023 did not fully reflect the strong upswing in the HICP during the second half of 2022. Thus, the cost competitiveness of Austrian firms continued to improve in early 2023. Subsequent rounds of wage negotiations during the first half of 2023 – not yet recorded in unit labor costs – took greater account of the upswing in inflation and may drive the ULC-based effective exchange rate closer to the timelier HICP/CPI version. We therefore expect the ULC-deflated index to worsen during 2023 (see section 3).

Chart 3

Import- and export-weighted real effective exchange rate indices for Austria: aggregate indicator

Q1 99 = 100

As measured by relative unit labor costs   As measured by the relative HICP/CPI
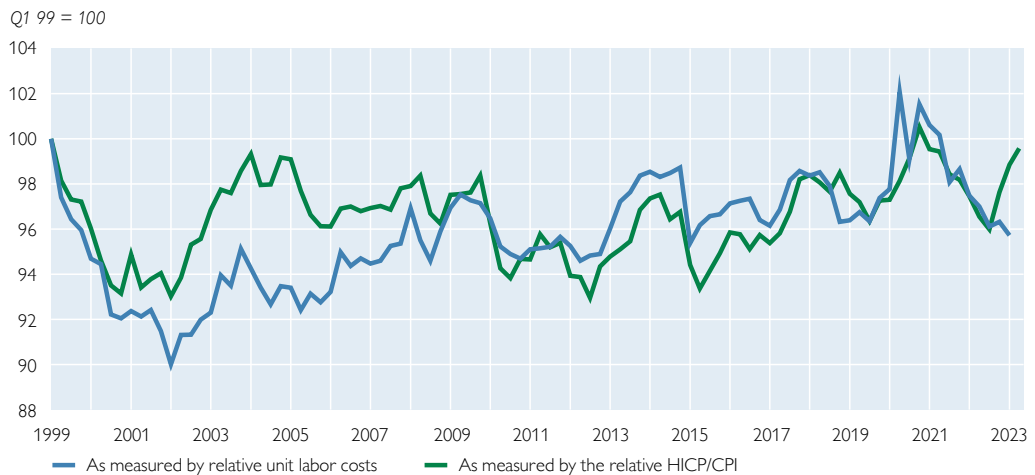
Source: OeNB/WIFO.

The sudden worsening of cost competitiveness related to the COVID-19 pandemic had been fully corrected by the first quarter of 2023. This adjustment was primarily a consequence of normalized working hours and output levels once the pandemic was over. Because the monetary transfers stabilizing the wage income of workers during a short-term work episode are accounted as wage payments in the national accounts, these schemes moved the ratio between the gross wage bill and output sharply up, thus creating a temporary upward bias in unit labor costs. Since the beginning of 1999, the ULC-based index has declined by 4.3%, indicating an improvement of Austria's cost competitiveness.

The real effective appreciation resulting from high domestic inflation in consumer prices does not necessarily reflect the position of Austrian manufacturing firms with respect to international competitors. Chart 4 compares the HICP/CPI-based real effective index with the index based on producer prices (PPI) using the weights for manufactured goods trade. By definition, the producer price index focuses on manufactured goods, i.e. leaving aside services, and on prices received by manufacturing firms rather than paid by consumers. Furthermore, the sample of 26 trading partners is considerably smaller, and the PPI has a lower reporting frequency (quarterly) and a longer publication lag. The PPI is now available until the end of 2022. During 2022, the HCPI/CPI-based effective exchange rate index remained almost constant (−0.1%) while the PPI-based index depreciated by 4.6%. The widening gap is not related to the smaller sample of the PPI-based index. If we restrict the set of countries in the HICP/CPI-based index to the smaller PPI sample, a similar divergence emerges. The deviation between both price indices points to relatively higher inflation for services in Austria.

Service exports generated a substantial surplus of EUR 7.1 billion in the 2022 current account, which was still significantly smaller than the surplus from 2019 (EUR 9.7 billion). Lockdowns and travel restrictions continued to impair international trade flows during the first half of 2022. The real effective exchange rate indices for services are depicted in chart 5. The deflators used are either the HICP/

Chart 4

Export-weighted real effective exchange rate indices for manufactured goods in Austria

Q1 99 = 100

As measured by relative producer prices — As measured by relative HICP/CPI
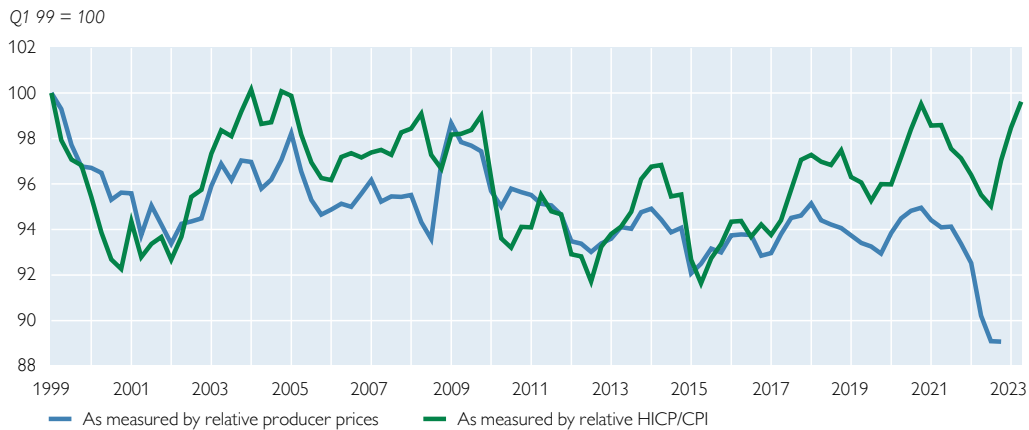
Source: OeNB/WIFO.

CPI or unit labor costs for the total economy, and the country weights are computed on the basis of import and export flows in services. Similar to chart 4, the HICP/CPI-based index shows a marked appreciation starting in the second half of 2022 and still ongoing. Since the start of 2022, the HICP/CPI-based real effective exchange rate has increased by 0.4%. The ULC-based index, on the other hand, decreased by 3.0%, reflecting the restrained adjustment of wages in the first quarter of 2023. In the long run, both indices show a small decrease by 6.1% (ULC) and 1.3% (HICP/CPI) until the first quarter of 2023.

Within international trade in services, tourism-related activities take a special role. Although lockdowns and travel restrictions continued to impair the tourism industry during the first half of 2022, revenues from exports have been slowly returning to levels seen before the outbreak of the COVID-19 pandemic. Guests from overseas were slow to return Austria, whose closer vicinity to the war zone in Ukraine created an additional obstacle for guests from overseas. Added to this is the challenge posed by the relatively sharp rise in Austrian restaurant and hotel prices (COICOP 11). Higher prices and the weaker growth expectations slightly dampen overall tourism exports (Fritz and Ehn-Fragner, 2023). The exact response of foreign consumers to higher prices is not yet apparent; it may range from fewer or shorter trips to visitors opting for offers in lower quality segments or restraining travel-related expenses. Because expenditures on hotels and restaurants are part of the regular HICP basket, data for this price index are available on a monthly frequency up to June 2023. Due to the strong seasonality in the series (on chart 5), we compute only annual growth rates in the real effective subindex for tourism. At +2.9% in the second quarter 2023, the development over the last year implies a relative loss in price competitiveness. Since the beginning of 1999, the real effective exchange rate for tourism services climbed by 5.9%; with respect to the lowest level of the index in the third quarter 2010, the real appreciation amounts to 14.9%. If the COICOP 11 component of the HICP/CPI correctly accounts for quality improvements, Austria's tourism industry experienced a serious loss in price competitiveness. Besides

Chart 5

Real effective exchange rate indices for services provided in Austria

Q1 99 = 100

Services as measured by relative unit labor costs
Services as measured by the relative HICP/CPI
Travel as measured by the relative HICP/CPI for hotels and restaurants
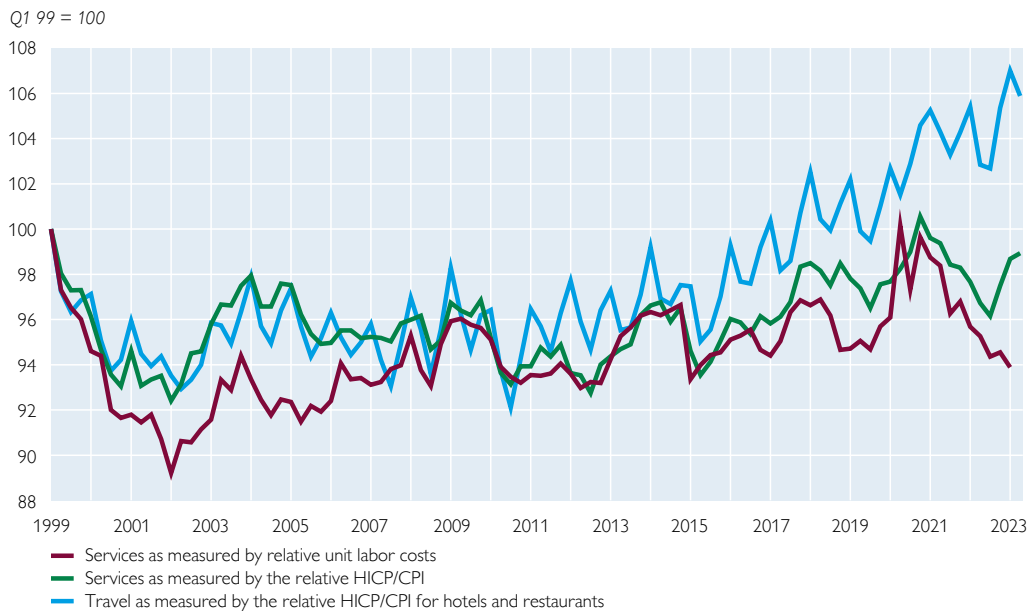
Source: OeNB/WIFO.

negative COVID-19 effects during 2021, this contributes to Austria's loss in market share of international tourism exports in 2021 (Peneder et al., 2023).

3 Austria's higher inflation jeopardizes competitiveness position

The aftereffects of the COVID-19 pandemic in combination with economic consequences of the Russian invasion in Ukraine led to a steep rise in inflation in Europe, predominately driven by rising energy price inflation, which peaked around the turn of the year 2022/23. Depending on country-specific structural conditions (indexation regimes, wage negotiation procedures, etc.) and policy interventions (direct price interventions such as price caps, or floating prices but in turn transfers to soften welfare losses) inflation has either returned quickly to values around the price stability target (HICP inflation compared to previous year, average June to August 2023: 1.9% in Belgium and 2.0% in Spain) or else inflation remained at high levels (Austria: 7.5%, Germany: 6.6%), reflecting stronger second-round effects onto the service sector. During the summer of 2022, the Austrian HICP inflation rate surpassed the euro area aggregate rate, a differential that increased up to 3 percentage points in early 2023 and fell to around 2 percentage points in autumn 2023.

The differential is usually traced back to three key differences between Austria and the euro area aggregate (Fritzer 2023):

1. *Fiscal policy mix:* The Austrian government did not set direct price interventions as quickly and comprehensively as other euro area countries, but instead handed out substantial transfer payments to households and companies (see Prammer and Reiss, 2023; and Fritzer et al., 2023, for more details). This policy mix was

recommended by big Austrian economic research institutes (Neusser et al., 2022) in order not to undermine the effects of price signals.

2. *Delayed transmission of global energy prices to end users.* The price adjustment frequency of regulated energy price contracts is lower in Austria than in other euro area countries. Therefore, the contribution of rising energy prices to inflation was initially lower but increased substantially with a lag of around one year.

3. *Higher inflation of restaurant prices and increasing contribution of nonenergy industrial goods.* During the first half of 2023, the Austrian HICP inflation rate for hotel and restaurant services surpassed its euro area equivalent by more than 4 percentage points. The contribution from hotels and restaurants to HICP inflation is further amplified by higher weights of these items in the Austrian consumer basket compared to the euro area average. These two facts explain more than half of the inflation differential in the services sector. In the nonenergy industrial goods sector, a higher market concentration in some sectors (furniture trade, drugstores, DIY stores) could be a driver of stronger price increases in Austria.

On top of these current developments there are several structural reasons why HICP inflation tended to be higher in Austria (around 0.6 percentage points above the euro area rate since the great financial crisis): A delayed change in energy policy (i.e. still a high dependence on energy imports from Russia, several subsidies which promote urban sprawl, etc.), unused potential in the labor market (i.e. women not participating in the labor market due to childcare or caretaking responsibilities). Currently the differential is a multiple of its historic size. Based on the first estimate, HICP inflation in Austria was 4.9% in October 2023, compared with 2.9% for the euro area. Nevertheless, based on the OeNB/Eurosystem June 2023 projections[9] the differential is expected to narrow and return to average values seen in the past, but it will not vanish completely by the end of the projection horizon (2025).

This sizable inflation differential is a cause of concern. The nominal appreciation and the increases in unit labor costs that follow from the wage bargaining process may jeopardize the price competitiveness of the Austrian economy. In the following, we will therefore take a closer look at two issues: (1) How might the REER (real effective exchange rate) have evolved since the second half of 2022 if the Austrian inflation rate had corresponded to that in the euro area (i.e. no inflation differential to the euro area). (2) What are the economic consequences regarding output and employment, given not only past developments but also current inflation forecasts, which indicate a sizable differential in future unit labor costs.

3.1 Realized inflation differential explains half of past appreciation and has induced a loss in price competitiveness

Trading partners within the monetary union are not subject to nominal exchange rate movements. Still, countries within a currency union may re- or devalue in real terms relative to their currency union partners if prolonged periods with inflation differentials realize. While short-run deviations will not trigger second-round

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[9] *The ECB confirmed the inflation path from the June projection in its September projection; the OeNB revised its projection only slightly. Both projections had not been published before the cutoff date for this paper.*

Chart 6

Scenario: alternative real effective exchange rate index

Q1 20 = 100
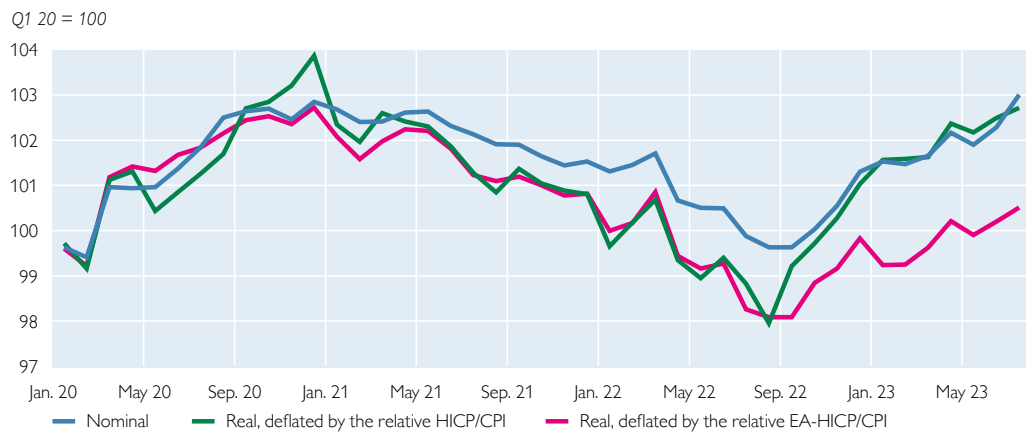
Source: OeNB/WIFO.

effects, persistent deviations are likely to cause second-round effects (via wage and price indexation schemes) and may induce persistent real effects. A prominent example are the southern European countries Italy, Spain, Portugal and Greece prior to the great financial crisis.

Building upon the calculations in section 2, we thus aim to, first, quantify the already realized effects. We do this by comparing the actual real effective exchange rate index shown in chart 2 with a counterfactual one, which we construct by deflating the nominal effective exchange rate for the Austrian economy with the euro area inflation rate. In contrast to all other charts, which are normalized to 1999 Q1=100, in chart 6 we focus only on the most recent development, hence we normalize the exchange rates to 2020 Q1 = 100. Until summer 2022, the inflation rates in Austria and the euro area (relative to all Austrian trading partners) moved in sync but then diverged, reflecting the increasing inflation differential discussed above. So, the inflation differential induced a stronger appreciation. Between August 2022 and July 2023, the difference was 2.4 percentage points. Given total real appreciation in the last twelve months of 4.9 percent, this means that roughly ½ of the overall real appreciation can be attributed to the higher inflation.

What are the effects of this real appreciation on output and employment? To assess the macroeconomic effect of this shock we use the OeNB's Austrian Quarterly Model (Schneider und Leibrecht, 2006), which is regularly used for forecasting exercises and macroeconomic shock simulations. We shock the competitors' export prices in domestic currency with the HICP inflation rate differential from Austria to the euro area between 2022 Q3 to 2023 Q2 – corrected for the historical average (2011–2019) of the quarterly HICP differential of 0.6 percentage points. For the second half of 2023, we hold the (annualized) effect constant and set the shock to zero thereafter. The model results are as follows: The growing inflation differential to the euro area, which reached around 2 percentage points (corrected for the historical differential), induced a negative GDP effect of 0.2 percentage points in 2023 and will dampen GDP growth in 2024 by 0.1 percentage point. This GDP effect corresponds to a loss of around 7,500 jobs in 2023. According to this

simulation, the real appreciation should already have had a sizable effect on GDP growth and employment in Austria. In the next section we will focus on the second-round effects of the currently high inflation episode and highlight the resulting challenges for the Austrian economy.

3.2 Stronger wage growth partly explains persistent inflation gap, fuels unit labor cost growth and induces a further appreciation

In autumn 2023, representatives of the employees' unions and employers' chambers of commerce will negotiate the wage settlements for 2024. In Austria, wage settlements have typically been guided by the so-called Benya rule (average HICP inflation rate of the past 12 months plus past medium-term productivity growth). While the OeNB's June forecast assumed wage moderation (proposing an alternative Benya rule that replaces HICP inflation with the GDP deflator to keep the labor share constant), wage growth in Austria is projected to exceed wage growth in Germany and the euro area. The OeNB and the Eurosystem project the cumulative wage growth for Austria/Germany/euro area at 20%, 16% and 14% respectively for the years 2023-25. As productivity growth is projected to be next to nil, this implies that unit labor cost growth in Austria will be a cumulated 6 percentage points stronger than in the euro area by the end of the forecast horizon.

The effects of a permanent deterioration in Austria's cost competitiveness relative to its trading partners by 6 percentage points were also simulated using the OeNB's macro model. In the medium term, GDP will be almost ¾ percentage points lower, and almost 18,000 jobs would be at risk.

The OeNB model does not permit a breakdown of the effects or shock inputs by sector. For this reason, forecasts and scenarios are simulated at the economy-wide level with an increase in unit labor costs measured at the economy level. But since historically unit labor costs have risen less sharply in the trade-exposed sector, this may invite the conclusion that the simulation results represent an upper bound.

However, the OeNB's model is empirically estimated on the structures and relationships observed in the past and thus also implicitly takes into account lower growth in unit labor costs in industry compared to the economy as a whole in the calibration of an economy-wide unit labor cost shock. Assuming that the past patterns can be extrapolated into the future and that unit labor costs in industry will keep growing around half as much as for the whole economy, the above simulation results should not systematically overestimate the effects.

If the manufacturing industry reduces its profit margins as a result of an increase in unit labor costs to a higher degree than historically this would

Chart 7

Growth of unadjusted unit labor costs

% per year

Source: OeNB, Eurostat.
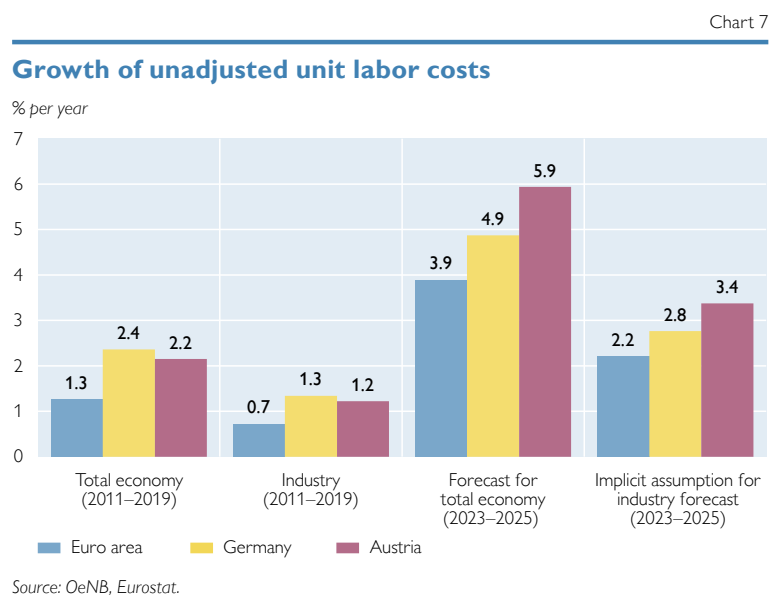
result in lower effects. However, a value-added deflator decomposition in the OeNB's June 2023 forecast (Fritzer et al., 2023) showed a negative contribution of manufacturing profits to the value-added deflator for the high inflation period so far. The absorption potential of this sector for the projection period is therefore expected to be minor.

By contrast, wages are expected to grow at nearly the same rate in the manufacturing industry and the economy as a whole in 2023 and 2024. The first wage negotiations in autumn (for workers of the metal industry and other industrial sectors) usually set the bar for the successive negotiations into 2024. If the past is any indication, strong sectoral differences are unlikely. Inflation rates have dwarfed productivity growth since the second half of 2021, which will render relative differences in wage settlements between the highly productive industry and more labor-intensive service sectors negligible. This would imply that the simulation results presented above rather represent a lower bound of effects, as it can be assumed that unit labor costs of the industry will develop more in line with the total economy and not half its rate as in the past.

Summary

Macroeconomic topics have been gaining a more prominent role in public debates. High inflation has been accompanied by a decline in disposable income, rising interest rates and recession fears. The upcoming wage negotiations for 2024 will be exceptionally important, with warnings ranging from an increase in poverty given too low wage growth to a significant loss in price competitiveness given high settlements.

This article aimed at shedding some light on the latter by quantifying the effects of above-average inflation and wage developments in Austria on its competitive position in international trade. While in the long run the macroeconomic competitiveness position depends on structural factors, in the short run it is determined by price and cost competitiveness of the tradeable goods and services sectors (Peneder et al., 2021).

Using data on trade flows of Austria and its 55 key trading partners over the period 2016–2018 the OeNB, in cooperation with WIFO (Austrian Institute of Economic Research), has recalculated the aggregate real effective exchange rate index and its four subindices from January 2016 onward. Our four subindices cover manufactured goods, food and beverages, raw materials and energy products, and services. Individual country weights in the subindex for manufactured goods continue to be calculated on the basis of single (bilateral) import and double (multilateral) export weights. The remaining subindices use only single (bilateral) import and export weights. All in all, we use four different deflators to calculate the harmonized price competitiveness indicators, each having its own pros and cons in terms of timely availability across countries, international comparability, and the degree of focus on tradable goods. The four deflators are the HICP/CPI, the tourism-related components of the HICP/CPI, producer prices, and the unit labor costs of the total economy.

The newly derived weighting schemes show that the geographical focus of Austria's international trade relations between 2016 and 2018 shifted toward overseas markets in the USA (including the rest of the world), China and Mexico but also towards CESEE countries like Poland and Czechia. We record strong reduc-

tions in the direct bilateral and double weights of Germany, but also vis-à-vis France and Switzerland. Russia also experienced a significant drop in the weight, which was at that time already mainly the consequence of the sanctions following the occupation of Crimea.

Looking at the latest developments, the new calculations confirm the impression that Austria's competitive position has deteriorated, mainly as a result of nominal exchange rate movements, but recently also due to relatively higher inflation in Austria. This development is visible in the parallel movement of the nominal and real effective exchange rate indices (deflated by HICP inflation). Although the real effective exchange rate indices deflated by relative unit labor costs or producer prices, respectively, do not show a deterioration in price competitiveness until the first quarter of 2023, we expect a V-shaped appreciation over the next few quarters based on relatively high wage settlements and producer price inflation in Austria. According to the most recent forecasts, Austria will face a stronger wage growth and higher unit labor costs than their euro area peers and hence a real appreciation in 2024 and 2025. We quantified this loss in price competitiveness in terms of lower real GDP growth and employment in two steps: first we assess the direct losses due to higher inflation with a counterfactual analysis assuming that Austria had the same inflation path as the euro area up until mid-2023. In a second step we employ the most recent ULC forecasts and simulate potential future losses in price competitiveness of second-round effects. Both shocks are not orthogonal and hence cannot be added up. As outlined in the main text, there is reason to believe that our estimated impacts of the second-round effects represent a lower bound. Thus, the sum of the overall negative GDP impact is likely to be around ¾ to 1 percentage point between 2022 and 2025.

Recently, the service sector exhibited a V-shaped evolution of the real effective exchange rate too. In contrast to manufacturing, tourism, as the main exposed service sector, continued its gradual appreciation since 2015. Despite its loss in price competitiveness, the Austrian tourism industry recorded the second highest number of overnight stays in the summer season of 2023 since 1980, but lower real spending by foreign guests already hints at declining tourism spending.

Appendix

Weighting scheme of the exchange rate index

	Austrian exports								Austrian imports			
	Manu-factured goods	Raw ma-terials, energy products	Food	Goods	Services	Travel	Services without travel	Total	Manu-factured goods	Raw ma-terials, energy products	Food	Goods
	Country weights in %, recalculated for the period from 2016 to 2018											
Belgium	2.56	0.55	1.02	2.34	1.51	1.89	1.34	2.09	1.48	0.50	1.69	1.38
Bulgaria	0.34	0.24	0.48	0.34	0.46	0.32	0.52	0.38	0.38	0.12	0.34	0.35
Croatia	0.46	0.98	1.40	0.55	0.65	0.47	0.73	0.58	0.45	0.52	0.54	0.46
Cyprus	0.02	0.00	0.09	0.02	0.25	0.04	0.34	0.09	0.01	0.01	0.10	0.01
Czechia	3.00	4.30	2.42	3.03	2.50	2.29	2.59	2.87	4.07	7.17	2.94	4.36
Denmark	0.64	0.25	0.71	0.63	0.65	0.96	0.52	0.63	0.45	0.22	0.63	0.44
Estonia	0.09	0.04	0.13	0.09	0.07	0.07	0.07	0.08	0.03	0.04	0.01	0.03
Finland	0.59	0.19	0.28	0.55	0.62	0.36	0.74	0.57	0.37	0.29	0.05	0.34
France	5.01	1.39	2.29	4.62	2.16	1.40	2.50	3.89	2.98	0.74	3.14	2.73
Germany	23.29	22.71	34.58	24.09	40.32	46.69	37.50	28.92	37.84	29.41	37.61	36.83
Greece	0.24	0.14	0.69	0.27	0.27	0.18	0.31	0.27	0.11	0.12	0.79	0.16
Hungary	1.53	9.41	3.80	2.12	2.62	3.59	2.19	2.27	2.39	3.02	5.30	2.67
Ireland	0.79	0.02	0.18	0.71	1.18	0.29	1.57	0.85	0.40	0.06	0.68	0.38
Italy	6.74	18.07	11.52	7.70	4.66	4.17	4.88	6.79	6.25	3.94	10.94	6.31
Latvia	0.09	0.06	0.06	0.08	0.09	0.10	0.09	0.09	0.02	0.06	0.05	0.03
Lithuania	0.15	0.11	0.14	0.15	0.09	0.10	0.09	0.13	0.09	0.05	0.20	0.09
Luxembourg	0.15	0.04	0.06	0.14	0.85	0.43	1.04	0.35	0.25	0.01	0.09	0.21
Malta	0.02	0.03	0.08	0.02	0.31	0.03	0.43	0.11	0.01	0.00	0.00	0.01
Netherlands	3.22	0.89	2.72	3.06	4.23	6.63	3.17	3.41	2.62	2.02	4.83	2.71
Poland	3.41	1.18	1.91	3.18	1.64	1.29	1.80	2.72	2.48	2.42	4.30	2.61
Portugal	0.46	0.15	0.17	0.42	0.19	0.12	0.22	0.35	0.49	0.06	0.16	0.41
Romania	1.41	1.09	1.28	1.38	1.61	1.44	1.68	1.45	0.97	0.76	0.99	0.95
Slovakia	1.53	4.51	1.70	1.70	1.55	1.52	1.57	1.66	2.04	3.55	1.50	2.18
Slovenia	0.76	9.31	2.87	1.37	1.07	1.26	0.98	1.28	1.21	2.64	0.87	1.36
Spain	2.44	0.76	1.20	2.26	0.87	0.61	0.98	1.85	1.71	0.38	3.99	1.72
Sweden	1.23	0.25	0.90	1.15	1.44	1.00	1.63	1.24	1.03	0.93	0.23	0.96
Australia	0.52	0.09	1.11	0.54	0.27	0.43	0.20	0.46	0.04	0.37	0.13	0.09
Bosnia and Herzegovina	0.15	0.18	0.36	0.17	0.18	0.19	0.17	0.17	0.42	0.31	0.08	0.38
Brazil	0.65	0.13	0.44	0.61	0.14	0.18	0.13	0.47	0.13	0.62	0.99	0.25
Canada	0.80	0.03	0.19	0.71	0.42	0.34	0.45	0.62	0.25	0.16	0.10	0.23
Chile	0.11	0.00	0.23	0.12	0.05	0.03	0.06	0.10	0.06	0.16	0.37	0.09
China	8.46	3.68	0.51	7.63	1.01	0.92	1.06	5.66	7.15	0.48	0.60	5.89
Hong Kong	0.82	0.19	0.22	0.74	0.16	0.16	0.17	0.57	0.14	0.00	0.00	0.11
Iceland	0.02	0.00	0.05	0.02	0.04	0.05	0.03	0.03	0.05	0.00	0.02	0.04
India	1.16	0.74	0.25	1.07	0.21	0.22	0.20	0.81	0.67	0.15	0.37	0.59
Iran	0.18	0.02	0.08	0.16	0.07	0.00	0.10	0.13	0.01	1.24	0.06	0.16
Israel	0.30	0.34	0.20	0.29	0.24	0.45	0.15	0.28	0.13	0.04	0.09	0.12
Japan	2.15	1.41	0.70	2.01	0.45	0.49	0.43	1.54	1.79	0.04	0.05	1.46
Malaysia	0.57	0.01	0.04	0.50	0.10	0.03	0.14	0.38	0.31	0.01	0.02	0.25
Mexico	0.96	0.04	0.03	0.84	0.17	0.10	0.20	0.64	0.27	0.39	0.21	0.28
New Zealand	0.08	0.00	0.08	0.08	0.06	0.04	0.07	0.07	0.03	0.02	0.20	0.04
Norway	0.31	0.03	0.20	0.28	0.41	0.39	0.42	0.32	0.19	0.24	0.40	0.21
Russian Federation	1.58	0.87	1.29	1.52	1.51	1.38	1.57	1.52	0.30	14.47	0.07	1.96
Saudi Arabia	0.30	0.04	0.24	0.28	0.28	0.36	0.25	0.28	0.02	0.44	0.00	0.07
Serbia	0.34	0.37	0.42	0.35	0.32	0.33	0.31	0.34	0.32	0.17	0.67	0.33
Singapore	0.68	0.00	0.09	0.60	0.19	0.10	0.23	0.48	0.13	0.05	0.01	0.11
South Africa	0.43	0.04	0.29	0.40	0.11	0.09	0.12	0.31	0.11	0.95	0.41	0.23
South Korea	1.79	0.72	0.73	1.66	0.24	0.29	0.21	1.24	0.69	0.05	0.05	0.57
Switzerland	3.31	6.50	3.80	3.52	7.87	6.88	8.32	4.81	4.72	0.89	3.00	4.14
Taiwan	0.71	0.14	0.09	0.64	0.09	0.18	0.06	0.48	0.58	0.01	0.01	0.47
Turkey	1.52	1.54	0.84	1.47	0.97	0.44	1.21	1.32	1.10	0.47	2.13	1.10
Ukraine	0.30	0.34	0.29	0.30	0.31	0.43	0.26	0.30	0.18	2.10	0.37	0.42
United Arab Emirates	0.48	0.11	0.26	0.45	0.55	0.45	0.59	0.48	0.11	0.02	0.01	0.09
United Kingdom	3.16	1.75	1.96	2.99	4.37	3.86	4.59	3.40	2.05	0.94	1.05	1.84
USA	7.99	4.02	12.37	8.10	7.35	3.93	8.86	7.88	7.92	16.20	6.58	8.80
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: OeNB/WIFO.

Table A1 continued

Weighting scheme of the exchange rate index

	Austrian imports				Austrian exports and imports							
	Services	Travel	Services without travel	Total	Manu-factured goods	Raw ma-terials, energy products	Food	Goods	Services	Travel	Services without travel	Total
	Country weights in %, recalculated for the period from 2016 to 2018											
Belgium	1.89	0.59	2.19	1.51	2.03	0.51	1.36	1.85	1.68	1.45	1.76	1.81
Bulgaria	1.17	0.35	1.36	0.55	0.36	0.16	0.41	0.35	0.78	0.33	0.93	0.46
Croatia	2.54	8.91	1.04	0.99	0.45	0.66	0.96	0.51	1.51	3.33	0.88	0.78
Cyprus	0.33	0.40	0.32	0.09	0.01	0.01	0.09	0.02	0.29	0.16	0.33	0.09
Czechia	2.75	1.81	2.97	3.95	3.52	6.29	2.68	3.70	2.61	2.13	2.78	3.40
Denmark	0.41	0.41	0.42	0.43	0.55	0.23	0.67	0.53	0.54	0.77	0.47	0.53
Estonia	0.16	0.16	0.16	0.07	0.06	0.04	0.07	0.06	0.11	0.10	0.11	0.07
Finland	1.04	0.28	1.23	0.52	0.48	0.26	0.17	0.44	0.81	0.33	0.98	0.54
France	2.24	3.20	2.01	2.61	4.02	0.94	2.72	3.66	2.20	2.01	2.26	3.25
Germany	29.54	23.56	30.94	34.99	30.41	27.37	36.12	30.56	35.43	38.84	34.27	31.91
Greece	1.05	3.60	0.45	0.39	0.18	0.13	0.74	0.22	0.62	1.34	0.38	0.33
Hungary	3.27	2.98	3.34	2.82	1.95	4.97	4.56	2.40	2.92	3.38	2.76	2.54
Ireland	2.26	0.81	2.60	0.86	0.60	0.05	0.43	0.54	1.67	0.47	2.08	0.85
Italy	5.67	15.40	3.39	6.15	6.50	8.24	11.22	6.99	5.12	7.98	4.15	6.48
Latvia	0.17	0.19	0.16	0.06	0.06	0.06	0.05	0.06	0.13	0.13	0.13	0.08
Lithuania	0.69	0.10	0.83	0.24	0.12	0.07	0.17	0.12	0.36	0.10	0.45	0.19
Luxembourg	1.08	0.17	1.29	0.43	0.20	0.02	0.07	0.18	0.96	0.34	1.16	0.39
Malta	0.21	0.30	0.19	0.06	0.02	0.01	0.04	0.02	0.26	0.12	0.31	0.08
Netherlands	2.94	0.83	3.43	2.77	2.93	1.67	3.79	2.88	3.64	4.66	3.30	3.09
Poland	2.86	0.82	3.34	2.67	2.96	2.04	3.12	2.89	2.19	1.13	2.55	2.70
Portugal	0.48	0.95	0.37	0.43	0.47	0.09	0.16	0.42	0.32	0.40	0.29	0.39
Romania	2.82	0.52	3.36	1.42	1.19	0.86	1.13	1.16	2.16	1.13	2.51	1.43
Slovakia	2.85	0.67	3.37	2.35	1.78	3.84	1.60	1.94	2.14	1.23	2.45	2.00
Slovenia	2.26	2.62	2.18	1.59	0.98	4.67	1.85	1.36	1.61	1.72	1.57	1.43
Spain	1.94	5.25	1.16	1.77	2.08	0.50	2.61	1.98	1.36	2.18	1.07	1.81
Sweden	1.89	0.83	2.14	1.20	1.13	0.72	0.56	1.05	1.64	0.94	1.88	1.22
Australia	0.32	0.72	0.23	0.15	0.29	0.28	0.62	0.31	0.30	0.53	0.22	0.31
Bosnia and Herzegovina	0.28	0.42	0.24	0.35	0.28	0.27	0.22	0.28	0.22	0.27	0.21	0.26
Brazil	0.29	0.32	0.28	0.26	0.40	0.47	0.72	0.43	0.21	0.23	0.20	0.37
Canada	0.38	0.62	0.32	0.27	0.53	0.12	0.14	0.47	0.40	0.43	0.39	0.45
Chile	0.05	0.11	0.04	0.08	0.09	0.11	0.30	0.10	0.05	0.06	0.05	0.09
China	0.87	0.59	0.94	4.62	7.82	1.46	0.56	6.74	0.95	0.80	1.00	5.15
Hong Kong	0.26	0.27	0.25	0.15	0.49	0.06	0.11	0.42	0.21	0.20	0.21	0.36
Iceland	0.11	0.45	0.03	0.06	0.03	0.00	0.03	0.03	0.07	0.19	0.03	0.04
India	0.37	0.28	0.40	0.53	0.92	0.33	0.31	0.82	0.28	0.24	0.30	0.67
Iran	0.08	0.00	0.10	0.14	0.09	0.87	0.07	0.16	0.07	0.00	0.10	0.14
Israel	0.22	0.26	0.21	0.14	0.22	0.13	0.15	0.20	0.23	0.39	0.18	0.21
Japan	0.27	0.39	0.24	1.16	1.97	0.46	0.37	1.73	0.37	0.46	0.34	1.35
Malaysia	0.35	0.10	0.41	0.28	0.44	0.01	0.03	0.37	0.22	0.05	0.27	0.33
Mexico	0.14	0.23	0.11	0.24	0.62	0.28	0.12	0.56	0.16	0.15	0.16	0.45
New Zealand	0.07	0.24	0.04	0.05	0.05	0.02	0.14	0.06	0.07	0.11	0.05	0.06
Norway	0.28	0.53	0.23	0.23	0.25	0.17	0.30	0.25	0.35	0.44	0.32	0.28
Russian Federation	1.47	0.56	1.68	1.83	0.95	10.33	0.67	1.74	1.49	1.10	1.62	1.67
Saudi Arabia	0.17	0.06	0.20	0.10	0.16	0.32	0.12	0.17	0.23	0.26	0.22	0.19
Serbia	0.45	0.49	0.44	0.36	0.33	0.23	0.55	0.34	0.38	0.39	0.37	0.35
Singapore	0.24	0.29	0.22	0.14	0.41	0.03	0.05	0.35	0.21	0.16	0.23	0.31
South Africa	0.40	0.44	0.39	0.27	0.27	0.67	0.35	0.31	0.24	0.21	0.26	0.29
South Korea	0.16	0.22	0.15	0.46	1.25	0.25	0.38	1.10	0.20	0.27	0.18	0.85
Switzerland	4.14	2.32	4.57	4.14	4.00	2.60	3.40	3.83	6.18	5.33	6.47	4.48
Taiwan	0.16	0.09	0.17	0.39	0.65	0.05	0.05	0.55	0.12	0.15	0.11	0.43
Turkey	0.72	1.47	0.55	1.00	1.31	0.80	1.49	1.28	0.86	0.79	0.88	1.16
Ukraine	0.64	0.16	0.76	0.48	0.24	1.56	0.33	0.36	0.46	0.34	0.50	0.39
United Arab Emirates	0.60	0.72	0.57	0.22	0.30	0.04	0.13	0.27	0.57	0.54	0.58	0.35
United Kingdom	4.41	2.81	4.78	2.49	2.61	1.19	1.50	2.41	4.38	3.50	4.69	2.95
USA	7.58	9.10	7.22	8.49	7.96	12.49	9.44	8.46	7.45	5.69	8.06	8.18
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: OeNB/WIFO.

Competition matrix for manufactured goods exports

Competing countries	Destinations									
	Belgium	Bulgaria	Croatia	Cyprus	Czechia	Denmark	Estonia	Finland	France	Germany
	Market shares in %, calculated for the period from 2016 to 2018									
Belgium	8.76	2.47	1.68	1.76	1.93	2.58	1.81	1.54	6.14	3.51
Bulgaria	0.30	28.49	0.47	0.52	0.27	0.14	0.14	0.04	0.13	0.20
Croatia	0.08	0.21	34.36	0.29	0.12	0.04	0.07	0.03	0.05	0.10
Cyprus	0.01	0.05	0.01	11.17	0.02	0.02	0.02	0.00	0.00	0.01
Czechia	1.32	2.31	2.13	0.95	27.41	1.59	1.71	0.80	1.17	3.29
Denmark	0.45	0.23	0.41	0.33	0.31	36.48	1.01	1.24	0.31	0.60
Estonia	0.06	0.06	0.01	0.22	0.04	0.25	26.66	1.48	0.03	0.04
Finland	0.46	0.23	0.13	2.16	0.17	0.70	6.40	61.56	0.18	0.47
France	8.81	2.46	1.81	1.71	2.79	2.47	1.65	1.61	42.01	4.08
Germany	13.75	11.83	12.67	6.97	24.60	15.73	9.92	8.48	13.48	51.81
Greece	0.06	3.23	0.29	12.48	0.10	0.08	0.04	0.04	0.08	0.08
Hungary	0.70	3.54	4.16	0.35	2.64	0.70	1.08	0.29	0.61	1.74
Ireland	5.91	0.29	0.18	0.26	0.27	0.57	0.16	0.15	0.62	0.58
Italy	4.56	7.00	10.28	7.41	3.64	2.46	2.47	1.38	5.92	3.22
Latvia	0.03	0.08	0.02	0.14	0.08	0.35	5.28	0.17	0.02	0.04
Lithuania	0.09	0.16	0.10	0.08	0.14	0.57	4.24	0.32	0.07	0.09
Luxembourg	0.45	0.08	0.03	0.08	0.10	0.10	0.05	0.04	0.23	0.18
Malta	0.00	0.02	0.02	0.04	0.01	0.01	0.00	0.01	0.03	0.03
Netherlands	10.84	2.78	1.99	3.26	4.20	4.26	4.48	2.59	3.82	4.31
Poland	1.41	2.60	2.41	1.63	6.98	2.99	5.61	1.23	1.40	3.14
Portugal	0.38	0.23	0.17	0.35	0.22	0.34	0.15	0.12	0.92	0.41
Romania	0.37	4.22	0.62	0.33	1.12	0.24	0.39	0.17	0.60	0.91
Slovakia	0.37	1.55	1.65	0.57	4.88	0.66	0.68	0.19	0.68	1.05
Slovenia	0.14	0.73	7.42	0.17	0.43	0.32	0.29	0.07	0.22	0.37
Spain	2.20	1.60	1.37	2.39	1.27	1.25	0.96	0.70	4.64	1.64
Sweden	1.90	0.44	0.38	0.39	0.65	7.56	5.80	5.93	0.65	0.76
Australia	0.07	0.03	0.01	0.03	0.01	0.04	0.02	0.02	0.03	0.03
Bosnia and Herzegovina	0.01	0.06	1.69	0.01	0.05	0.01	0.00	0.00	0.01	0.05
Brazil	0.28	0.02	0.03	1.08	0.03	0.20	0.12	0.06	0.11	0.13
Canada	0.68	0.22	0.06	0.10	0.09	0.18	0.07	0.20	0.22	0.12
Chile	0.12	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.08	0.01
China	5.17	3.81	4.68	5.65	5.73	5.87	5.44	2.39	3.53	4.08
Hong Kong	0.83	0.35	0.23	0.61	0.68	0.42	0.84	0.30	0.59	0.55
Iceland	0.01	0.00	0.01	0.00	0.01	0.02	0.00	0.00	0.01	0.01
India	1.80	0.58	0.51	0.59	0.26	0.65	0.40	0.21	0.52	0.44
Iran	0.03	0.17	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.01
Israel	0.80	0.13	0.09	4.85	0.09	0.07	0.07	0.05	0.18	0.09
Japan	1.98	0.32	0.17	1.96	0.79	0.40	0.74	0.32	0.79	1.02
Malaysia	0.34	0.19	0.08	0.15	0.23	0.11	0.07	0.07	0.18	0.34
Mexico	0.30	0.00	0.04	0.03	0.11	0.08	0.03	0.08	0.18	0.32
New Zealand	0.01	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.01	0.01
Norway	0.18	0.04	0.12	0.67	0.09	1.29	0.67	0.46	0.10	0.14
Russian Federation	1.51	1.65	0.31	1.66	0.67	0.41	4.70	1.95	0.09	0.21
Saudi Arabia	0.61	0.02	0.02	0.09	0.00	0.01	0.30	0.01	0.05	0.01
Serbia	0.05	1.23	1.75	0.08	0.26	0.05	0.03	0.02	0.05	0.11
Singapore	1.75	0.16	0.03	0.06	0.27	0.11	0.05	0.09	0.44	0.34
South Africa	0.76	0.06	0.02	0.05	0.08	0.03	0.10	0.02	0.07	0.31
South Korea	0.90	0.45	1.39	11.33	1.37	0.91	0.41	0.26	0.37	0.47
Switzerland	1.86	1.19	0.97	1.00	0.93	0.88	0.62	0.56	1.81	2.37
Taiwan	0.44	0.36	0.19	0.21	0.26	0.32	0.51	0.21	0.21	0.38
Turkey	0.98	7.84	1.29	7.73	0.58	0.93	0.65	0.24	0.84	0.87
Ukraine	0.04	1.33	0.11	0.18	0.22	0.13	0.51	0.06	0.02	0.07
United Arab Emirates	1.43	0.39	0.06	0.78	0.05	0.04	0.07	0.02	0.12	0.09
United Kingdom	4.32	1.68	0.86	4.21	1.59	2.70	1.42	1.32	3.10	2.38
USA	9.31	0.80	0.50	0.86	1.16	1.50	1.08	0.92	2.30	2.41
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Single export weights	1.37	0.51	0.88	0.05	3.73	0.52	0.10	0.45	4.82	30.28

Source: OeNB/WIFO.

Competition matrix for manufactured goods exports

Competing countries	Destinations									
	Greece	Hungary	Ireland	Italy	Latvia	Lithuania	Luxem-bourg	Malta	Nether-lands	Poland
	Market shares in %, calculated for the period from 2016 to 2018									
Belgium	2.44	2.54	1.23	2.24	1.81	3.29	14.47	1.03	6.74	2.48
Bulgaria	1.76	0.43	0.02	0.24	0.18	0.26	0.01	0.26	0.11	0.18
Croatia	0.08	0.27	0.02	0.14	0.08	0.12	0.23	0.12	0.05	0.06
Cyprus	0.36	0.00	0.03	0.00	0.03	0.03	0.00	0.35	0.01	0.00
Czechia	0.58	5.10	0.53	0.73	1.45	2.48	0.71	0.44	1.28	3.01
Denmark	0.29	0.54	0.39	0.16	1.20	1.61	0.18	0.32	0.68	0.55
Estonia	0.01	0.04	0.01	0.01	4.11	2.51	0.00	0.03	0.03	0.07
Finland	0.15	0.29	0.13	0.13	1.75	1.28	0.07	0.56	0.70	0.42
France	2.82	3.75	1.61	3.43	1.31	2.39	5.79	4.32	2.84	2.99
Germany	7.92	27.40	5.27	7.24	9.38	13.38	15.85	7.29	15.17	18.16
Greece	46.13	0.12	0.04	0.18	0.07	0.11	0.04	0.81	0.08	0.11
Hungary	0.59	12.14	0.15	0.49	0.98	0.93	0.33	0.14	0.73	1.36
Ireland	0.65	0.36	64.41	0.33	0.15	0.12	0.28	0.69	1.34	0.41
Italy	6.34	5.21	1.23	65.21	2.40	3.64	1.75	13.60	2.05	4.26
Latvia	0.02	0.05	0.01	0.02	32.48	5.89	0.04	0.09	0.04	0.13
Lithuania	0.04	0.19	0.05	0.04	8.24	21.73	0.04	0.05	0.11	0.39
Luxembourg	0.04	0.08	0.03	0.06	0.05	0.09	41.08	0.02	0.16	0.10
Malta	0.01	0.01	0.00	0.02	0.00	0.01	0.00	12.07	0.01	0.01
Netherlands	2.44	3.71	1.74	1.81	2.31	3.59	3.52	2.51	23.24	3.43
Poland	1.11	5.47	0.41	1.01	6.65	10.49	1.15	0.48	1.59	40.87
Portugal	0.21	0.29	0.21	0.20	0.15	0.27	0.26	0.26	0.37	0.18
Romania	0.79	2.93	0.06	0.79	0.10	0.33	0.07	0.10	0.29	0.66
Slovakia	0.40	3.90	0.10	0.52	1.03	0.76	0.34	0.15	0.44	1.84
Slovenia	0.16	0.78	0.03	0.29	0.25	0.33	0.08	0.18	0.12	0.31
Spain	2.59	1.77	0.96	2.00	0.70	1.10	0.96	1.65	1.32	1.58
Sweden	0.45	0.65	0.30	0.38	1.88	2.33	0.36	0.27	1.20	1.09
Australia	0.02	0.03	0.04	0.02	0.03	0.01	0.05	0.01	0.12	0.01
Bosnia and Herzegovina	0.01	0.14	0.00	0.07	0.01	0.03	0.14	0.01	0.03	0.02
Brazil	0.03	0.16	0.13	0.14	0.04	0.04	0.07	0.02	0.37	0.05
Canada	0.04	0.06	0.19	0.13	2.14	0.20	0.28	2.97	0.30	0.12
Chile	0.10	0.01	0.00	0.06	0.00	0.00	0.00	0.02	0.12	0.00
China	8.19	6.43	1.87	3.28	6.31	6.42	3.09	17.66	13.86	5.73
Hong Kong	0.26	1.95	0.17	0.39	0.51	0.68	0.26	0.23	1.79	0.46
Iceland	0.00	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.27	0.00
India	0.55	0.43	0.30	0.52	0.58	0.35	0.04	1.51	0.68	0.41
Iran	0.03	0.00	0.00	0.04	0.00	0.01	0.00	0.00	0.01	0.01
Israel	0.54	0.13	0.05	0.10	0.15	0.15	0.06	1.45	0.42	0.07
Japan	0.47	1.51	0.51	0.51	0.32	0.21	1.81	6.02	2.52	0.61
Malaysia	0.14	0.44	0.12	0.09	0.27	0.07	0.03	0.44	1.00	0.12
Mexico	0.02	0.21	0.15	0.11	0.02	0.00	0.09	0.00	0.30	0.06
New Zealand	0.00	0.00	0.01	0.02	0.01	0.00	0.00	0.01	0.04	0.00
Norway	0.06	0.08	0.23	0.05	0.22	0.52	0.10	0.41	0.64	0.25
Russian Federation	1.07	0.46	0.12	0.24	4.66	3.82	0.04	0.15	0.97	0.65
Saudi Arabia	0.24	0.00	0.01	0.08	0.00	0.01	0.01	0.28	0.12	0.11
Serbia	0.21	0.54	0.00	0.24	0.03	0.13	0.03	0.02	0.05	0.12
Singapore	0.05	0.29	0.18	0.07	0.11	0.04	0.16	0.87	1.47	0.09
South Africa	0.07	0.10	0.04	0.06	0.02	0.16	0.04	0.10	0.22	0.04
South Korea	2.88	1.47	0.39	0.42	0.37	1.28	0.07	8.68	0.75	1.10
Switzerland	1.26	1.01	0.67	1.37	0.86	0.55	1.33	0.91	1.24	0.74
Taiwan	0.23	0.55	0.16	0.24	0.63	0.50	0.37	0.30	1.08	0.28
Turkey	2.20	1.21	0.36	0.90	0.75	1.14	0.17	2.24	0.74	0.94
Ukraine	0.17	1.03	0.00	0.18	0.62	0.63	0.02	0.14	0.08	0.56
United Arab Emirates	0.14	0.04	0.03	0.10	0.15	0.11	0.11	0.22	0.34	0.05
United Kingdom	1.68	1.88	10.58	1.36	1.24	1.83	0.95	6.32	3.40	1.78
USA	0.97	1.75	4.73	1.56	1.20	2.01	3.08	1.20	6.40	0.92
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Single export weights	0.28	3.00	0.21	5.34	0.10	0.16	0.13	0.03	1.82	3.26

Source: OeNB/WIFO.

Competition matrix for manufactured goods exports

Competing countries	Destinations									
	Portugal	Romania	Slovakia	Slovenia	Spain	Sweden	Australia	Bosnia and Her-zegovina	Brazil	Canada
	Market shares in %, calculated for the period from 2016 to 2018									
Belgium	2.13	1.57	1.38	1.76	2.22	3.30	0.61	1.00	0.43	0.39
Bulgaria	0.07	1.55	0.22	0.35	0.09	0.10	0.01	0.74	0.00	0.01
Croatia	0.06	0.14	0.20	3.01	0.05	0.06	0.00	8.33	0.00	0.01
Cyprus	0.00	0.02	0.06	0.01	0.00	0.03	0.00	0.01	0.00	0.00
Czechia	0.62	2.04	13.75	2.09	1.17	1.43	0.13	1.64	0.04	0.05
Denmark	0.15	0.16	0.26	0.22	0.29	3.34	0.22	0.16	0.05	0.07
Estonia	0.01	0.08	0.04	0.03	0.02	0.87	0.00	0.01	0.00	0.01
Finland	0.15	0.14	0.12	0.20	0.20	2.09	0.17	0.05	0.05	0.07
France	4.89	3.67	3.73	2.65	6.85	2.51	0.76	1.18	0.66	0.47
Germany	9.92	13.20	16.82	14.17	9.56	13.22	3.30	11.06	1.36	1.78
Greece	0.11	0.62	0.05	0.13	0.12	0.05	0.02	0.35	0.00	0.01
Hungary	0.48	3.69	6.01	2.59	0.69	0.75	0.14	3.34	0.03	0.04
Ireland	0.45	0.29	0.09	0.18	0.60	0.34	0.37	0.20	0.04	0.19
Italy	4.39	6.64	3.86	9.97	4.92	2.19	1.21	8.86	0.52	0.60
Latvia	0.01	0.01	0.06	0.03	0.02	0.32	0.00	0.04	0.00	0.00
Lithuania	0.07	0.07	0.11	0.07	0.05	0.59	0.01	0.03	0.00	0.01
Luxembourg	0.06	0.05	0.06	0.10	0.07	0.10	0.00	0.01	0.00	0.01
Malta	0.01	0.02	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00
Netherlands	2.65	1.99	1.74	2.17	2.56	3.54	0.72	1.48	0.29	0.33
Poland	0.88	2.96	5.53	1.98	1.15	2.78	0.18	2.46	0.05	0.19
Portugal	43.31	0.40	0.42	0.19	2.54	0.26	0.05	0.03	0.06	0.04
Romania	0.19	44.07	1.47	1.06	0.38	0.31	0.02	0.86	0.03	0.03
Slovakia	0.31	1.71	29.66	1.53	0.54	0.60	0.06	1.25	0.01	0.06
Slovenia	0.12	0.42	0.59	26.28	0.13	0.18	0.04	8.68	0.01	0.02
Spain	17.15	1.89	1.23	1.43	49.94	0.93	0.49	0.71	0.27	0.23
Sweden	0.38	0.28	0.41	0.44	0.42	46.38	0.52	0.25	0.12	0.19
Australia	0.01	0.03	0.01	0.02	0.02	0.03	54.85	0.00	0.02	0.06
Bosnia and Herzegovina	0.00	0.07	0.09	1.22	0.02	0.02	0.00	29.60	0.00	0.00
Brazil	0.38	0.04	0.03	0.04	0.13	0.09	0.09	0.01	84.71	0.12
Canada	0.09	0.06	0.03	0.05	0.14	0.18	0.38	0.03	0.17	46.42
Chile	0.01	0.00	0.00	0.00	0.07	0.01	0.03	0.00	0.24	0.10
China	3.70	3.38	3.39	8.91	4.85	3.51	12.73	1.02	3.93	5.07
Hong Kong	0.37	0.40	0.35	0.23	0.42	0.44	1.41	0.22	0.21	0.38
Iceland	0.01	0.00	0.01	0.00	0.07	0.00	0.01	0.00	0.00	0.01
India	0.66	0.29	0.18	0.67	0.72	0.35	0.73	0.18	0.39	0.33
Iran	0.00	0.03	0.00	0.02	0.02	0.00	0.01	0.03	0.01	0.00
Israel	0.12	0.11	0.02	0.82	0.18	0.07	0.16	0.02	0.13	0.11
Japan	0.46	0.34	0.25	0.33	0.65	0.65	3.81	0.04	0.46	1.36
Malaysia	0.08	0.10	0.10	1.03	0.10	0.13	1.13	0.01	0.10	0.12
Mexico	0.05	0.06	0.02	0.03	0.17	0.03	0.21	0.00	0.47	1.74
New Zealand	0.00	0.00	0.00	0.00	0.01	0.01	0.77	0.00	0.00	0.02
Norway	0.11	0.07	0.05	0.02	0.14	1.33	0.05	0.03	0.03	0.04
Russian Federation	0.09	0.42	0.39	0.13	0.10	0.21	0.03	0.42	0.27	0.05
Saudi Arabia	0.07	0.01	0.00	0.04	0.14	0.04	0.11	0.00	0.06	0.01
Serbia	0.02	0.49	0.39	1.28	0.04	0.07	0.00	9.55	0.00	0.00
Singapore	0.09	0.05	0.03	0.11	0.07	0.09	1.78	0.01	0.15	0.11
South Africa	0.06	0.03	0.00	0.07	0.17	0.06	0.23	0.01	0.04	0.03
South Korea	0.49	0.42	3.52	5.14	0.58	0.46	2.69	0.05	0.70	0.83
Switzerland	0.89	0.66	0.71	1.73	1.27	0.67	0.75	0.95	0.32	0.58
Taiwan	0.40	0.16	0.37	0.44	0.23	0.30	0.93	0.04	0.16	0.36
Turkey	0.89	2.76	0.54	3.32	1.32	0.64	0.15	4.19	0.05	0.15
Ukraine	0.08	0.49	0.38	0.06	0.04	0.03	0.00	0.17	0.00	0.01
United Arab Emirates	0.03	0.03	0.00	0.04	0.08	0.02	0.16	0.11	0.01	0.04
United Kingdom	1.69	1.29	0.90	0.88	2.26	2.79	1.59	0.37	0.33	0.91
USA	0.54	0.54	0.31	0.70	1.42	1.49	6.19	0.18	3.00	36.25
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Single export weights	0.28	1.70	2.00	1.53	1.88	1.20	0.82	0.27	0.54	0.89

Source: OeNB/WIFO.

Competition matrix for manufactured goods exports

Competing countries	Destinations									
	Chile	China	Hong Kong	Iceland	India	Iran	Israel	Japan	Malaysia	Mexico
	Market shares in %, calculated for the period from 2016 to 2018									
Belgium	0.49	0.05	0.42	1.77	0.70	0.38	2.57	0.15	0.23	0.23
Bulgaria	0.01	0.00	0.01	0.03	0.01	0.04	0.07	0.00	0.01	0.01
Croatia	0.00	0.00	0.01	0.05	0.00	0.00	0.04	0.00	0.00	0.00
Cyprus	0.00	0.00	0.01	0.00	0.00	0.01	0.06	0.00	0.00	0.00
Czechia	0.08	0.02	0.06	0.99	0.05	0.05	1.08	0.03	0.08	0.14
Denmark	0.18	0.02	0.06	7.06	0.03	0.13	0.13	0.03	0.05	0.07
Estonia	0.00	0.00	0.00	0.34	0.00	0.00	0.01	0.00	0.00	0.02
Finland	0.28	0.02	0.03	0.79	0.04	0.09	0.09	0.03	0.05	0.06
France	1.11	0.15	1.07	3.53	0.42	0.93	1.57	0.26	0.77	0.67
Germany	2.99	0.76	1.23	11.57	0.93	2.36	5.05	0.96	2.20	2.52
Greece	0.02	0.00	0.01	0.05	0.00	0.02	0.27	0.00	0.00	0.02
Hungary	0.08	0.02	0.05	0.19	0.02	0.03	0.33	0.03	0.06	0.15
Ireland	0.10	0.03	0.11	0.56	0.03	0.10	0.79	0.14	0.08	0.28
Italy	1.20	0.11	1.17	2.11	0.30	1.58	2.71	0.27	0.52	0.81
Latvia	0.00	0.00	0.00	0.42	0.00	0.00	0.02	0.00	0.00	0.00
Lithuania	0.01	0.00	0.01	0.66	0.00	0.00	0.04	0.00	0.00	0.00
Luxembourg	0.01	0.00	0.00	0.12	0.00	0.01	0.03	0.00	0.01	0.01
Malta	0.01	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Netherlands	0.62	0.07	0.26	9.66	0.14	0.60	2.31	0.15	0.36	0.25
Poland	0.15	0.02	0.03	2.33	0.04	0.08	0.43	0.02	0.05	0.11
Portugal	0.16	0.00	0.03	0.28	0.01	0.03	0.12	0.00	0.01	0.06
Romania	0.05	0.01	0.01	0.16	0.02	0.29	0.23	0.01	0.01	0.03
Slovakia	0.06	0.01	0.01	0.43	0.00	0.02	0.39	0.01	0.01	0.04
Slovenia	0.02	0.00	0.01	0.06	0.01	0.05	0.06	0.01	0.01	0.02
Spain	1.72	0.03	0.15	1.57	0.10	0.40	1.64	0.08	0.26	0.82
Sweden	0.35	0.05	0.08	5.61	0.08	0.33	0.30	0.09	0.13	0.12
Australia	0.11	0.03	0.23	0.02	0.04	0.01	0.08	0.08	0.59	0.02
Bosnia and Herzegovina	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Brazil	3.17	0.03	0.04	0.02	0.05	0.13	0.16	0.05	0.05	0.65
Canada	0.43	0.04	0.15	0.64	0.12	0.02	0.33	0.09	0.15	0.74
Chile	52.87	0.07	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.10
China	16.17	91.90	49.52	2.29	5.23	13.60	9.36	5.65	15.67	6.52
Hong Kong	0.77	2.18	5.24	0.31	1.38	0.17	2.25	0.72	1.59	0.70
Iceland	0.00	0.00	0.00	27.07	0.00	0.00	0.00	0.00	0.00	0.00
India	0.86	0.06	2.42	0.18	83.62	1.09	2.25	0.12	1.24	0.64
Iran	0.00	0.04	0.00	0.00	0.13	61.38	0.00	0.00	0.03	0.01
Israel	0.14	0.03	0.78	0.06	0.17	0.00	40.21	0.04	0.08	0.07
Japan	1.67	0.98	4.53	1.37	0.69	0.58	2.11	85.05	4.72	1.94
Malaysia	0.17	0.17	2.23	0.03	0.35	0.13	0.00	0.45	47.19	0.35
Mexico	1.84	0.03	0.09	0.00	0.05	0.00	0.20	0.07	0.18	44.76
New Zealand	0.05	0.00	0.02	0.05	0.00	0.00	0.02	0.04	0.03	0.01
Norway	0.12	0.01	0.01	3.70	0.01	0.01	0.02	0.02	0.05	0.01
Russian Federation	0.04	0.04	0.11	0.23	0.34	0.63	0.95	0.08	0.10	0.24
Saudi Arabia	0.02	0.06	0.05	0.01	0.20	0.00	0.00	0.04	0.56	0.01
Serbia	0.00	0.00	0.00	0.03	0.00	0.01	0.02	0.00	0.00	0.00
Singapore	0.07	0.33	7.05	0.03	0.75	0.13	0.79	0.69	11.14	0.19
South Africa	0.05	0.01	0.16	0.11	0.05	0.06	0.25	0.14	0.12	0.02
South Korea	1.67	1.10	6.84	0.65	1.03	2.81	1.41	0.96	2.73	1.90
Switzerland	0.34	0.09	1.12	0.48	0.13	0.41	1.16	0.33	0.30	0.25
Taiwan	0.28	0.69	7.07	0.10	0.25	0.47	0.76	0.89	3.60	0.40
Turkey	0.32	0.01	0.10	1.38	0.04	2.54	3.46	0.01	0.08	0.09
Ukraine	0.00	0.00	0.00	0.01	0.02	0.02	0.22	0.00	0.00	0.01
United Arab Emirates	0.10	0.04	0.85	0.02	0.75	8.03	0.00	0.05	0.24	0.01
United Kingdom	0.72	0.11	1.47	8.47	0.35	0.18	1.49	0.31	0.64	0.29
USA	8.28	0.57	5.06	2.39	1.29	0.04	12.15	1.83	3.98	33.62
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Single export weights	0.13	2.75	0.38	0.02	0.60	0.22	0.26	0.97	0.42	0.90

Source: OeNB/WIFO.

Competition matrix for manufactured goods exports

Competing countries	Destinations									
	New Zealand	Norway	Russian Federation	Saudi Arabia	Serbia	Singapore	South Africa	South Korea	Switzerland	Taiwan
	Market shares in %, calculated for the period from 2016 to 2018									
Belgium	0.45	1.49	0.59	0.69	2.18	0.45	1.04	0.12	1.68	0.17
Bulgaria	0.01	0.03	0.09	0.02	1.71	0.01	0.02	0.00	0.06	0.01
Croatia	0.00	0.07	0.03	0.03	2.11	0.00	0.01	0.00	0.06	0.00
Cyprus	0.00	0.16	0.01	0.01	0.02	0.03	0.00	0.00	0.01	0.00
Czechia	0.16	0.73	0.55	0.22	2.12	0.11	0.41	0.03	0.94	0.05
Denmark	0.18	4.24	0.10	0.11	0.59	0.13	0.19	0.04	0.24	0.04
Estonia	0.00	0.47	0.19	0.00	0.04	0.00	0.01	0.00	0.02	0.00
Finland	0.11	1.30	0.50	0.09	0.14	0.07	0.22	0.05	0.14	0.04
France	0.81	1.46	0.88	1.74	1.96	2.54	1.35	0.35	5.40	0.51
Germany	2.50	8.70	4.21	2.85	11.68	2.74	7.81	1.48	19.71	1.85
Greece	0.02	0.04	0.03	0.03	1.05	0.02	0.05	0.00	0.04	0.00
Hungary	0.12	0.16	0.25	0.04	4.80	0.07	0.17	0.04	0.34	0.03
Ireland	0.15	0.19	0.06	0.29	0.32	0.27	0.16	0.06	2.70	0.06
Italy	0.95	1.47	1.26	1.60	7.72	0.72	1.31	0.37	7.42	0.32
Latvia	0.01	0.23	0.11	0.00	0.02	0.01	0.01	0.00	0.02	0.00
Lithuania	0.02	0.67	0.57	0.00	0.06	0.02	0.01	0.00	0.05	0.00
Luxembourg	0.01	0.04	0.01	0.02	0.04	0.01	0.03	0.00	0.04	0.00
Malta	0.00	0.00	0.00	0.00	0.01	0.06	0.01	0.00	0.01	0.00
Netherlands	0.75	3.02	0.74	0.84	1.80	0.88	1.15	0.43	1.84	0.84
Poland	0.26	2.31	1.02	0.20	3.24	0.13	0.42	0.04	0.71	0.03
Portugal	0.04	0.13	0.02	0.05	0.10	0.02	0.13	0.01	0.21	0.05
Romania	0.01	0.36	0.18	0.06	2.39	0.01	0.14	0.02	0.15	0.01
Slovakia	0.05	0.20	0.26	0.05	1.60	0.01	0.10	0.01	0.49	0.01
Slovenia	0.02	0.08	0.14	0.03	4.23	0.01	0.03	0.01	0.23	0.01
Spain	0.33	0.89	0.29	0.98	1.01	0.26	0.85	0.10	1.46	0.08
Sweden	0.27	11.89	0.30	0.31	0.50	0.27	0.54	0.11	0.40	0.10
Australia	8.65	0.04	0.01	0.20	0.01	0.43	0.21	0.10	0.04	0.22
Bosnia and Herzegovina	0.00	0.01	0.01	0.01	1.27	0.00	0.00	0.00	0.02	0.00
Brazil	0.06	0.08	0.06	0.00	0.03	0.24	0.66	0.06	0.05	0.04
Canada	0.44	0.35	0.06	0.46	0.03	0.29	0.19	0.08	0.35	0.11
Chile	0.04	0.02	0.00	0.00	0.00	0.01	0.06	0.15	0.02	0.17
China	8.91	2.32	6.50	8.02	2.43	14.22	10.97	7.62	1.28	9.07
Hong Kong	1.02	0.18	0.46	0.46	0.46	2.91	0.89	0.56	1.29	1.98
Iceland	0.00	0.06	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00
India	0.52	0.22	0.25	1.41	0.23	1.45	2.18	0.23	0.39	0.27
Iran	0.00	0.00	0.01	0.00	0.04	0.00	0.02	0.02	0.00	0.07
Israel	0.11	0.04	0.07	0.00	0.10	0.18	0.19	0.06	0.52	0.14
Japan	3.78	0.86	0.95	1.90	0.07	5.10	1.81	3.50	0.58	8.12
Malaysia	0.84	0.09	0.07	0.22	0.02	8.37	0.33	0.35	0.09	0.97
Mexico	0.13	0.02	0.02	0.05	0.00	0.18	0.08	0.05	0.11	0.05
New Zealand	57.61	0.02	0.00	0.01	0.00	0.06	0.03	0.02	0.01	0.01
Norway	0.09	44.23	0.03	0.03	0.04	0.17	0.03	0.06	0.10	0.01
Russian Federation	0.01	0.22	75.32	0.05	1.73	0.07	0.06	0.07	0.82	0.38
Saudi Arabia	0.20	0.02	0.00	59.74	0.00	1.13	0.34	0.06	0.03	0.15
Serbia	0.00	0.02	0.10	0.00	34.78	0.00	0.00	0.00	0.04	0.00
Singapore	1.76	0.52	0.09	0.26	0.02	36.42	0.25	1.16	0.71	3.27
South Africa	0.13	0.03	0.01	0.09	0.01	0.12	58.52	0.06	0.27	0.07
South Korea	1.49	3.47	0.97	2.17	0.50	2.94	0.69	78.27	0.19	2.67
Switzerland	0.35	0.60	0.33	0.83	1.08	1.50	0.48	0.24	39.40	0.38
Taiwan	0.79	0.16	0.16	0.45	0.13	5.56	0.46	1.02	0.19	63.17
Turkey	0.15	0.48	0.30	1.01	4.08	0.12	0.32	0.04	0.25	0.03
Ukraine	0.00	0.01	0.48	0.07	0.25	0.03	0.01	0.00	0.02	0.01
United Arab Emirates	0.13	0.06	0.12	4.80	0.10	0.48	0.44	0.04	1.38	0.09
United Kingdom	1.82	3.32	0.52	2.21	0.80	2.00	1.68	0.36	2.82	0.28
USA	3.74	2.25	0.69	5.26	0.38	7.15	2.93	2.50	4.64	4.05
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Single export weights	0.11	0.38	1.52	0.33	0.48	0.31	0.37	0.84	5.02	0.33

Source: OeNB/WIFO.

Competition matrix for manufactured goods exports

Competing countries	Destinations						Double export weights
	Turkey	Ukraine	United Arab Emirates	United Kingdom	USA	Rest of the world	

Market shares in %, calculated for the period from 2016 to 2018

	Turkey	Ukraine	United Arab Emirates	United Kingdom	USA	Rest of the world	Double export weights
Belgium	1.10	1.05	1.71	3.79	0.34	1.26	2.56
Bulgaria	0.35	0.25	0.03	0.07	0.01	0.12	0.34
Croatia	0.02	0.06	0.01	0.03	0.01	0.09	0.46
Cyprus	0.00	0.01	0.01	0.02	0.00	0.06	0.02
Czechia	0.53	1.96	0.34	1.12	0.06	0.69	3.00
Denmark	0.13	0.36	0.14	0.60	0.07	1.09	0.64
Estonia	0.01	0.17	0.02	0.03	0.01	0.02	0.09
Finland	0.16	0.30	0.11	0.24	0.07	0.24	0.59
France	1.68	1.30	1.49	3.60	0.57	2.89	5.01
Germany	5.32	7.70	5.50	11.02	2.07	7.40	23.29
Greece	0.15	0.08	0.09	0.09	0.01	0.11	0.24
Hungary	0.47	2.66	0.08	0.47	0.06	0.43	1.53
Ireland	0.13	0.07	0.17	1.39	0.66	0.33	0.79
Italy	2.37	2.36	2.39	2.83	0.69	2.99	6.74
Latvia	0.01	0.15	0.03	0.04	0.01	0.03	0.09
Lithuania	0.01	0.52	0.02	0.11	0.01	0.12	0.15
Luxembourg	0.04	0.03	0.03	0.06	0.00	0.02	0.15
Malta	0.00	0.00	0.00	0.01	0.01	0.02	0.02
Netherlands	1.17	1.25	0.97	3.84	0.30	1.47	3.22
Poland	0.71	6.55	0.22	1.48	0.09	0.61	3.41
Portugal	0.09	0.04	0.07	0.48	0.04	0.31	0.46
Romania	0.39	0.79	0.09	0.35	0.02	0.31	1.41
Slovakia	0.19	0.69	0.07	0.51	0.04	0.36	1.53
Slovenia	0.07	0.27	0.04	0.07	0.01	0.19	0.76
Spain	1.32	0.57	0.66	2.08	0.17	1.90	2.44
Sweden	0.27	0.63	0.23	0.69	0.16	0.42	1.23
Australia	0.03	0.01	0.26	0.21	0.09	0.41	0.52
Bosnia and Herzegovina	0.02	0.01	0.00	0.01	0.00	0.05	0.15
Brazil	0.18	0.05	0.21	0.12	0.31	1.89	0.65
Canada	0.08	0.08	0.29	0.28	3.13	0.37	0.80
Chile	0.04	0.00	0.01	0.01	0.07	0.30	0.11
China	4.16	9.28	13.01	7.01	7.21	26.64	8.46
Hong Kong	0.24	0.39	2.94	0.81	0.74	2.56	0.82
Iceland	0.00	0.00	0.00	0.02	0.00	0.00	0.02
India	0.83	0.46	8.82	1.02	0.68	3.20	1.16
Iran	0.31	0.02	0.70	0.00	0.00	0.63	0.18
Israel	0.32	0.24	0.00	0.55	0.29	0.38	0.30
Japan	0.73	0.66	3.39	1.35	2.17	6.49	2.15
Malaysia	0.32	0.09	1.09	0.26	0.34	1.71	0.57
Mexico	0.02	0.01	0.10	0.16	4.84	0.87	0.96
New Zealand	0.00	0.00	0.03	0.03	0.02	0.07	0.08
Norway	0.05	0.06	0.09	0.27	0.03	0.14	0.31
Russian Federation	1.12	7.36	0.40	0.16	0.10	2.02	1.58
Saudi Arabia	0.45	0.07	2.98	0.07	0.03	0.96	0.30
Serbia	0.06	0.17	0.02	0.03	0.00	0.10	0.34
Singapore	0.11	0.02	1.38	0.38	0.41	3.59	0.68
South Africa	0.05	0.01	0.59	0.38	0.09	1.14	0.43
South Korea	1.41	0.46	2.12	0.91	1.12	6.51	1.79
Switzerland	0.42	0.50	1.34	1.42	0.60	1.19	3.31
Taiwan	0.32	0.21	0.51	0.47	0.61	2.01	0.71
Turkey	69.17	2.00	1.25	1.17	0.12	1.99	1.52
Ukraine	0.31	45.53	0.09	0.03	0.01	0.30	0.30
United Arab Emirates	0.39	0.17	34.28	0.41	0.10	2.89	0.48
United Kingdom	1.22	0.85	3.66	43.08	0.94	1.63	3.16
USA	0.95	1.48	5.93	4.36	70.50	6.48	7.99
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Single export weights	0.91	0.33	0.46	3.05	7.12	3.63	100.00

Source: OeNB/WIFO.

Comparison of the weights for manufactured goods across different calculation periods

	1998 to 2000				2013 to 2015	
	Austrian exports (single weights)	Austrian exports (double weights)	Austrian imports	Total	Austrian exports (single weights)	Austrian exports (double weights)
	%					
Belgium	1.82	2.77	2.21	2.48	1.47	2.53
Bulgaria	0.34	0.19	0.11	0.15	0.54	0.34
Croatia	0.98	0.51	0.34	0.42	0.97	0.47
Cyprus	0.05	0.02	0.00	0.01	0.10	0.02
Czechia	2.78	2.14	2.13	2.14	3.56	2.81
Denmark	0.86	0.80	0.64	0.72	0.58	0.66
Estonia	0.05	0.04	0.03	0.03	0.09	0.08
Finland	0.62	0.91	1.12	1.02	0.42	0.55
France	4.75	6.61	5.22	5.89	5.30	5.18
Germany	36.82	29.95	43.28	36.86	31.04	23.56
Greece	0.45	0.34	0.15	0.24	0.30	0.27
Hungary	4.93	2.50	3.02	2.77	3.03	1.57
Ireland	0.32	0.82	0.75	0.78	0.44	0.75
Italy	6.85	8.74	7.80	8.25	5.38	6.66
Latvia	0.06	0.03	0.02	0.03	0.13	0.08
Lithuania	0.08	0.06	0.04	0.05	0.14	0.16
Luxembourg	0.20	0.18	0.17	0.18	0.15	0.13
Malta	0.02	0.02	0.01	0.02	0.03	0.02
Netherlands	2.45	2.40	2.95	2.68	1.68	3.14
Poland	1.69	1.61	0.76	1.17	3.34	3.19
Portugal	0.49	0.58	0.56	0.57	0.26	0.41
Romania	0.68	0.50	0.42	0.46	1.60	1.27
Slovakia	1.11	0.78	1.07	0.93	2.01	1.52
Slovenia	1.68	0.93	1.00	0.97	1.49	0.78
Spain	3.06	3.15	1.41	2.25	1.84	2.44
Sweden	1.22	1.58	1.49	1.53	1.22	1.28
Australia	0.50	0.41	0.03	0.22	0.65	0.43
Bosnia and Herzegovina	–	–	–	–	0.27	0.15
Brazil	0.42	0.55	0.13	0.33	0.64	0.76
Canada	0.76	0.68	0.55	0.61	0.91	0.80
Chile	0.05	0.07	0.01	0.04	0.14	0.11
China	0.74	1.71	1.66	1.68	2.87	8.16
Hong Kong	0.57	0.88	0.34	0.60	0.48	0.81
Iceland	0.03	0.03	0.02	0.02	0.02	0.02
India	0.17	0.38	0.24	0.30	0.57	1.08
Iran	0.32	0.30	0.03	0.16	0.19	0.16
Israel	0.23	0.29	0.15	0.22	0.23	0.29
Japan	1.03	3.14	2.97	3.05	1.04	2.10
Malaysia	0.13	0.35	0.31	0.33	0.43	0.52
Mexico	0.23	0.41	0.14	0.27	0.60	0.77
New Zealand	0.07	0.05	0.01	0.03	0.12	0.08
Norway	0.47	0.44	0.15	0.29	0.42	0.36
Russian Federation	0.92	1.03	0.29	0.64	2.52	2.23
Saudi Arabia	0.27	0.17	0.01	0.09	0.62	0.41
Serbia	–	–	–	–	0.42	0.32
Singapore	0.28	0.54	0.20	0.37	0.36	0.66
South Africa	0.38	0.41	0.07	0.23	0.44	0.44
South Korea	0.34	0.96	0.51	0.73	0.70	1.66
Switzerland	6.24	3.68	3.39	3.53	5.33	3.61
Taiwan	0.37	0.90	0.94	0.92	0.34	0.67
Thailand	0.20	0.31	0.26	0.28	0.25	0.54
Turkey	0.78	0.94	0.54	0.73	1.07	1.46
Ukraine	0.29	0.32	0.12	0.22	0.42	0.35
United Arab Emirates	0.22	0.10	0.01	0.05	0.62	0.40
United Kingdom	4.71	5.47	3.37	4.38	3.39	3.29
USA	4.93	7.32	6.86	7.08	6.85	7.49
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: OeNB/WIFO.

Note: Thailand is no longer included in the 2016 to 2018 matrix, as Austria's export of goods to Thailand averaged less than 2% between 2016 and 2018.

Comparison of the weights for manufactured goods across different calculation periods

	2013 to 2015		2016 to 2018			
	Austrian imports	Total	Austrian exports (single weights)	Austrian exports (double weights)	Austrian imports	Total
	%					
Belgium	1.72	2.14	1.42	2.56	1.48	2.03
Bulgaria	0.35	0.35	0.53	0.34	0.38	0.36
Croatia	0.45	0.46	0.91	0.46	0.45	0.45
Cyprus	0.03	0.03	0.05	0.02	0.01	0.01
Czechia	3.68	3.22	3.87	3.00	4.07	3.52
Denmark	0.43	0.55	0.54	0.64	0.45	0.55
Estonia	0.03	0.05	0.10	0.09	0.03	0.06
Finland	0.40	0.48	0.47	0.59	0.37	0.48
France	3.13	4.21	5.00	5.01	2.98	4.02
Germany	39.34	31.07	31.42	23.29	37.84	30.41
Greece	0.10	0.19	0.29	0.24	0.11	0.18
Hungary	2.51	2.02	3.11	1.53	2.39	1.95
Ireland	0.63	0.69	0.22	0.79	0.40	0.60
Italy	6.32	6.50	5.54	6.74	6.25	6.50
Latvia	0.02	0.05	0.11	0.09	0.02	0.06
Lithuania	0.06	0.11	0.17	0.15	0.09	0.12
Luxembourg	0.23	0.18	0.13	0.15	0.25	0.20
Malta	0.01	0.02	0.03	0.02	0.01	0.02
Netherlands	2.61	2.89	1.88	3.22	2.62	2.93
Poland	1.96	2.61	3.39	3.41	2.48	2.96
Portugal	0.45	0.43	0.29	0.46	0.49	0.47
Romania	0.97	1.13	1.77	1.41	0.97	1.19
Slovakia	1.81	1.66	2.08	1.53	2.04	1.78
Slovenia	1.14	0.95	1.59	0.76	1.21	0.98
Spain	1.80	2.13	1.95	2.44	1.71	2.08
Sweden	1.11	1.20	1.25	1.23	1.03	1.13
Australia	0.04	0.24	0.85	0.52	0.04	0.29
Bosnia and Herzegovina	0.35	0.25	0.28	0.15	0.42	0.28
Brazil	0.11	0.45	0.56	0.65	0.13	0.40
Canada	0.33	0.58	0.93	0.80	0.25	0.53
Chile	0.04	0.08	0.14	0.11	0.06	0.09
China	7.16	7.68	2.85	8.46	7.15	7.82
Hong Kong	0.08	0.46	0.40	0.82	0.14	0.49
Iceland	0.01	0.02	0.02	0.02	0.05	0.03
India	0.58	0.84	0.63	1.16	0.67	0.92
Iran	0.01	0.09	0.23	0.18	0.01	0.09
Israel	0.14	0.22	0.27	0.30	0.13	0.22
Japan	1.73	1.92	1.01	2.15	1.79	1.97
Malaysia	0.31	0.42	0.44	0.57	0.31	0.44
Mexico	0.21	0.51	0.93	0.96	0.27	0.62
New Zealand	0.02	0.06	0.11	0.08	0.03	0.05
Norway	0.16	0.27	0.40	0.31	0.19	0.25
Russian Federation	0.32	1.32	1.58	1.58	0.30	0.95
Saudi Arabia	0.03	0.23	0.34	0.30	0.02	0.16
Serbia	0.24	0.28	0.49	0.34	0.32	0.33
Singapore	0.11	0.39	0.32	0.68	0.13	0.41
South Africa	0.08	0.27	0.38	0.43	0.11	0.27
South Korea	0.75	1.23	0.87	1.79	0.69	1.25
Switzerland	4.80	4.18	5.21	3.31	4.72	4.00
Taiwan	0.55	0.61	0.35	0.71	0.58	0.65
Thailand	0.46	0.50	-	-	-	-
Turkey	1.06	1.27	0.95	1.52	1.10	1.31
Ukraine	0.17	0.26	0.34	0.30	0.18	0.24
United Arab Emirates	0.16	0.29	0.48	0.48	0.11	0.30
United Kingdom	1.95	2.65	3.16	3.16	2.05	2.61
USA	6.76	7.14	7.39	7.99	7.92	7.96
Total	100.00	100.00	100.00	100.00	100.00	100.00

Source: OeNB/WIFO.

Note: Thailand is no longer included in the 2016 to 2018 matrix, as Austria's export of goods to Thailand averaged less than 2% between 2016 and 2018.

Literature

Anderson, J. E. and E. van Wincoop. 2003. Gravity with Gravitas: A Solution to the Border Puzzle. American Economic Review, 93(1), pp. 170-192.

Baumgartner, J., Scheiblecker, M. and T. Url. 2022. Maintaining credibility is currently the top priority. Monetary Dialogue Papers, November 2022. https://www.europarl.europa.eu/cmsdata/258100/Maintaining%20credibility%20is%20currently%20the%20top%20priority.pdf.

Boz, E., Casas, C., Georgiadis, G., Gopinath, G., Le Mezo, H., Mehl, A. and T. Nguyen. 2022. Patterns of invoicing currency in global trade: New evidence. Journal of International Economics, 136(103604), https://doi.org/10.1016/j.jinteco.2022.103604.

ECB. 2020. The ECB's enhanced effective exchange rate measures. Economic Bulletin, (6), pp. 50–54. https://www.ecb.europa.eu/pub/pdf/ecbu/eb202006.en.pdf.

Gopinath, G. and O. Itskhoki. 2022. Dominant Currency Paradigm: A Review. In Gopinath, G., Helpman, E. and K. Rogoff. "Handbook of International Economics, Elsevier, 6, pp. 45-90. https://doi.org/10.1016/bs.hesint.2022.02.009.

Glauninger, U., Url, T. and K. Vondra. 2021. Exchange rate index update for Austria shows lower effective appreciation than previously measured. OeNB Monetary Policy & the Economy, (4), pp. 13–41.

Fenz, G., Fritzer, F., Moser, M., Ragacs, C., Reiss, L., Schneider, M., Sellner, R., Stiglbauer, A. and Vondra, K. 2023. Inflationsschock, Lohnfindungsprozess, Wettbewerbsfähigkeit – Aktuelle makroökonomische Herausforderungen. Themen im Fokus. 2023. Inflationsschock, Lohnfindungsprozess, Wettbewerbsfähigkeit – Aktuelle makroökonomische Herausforderungen - Oesterreichische Nationalbank (OeNB)

Fritz, O. and Ehn-Fragner, S. 2023. Tourism Analysis: Guests Return, but Inflation Dampens Real Revenues, WIFO Research Briefs, 2023, (12).

Fritzer, F. 2023. Warum ist die Inflation in Österreich höher als im Euroraum? Inflation aktuell Q2/2023, pp. 11-14.

Fritzer, F., Moser, M., Ragacs, C., Reiss, R., Stiglbauer A. and K. Vondra 2023. Konjunkturbelebung nach Stagflationsphase, Gesamtwirtschaftliche Prognose für Österreich 2023 bis 2025 vom Juni 2023, pp. 12-13.

Köhler-Töglhofer, W. 1999. Berechnung effektiver Wechselkursindizes als Indikatoren der Wettbewerbsfähigkeit. OeNB Berichte und Studien, (1), pp. 104–128.

Köhler-Töglhofer, W. and Ch. Magerl. 2013. Revision of price/cost competitiveness indicators for Austria. OeNB Monetary Policy & the Economy, (2), pp. 93–119.

Marin, D. 1985. Structural Change Through Exchange Rate Policy, Weltwirtschaftliches Archiv, 121, pp. 471-491.

Neusser, K., Reiter, M., Koch, S., Felbermayr, G., Baumgartner, J. and M. Schratzenstaller. 2022. Maßnahmen zur Bekämpfung der Inflation und ihrer Auswirkungen. IHS Policy Brief No. 8. https://irihs.ihs.ac.at/id/eprint/6191/7/ihs-wifo-policy-brief-stellungnahme-ihs-wifo-bekaempfung-der-inflation.pdf.

Peneder, M., Bittschi, B., Köppl, A., Mayerhofer, P. and T. Url. 2023. The WIFO radar of competitiveness for the Austrian economy 2022. WIFO Reports on Austria, (2). https://www.wifo.ac.at/wwa/pubid/70623.

Prammer, D. and L. Reiss, 2023. Fighting (the effects of) inflation: government measures in Austria and the EU. OeNB Monetary Policy & the Economy, Q4(22)-Q1(23), pp. 95–106.

Ragacs, C. and K. Vondra, 2021. Österreichs Wirtschaftsentwicklung, preisliche Wettbewerbsfähigkeit und Überblick über die Außenwirtschaft. In Gnan E. and C. Schneider (Ed.). Schwerpunkt Außenwirtschaft 2020/2021, facultas, Vienna, pp. 89–108. https://news.wko.at/news/oesterreich/Schwerpunkt-Aussenwirtschaft-2020-2021.pdf.

Schneider, M. and M. Leibrecht, 2006. AQM-06: The Macroeconomic Model of the OeNB. OeNB Working Paper132.

Stehrer, R. 2020. Konvergenz, Produktionsintegration und Spezialisierung in Europa seit 1995. Monetary Policy and the Economy, Q1-Q2/2020, pp. 49-59.

Stehrer, R. and R. Stöllinger. 2020. The Central European Manufacturing Core: What is Driving Regional Production Sharing? FIW-Research Reports 2014/15 No. 2.

Url, T. 2023. Hohe Inflation führt zu Kurswechsel in der Geldpolitik. WIFO-Monatsberichte, 96(4), pp. 269-281. https://www.wifo.ac.at/wwa/pubid/70747.