WIFO ■ REPORTS ON AUSTRIA
13/2024

Significant Increase in Relative Unit Labour Costs in 2023

Benjamin Bittschi, Birgit Meyer

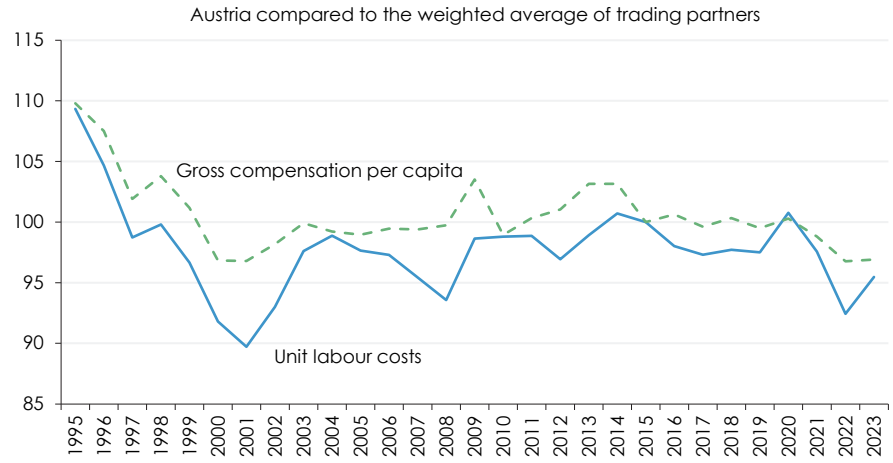
Significant Increase in Relative Unit Labour Costs in 2023

Benjamin Bittschi, Birgit Meyer

- The article examines the development of wage-related competitiveness based on the development of unit labour costs in Austria in relative to its most important trading partners.
- Relative unit labour cost development is a composite measure of changes in labour costs, productivity and the exchange rate.
- Austria's nominal effective exchange rate with its main trading partners increased by 0.6 percent in 2023.
- Unit labour costs in Austrian manufacturing increased by 9.7 percent in 2023. Relative unit labour costs thus deteriorated both compared to the weighted average of all trading partners (+3.3 percentage points) and compared to EU trading partners (+1.9 percentage points).
- Over the last ten years, unit labour costs in manufacturing have grown 0.4 percentage points p.a. slower than the average for all trading partners, but 0.2 and 0.5 percentage points faster than in Germany and Western Europe respectively.

Development of relative labour costs and unit labour costs in manufacturing

In €, 2015 = 100



Relative to the trading partners, unit labour costs in Austrian manufacturing increased significantly in 2023 (source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. Trading partners: EU trading partners (excluding Malta), Norway, UK, USA, Canada and Japan).

"On average over the last five years, Austria has had the most unfavourable development in unit labour costs compared to similar economies."

Significant Increase in Relative Unit Labour Costs in 2023

Benjamin Bittschi, Birgit Meyer

November 2024

Significant Increase in Relative Unit Labour Costs in 2023

In 2023, unit labour costs in the Austrian production of goods rose by 9.7 percent compared to the previous year. This is a significant deterioration in relative unit labour costs, both compared to the weighted average of all trading partners (+3.3 percentage points) and compared to EU trading partners (+1.9 percentage points). Relative unit labour costs also deteriorated compared to the most important trading partner, Germany (+4.6 percentage points). Unit labour costs only improved compared to the Eastern European trading partners. This development compared to the weighted average of trading partners is primarily due to a poorer productivity trend in combination with an unfavourable exchange rate development. Compared to Germany and the Western European countries, on the other hand, the dynamic development of labour costs is the main determinant of the poorer unit labour cost development. Over the last ten years, Austrian unit labour costs in the production of goods have grown 0.4 percentage points p.a. slower than the average for all trading partners, but 0.2 and 0.5 percentage points faster than in Germany and Western Europe respectively. Due to the government aid measures in the wake of the COVID-19 pandemic and the cushioning of high inflation, the data should still be interpreted with caution.

JEL-Codes: F16, F31, J3, L6 • **Keywords:** Unit labour costs, Price competitiveness, Production of goods

Scientific referee: Werner Hölzl • **Research assistance:** Doris Steininger (doris.steininger@wifo.ac.at), Stefan Weingärtner (stefan.weingaertner@wifo.ac.at) • **Cut-off date:** 11 October 2024

Contact: Benjamin Bittschi (benjamin.bittschi@wifo.ac.at), Birgit Meyer (birgit.meyer@wifo.ac.at)

Imprint: Publisher: Gabriel Felbermayr • Editor-in-Chief: Hans Pitlik (hans.pitlik@wifo.ac.at) • Editorial team: Tamara Fellinger, Christoph Lorenz, Tatjana Weber • Media owner (publisher), producer: Austrian Institute of Economic Research • 1030 Vienna, Arsenal, Objekt 20 • Tel. (+43 1) 798 26 01-0, https://reportsonaustria.wifo.ac.at/ • Place of publishing and production: Vienna • 2024/RoA/7496

1. Relative unit labour costs depict the development of Austria's price competitiveness in the manufacturing sector

The interaction of production costs, productivity and exchange rates plays an important role in the international competitiveness of national economies. The development of the price competitiveness of Austrian goods can be mapped using the change in relative unit labour costs over time. Relative unit labour costs are an index in which changes in labour costs, productivity and the exchange rate are combined in one indicator and compared with the unit labour costs adjusted for exchange rate changes (i.e., the labour costs per unit produced) of the most important trading partners.

However, unit labour costs are only a partial measure of the international competitiveness of a sector or even an entire economy, as they only depict the price-related or, more precisely, the wage-related dimension of competitiveness. As some econometric studies (e.g., Carlin et al., 2001; Köhler-Töglhofer et al., 2017) show, the change in relative unit labour costs contributes significantly to explaining trade flows and shifts in market shares between trading partners in the medium term. Other studies though emphasise the importance of other factors, e.g., technology and organisational structures, for the development of exports and market shares, while they attribute only limited explanatory power to changes in unit labour costs (Dosi et al., 2015).

This article is the annual update of the analysis of unit labour cost development. It examines the period from 1995 to 2023, covering both the effects of the COVID-19 pandemic and the effects of the energy and inflation crisis on the development of Austria's unit labour costs relative to its main trading partners. However, the results for the crisis years 2020 to 2023 should be interpreted with caution, both in a comparison over time and in comparison with the main partner countries. This is due to country-specific differences in the design, implementation

and time based accounting of government crisis measures.

The choice of countries for comparison is limited by the availability of longer time series on unit labour costs or their individual components. The analysis is therefore limited to the EU member countries (with the exception of Malta) as well as Norway, the USA, the UK, Japan and Canada. These 30 countries cover around two thirds of Austrian imports and exports.

With the national accounts for the year 2023, which were published in September 2024, the data for the years 1995 to 2022 were also revised. In addition, the calculation of the weights for the relative unit labour costs was updated in order to reflect trade links as accurately and currently as possible. The revision and the adjustment of the weighting calculation resulted in a correction of individual values, but the trend in unit labour cost development remained unchanged. Compared to the previous year's analysis (Bittschi & Meyer, 2023), the revised data show a slightly less favourable development of relative unit labour costs in Austrian industry in 2022.

2. The nominal effective exchange rate increased by 0.6 percent in 2023

The starting point for analysing price competitiveness and thus the relative unit labour cost position is the nominal effective exchange rate. This compares the value of the national currency with a basket of currencies that reflects the importance of the individual trading partners my means of a weighting scheme[1]. By deflating the nominal effective exchange rate with the unit labour costs, the unit labour cost position of domestic production of tangible goods can be determined. The unit labour cost position thus reflects the real external value of the national currency in international competition and corresponds to a real effective exchange rate of this currency (see box "Calculation method and data basis for the unit labour cost comparison").

Figure 1: **Development of the nominal effective exchange rate index for industrial goods**

Source: WIFO calculations. Weighted average of the country group according to the calculation of unit labour costs.

In 2023, there was a slight appreciation of the nominal effective exchange rate for industrial goods from an Austrian perspective (+0.6 percent)[2]. This was the result of a combination of appreciation and depreciation of the euro against the national currencies of the various trading partners (Figure 1). The euro appreciated against the Norwegian krone (+13.10 percent), the Japanese yen (+10.10 percent), the Swedish krona (+7.95 percent), the Canadian dollar (+6.51 percent), the dollar (+2.63 percent), the British pound (+2.03 percent), the Romanian lei (+0.30 percent) and the Danish krone (+0.15 percent), which made Austrian exports to these countries more expensive. These partly strong upward developments were contrasted by devaluation movements against other currencies. For example, the euro lost value against the Polish zloty

[1] Since slightly more than 70 percent of the weighting scheme used in the currency basket is accounted for euro countries, exchange rate changes only play a minor role for the Austrian export economy in the calculation of the nominal effective exchange rate.

[2] A decline in the nominal effective exchange rate corresponds to a devaluation of the reference currency (euro or before 1999, schilling), an increase to an appreciation.

Despite a slight appreciation in 2023, the nominal effective exchange rate has remained largely stable in the recent past.

(–3.04 percent), the Swiss franc (–3.33 percent) and the Hungarian forint (–2.35 percent).

Over the long term, the nominal effective exchange rate index remained largely stable since 2004, exhibiting only minor fluctuations[3]. Since 2015 there has been a slight upward trend (2023 +2.3 percent compared to 2015), although this slowed somewhat in 2019 and 2022.

Calculation method and data basis for the unit labour cost comparison

The unit labour costs in national currency (ULC) of an industry, a sector or the total economy are defined by the ratio of the nominal wage total (NWT) to the real gross value added (GVA):

$$ULC = \frac{NWT}{GVA} .$$

Dividing both the nominal wage total and gross value added by a measure of labour input yields the two components of unit labour costs: labour costs per unit of labour and labour productivity.

A change in the share of self-employed persons in the labour force can be taken into account by presenting unit labour costs as a quotient of labour costs per employee (EM) and gross value added measured in terms of persons employed (PE):

$$ULC = \frac{\frac{NWT}{EM}}{\frac{GVA}{PE}} .$$

WIFO calculates unit labour costs using these formulas and data determined according to the national accounts survey concept. For the determination of unit labour costs in Austrian manufacturing, the number of employment relationships or jobs is used instead of the concept of persons (employees and persons employed).

For international comparisons, unit labour costs must be expressed in a common currency because exchange rate shifts can change a country's cost position just as much as the development of unit labour costs. The **relative unit labour cost position** of a country is therefore the quotient of the unit labour costs of both trading partners, measured in a single currency. For a comparison with several countries, a weighting scheme must be used, as the individual markets usually have different significance in foreign trade. Regardless of the methodological approach, such a weighting scheme is based on data from foreign trade statistics and thus reflects the foreign trade integration of an economy.

WIFO relies on a harmonised method, which is also used by central banks of the euro area to measure international competitiveness. The weighting scheme consists of single (bilateral) import weights and double (multilateral) export weights for industrial goods (SITC 5 to 8; for details of the method, see Turner & Dack, 1993). The double export weighting takes into account competition with trading partners in the respective domestic markets as well as competition in all other export markets. The double export weights have been calculated and applied separately for each year since 2022 based on the OECD's "Trade in Value Added" information. For the years 2021 to 2023, the average for 2018-2020 was updated due to missing data. The change in the weighting scheme to annual, variable weights makes it possible to take into account shifts in market share as well as changes in competition with third countries in foreign markets. The recalculation of the weights thus ensures the most accurate and up-to-date representation for country-specific trade links.

The international data on gross compensation, productivity and unit labour costs in manufacturing and the total economy are mainly based on the Eurostat database. Figures from the AMECO database and national statistics of the respective countries (this applies to the USA, Canada, Japan and the UK) were only used if these did not contain any current values.

To the country selection

The "EU trading partners" aggregate comprises all of Austria's EU trading partners excluding Malta, while the "All trading partners" aggregate also includes the UK, Norway, the USA, Canada and Japan. In order to take account of the heterogeneous dynamics within the EU, two further country groups were distinguished: the "EU member countries before 2004" and the "New EU member countries (accession since 2004)". Malta and the UK are also not included.

3. Inflationary pressure dampened the dynamic development of labour costs and productivity in Austria

The development of labour costs in manufacturing is assessed on the basis of gross compensation (remuneration) per employee in national currency (Table 1). This figure from the national accounts records the total wages and salaries including employers' social security contributions. As a result of the COVID-19 aid and support measures to combat inflation, the financing of compensation of employees shifted in part from companies to the public sector from 2020. As these circumstances are not always reflected in the national accounts, the data on labour costs for the years 2020 to 2023 only provide limited information on the actual expenditure of companies. They should therefore be interpreted with caution as a determinant of price competitiveness. As in previous years, this also applies to the comparison countries in a similar way. In

[3] The range of fluctuation would be greater if more non-euro countries could be included in the analysis than is possible here due to data availability.

addition, different support measures were taken in the reference countries, which makes it difficult to compare labour costs both between countries and within individual countries over time.

In 2023, in nominal terms, gross compensation per capita in Austrian manufacturing increased by 6.5 percent compared to the previous year. This means that labour costs in Austria increased faster than in 2022 (+3.9 percent). Due to a significant revision of the national accounts data, the growth in labour costs per capita for 2022 shown in Table 1 is significantly lower than calculated in the previous year's article (+3.9 percent compared to +5.1 percent according to Bittschi & Meyer, 2023). In 2023, labour costs per capita in the main trading partners increased somewhat more strongly than in Austria. On a weighted average of all trading partners, the increase in labour costs per capita in manufacturing was 7.0 percent (EU trading partners +7.6 percent). In Germany, on the other hand, labour costs increased by 0.8 percentage points less than in Austria.

Over the long term, according to the current data, labour costs per capita in Austria have developed somewhat less dynamically than in the weighted average of its trading partners. Over the past ten years, they have risen by 2.7 percent p.a. in Austria, by 3.4 percent p.a. in the weighted average of all trading partners and by 3.6 percent p.a. in the weighted average of EU trading partners. However, this comparison (Table 1) is based on figures in national currency and does not take exchange rate fluctuations into account.

In a common currency, i.e., taking exchange rate fluctuations into account, labour costs in Austria rose relative to the comparison countries, particularly in the crisis year 2009 and then again between 2011 and 2014 (Figure 2). From 2015, relative labour costs in Austria declined again and fluctuated only slightly in the following years. In the crisis years from 2020 (COVID-19 pandemic, inflation crisis), labour costs in Austria also declined relative to the weighted average of all trading partners. In 2023, the level of labour costs relative to all trading partners was comparable to that of the 2000s. The same applies to the level of labour costs relative to the EU trading partners.

The weighted average of all trading partners results from the partly different labour cost trends in the individual countries and country groups. Due to the appreciation of the euro against the dollar, the Canadian dollar, the Japanese yen and the Norwegian krone, labour costs in euros in the USA (+1.2 percent), Canada (–3.8 percent), Japan (–6.3 percent) and Norway (–5.5 percent) increased or declined significantly less than in Austria and the other euro countries in 2023. As a result of these exchange rate dynamics, per capita labour costs in manufacturing increased by 0.7 percentage points less in euro terms than in national currency terms on a weighted average of all trading partners. This means that although labour costs per capita in Austria increased 0.5 percentage points slower in national currency terms than the weighted average of all trading partners, if exchange rate fluctuations are taken into account, per capita labour costs in Austria grew at a similar rate.

As the most important trading partner, Germany plays a special role in the international comparison of per capita labour costs. In the 2000s and until the financial market and economic crisis in 2009, labour costs per capita in German manufacturing increased very moderately. During this period, labour costs in Austria therefore increased significantly more than in Germany (Figure 2). This pattern changed after the outbreak of the crisis in 2009, with no clear shift in the cost ratio between the two countries between 2010 and 2019. For the years since the COVID-19 crisis in 2020, however, the data show a stronger increase in gross compensation per capita in Austria than in Germany, with stronger labour cost dynamics at the same time.

Between 2013 and 2023, labour costs per capita in Austria increased slightly more than in the "old" EU member countries, but significantly less than in the countries that joined the EU from 2004.

This also applies when looking at the weighted average of trading partners that were already part of the EU before 2004. In 2023, labour costs per capita in the weighted average of these 13 countries increased by 5.3 percent, 1.2 percentage points less than in Austria. Over the last ten years (2013-2023), per capita labour costs in Austria have also risen by an average of 0.3 percentage points per year faster than in comparable western EU countries.

Over the last five years (2018-2023), most EU countries have seen increasing cost dynamics. This was particularly noticeable in Eastern Europe. Since the 1990s, these countries have been catching up with the high-wage countries of Western Europe in terms of labour costs. After the outbreak of the financial market and economic crisis, this process came to a halt in some countries, such as Poland and Hungary. In the following years, however, and especially recently, growth rates significantly above the EU average were recorded again, indicating a continuation of the catching-up process. For 2023, a strong increase in labour costs per capita (in national currency) can be seen, particularly in Bulgaria (+23.9 percent), Hungary (+17.5 percent) and Romania (+16.8 percent), where dynamic wage growth with high inflation compensation as well as an increase in the minimum wage caused gross

compensation per capita to rise strongly. In the weighted aggregate of the "new" EU trading partners (accession from 2004), per capita labour costs increased by 13.8 percent in 2023 compared to the previous year.

Table 1: **Development of labour costs per capita (employees) in manufacturing**

In national currency

	Ø 2013-2018	Ø 2018-2023	Ø 2013-2023	2021	2022	2023
	Percentage changes p.a.			Percentage changes from previous year		
Austria	+ 2.2	+ 3.2	+ 2.7	+ 3.3	+ 3.9	+ 6.5
Belgium	+ 1.5	+ 3.6	+ 2.5	+ 5.4	+ 5.9	+ 7.1
Denmark	+ 2.0	+ 3.1	+ 2.5	+ 3.0	+ 3.1	+ 4.9
Germany	+ 2.7	+ 2.6	+ 2.7	+ 3.6	+ 3.7	+ 5.6
Ireland	+ 4.5	+ 3.8	+ 4.2	+ 1.8	+ 5.6	+ 9.0
Greece	– 1.1	+ 2.1	+ 0.5	+ 3.1	+ 3.5	+ 3.8
Spain	+ 0.2	+ 3.2	+ 1.7	+ 5.2	+ 3.8	+ 4.8
France	+ 2.1	+ 1.0	+ 1.5	+ 6.5	+ 3.9	+ 4.9
Italy	+ 1.9	+ 2.3	+ 2.1	+ 10.7	+ 3.3	+ 3.3
Luxembourg	+ 1.3	+ 3.1	+ 2.2	+ 5.9	+ 4.0	+ 6.8
Netherlands	+ 2.0	+ 3.4	+ 2.7	+ 2.9	+ 2.9	+ 5.5
Portugal	+ 2.1	+ 5.7	+ 3.9	+ 6.5	+ 7.4	+ 8.0
Finland	+ 1.0	+ 2.9	+ 1.9	+ 7.0	+ 3.4	+ 4.0
Sweden	+ 2.7	+ 2.5	+ 2.6	+ 6.6	– 1.5	+ 3.8
Bulgaria	+ 8.9	+ 12.4	+ 10.6	+ 10.0	+ 12.9	+ 23.9
Czech Republic	+ 5.6	+ 6.1	+ 5.8	+ 6.8	+ 8.1	+ 7.8
Estonia	+ 5.9	+ 7.9	+ 6.9	+ 11.4	+ 6.4	+ 12.0
Croatia	+ 1.2	+ 4.7	+ 3.0	+ 3.5	+ 12.1	+ 11.7
Cyprus	+ 2.3	+ 2.8	+ 2.5	+ 5.1	+ 0.3	+ 7.0
Latvia	+ 8.7	+ 8.6	+ 8.6	+ 5.7	+ 14.4	+ 12.1
Lithuania	+ 7.5	+ 8.4	+ 7.9	+ 8.5	+ 15.9	+ 4.2
Hungary	+ 5.6	+ 9.9	+ 7.7	+ 8.5	+ 13.0	+ 17.5
Poland	+ 4.3	+ 10.7	+ 7.5	+ 10.7	+ 9.1	+ 16.0
Romania	+ 8.9	+ 9.9	+ 9.4	+ 7.4	+ 12.7	+ 16.8
Slovenia	+ 3.2	+ 6.1	+ 4.6	+ 7.2	+ 7.1	+ 9.2
Slovakia	+ 5.4	+ 5.9	+ 5.7	+ 7.6	+ 6.8	+ 9.3
UK	+ 1.3	+ 4.6	+ 3.0	+ 4.7	+ 6.7	+ 8.7
Norway	+ 2.2	+ 3.8	+ 3.0	+ 4.3	+ 3.8	+ 6.9
USA	+ 2.3	+ 3.4	+ 2.8	+ 4.0	+ 3.2	+ 3.9
Japan	+ 1.6	+ 1.3	+ 1.4	+ 2.3	+ 2.2	+ 3.2
Canada	+ 1.7	+ 4.0	+ 2.9	– 0.9	+ 9.5	+ 2.4
All trading partners[1,5]	+ 2.8	+ 4.0	+ 3.4	+ 5.4	+ 5.1	+ 7.0
EU trading partner[2,5]	+ 3.0	+ 4.2	+ 3.6	+ 5.9	+ 5.3	+ 7.6
EU member countries before 2004[3,5]	+ 2.3	+ 2.6	+ 2.4	+ 5.1	+ 3.6	+ 5.2
"New" EU member countries (accession from 2004)[4,5]	+ 5.4	+ 8.7	+ 7.0	+ 8.1	+ 10.1	+ 13.8
	Growth difference in percentage points p. a.			Growth difference in percentage points		
Austria						
All trading partners[1,5] = 100	– 0.5	– 0.8	– 0.7	– 2.0	– 1.2	– 0.5
EU trading partners[2,5] = 100	– 0.7	– 1.0	– 0.9	– 2.4	– 1.4	– 1.0
EU member countries before 2004[3,5]	– 0.1	+ 0.6	+ 0.3	– 1.7	+ 0.2	+ 1.2
"New" EU member countries (accession from 2004)[4,5]	– 3.0	– 5.1	– 4.1	– 4.5	– 5.6	– 6.5
Germany = 100	– 0.4	+ 0.5	+ 0.0	– 0.2	+ 0.1	+ 0.8

Source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. Japan: due to missing data, the rate of change of the overall economy was quoted for 2023. – [1] EU trading partners (excluding Malta), Norway, UK, USA, Canada and Japan. – [2] Excluding Malta, UK. – [3] Excluding UK. – [4] Bulgaria, Czech Republic, Estonia, Croatia, Cyprus, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia. – [5] Weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods.

Table 2: **Development of productivity per capita (persons employed) in manufacturing**
In national currency

	Ø 2013-2018	Ø 2018-2023	Ø 2013-2023	2021	2022	2023
	Percentage changes p.a.			Percentage changes from previous year		
Austria	+ 1.9	+ 0.6	+ 1.3	+ 10.2	+ 4.3	– 2.9
Belgium	+ 1.9	+ 1.0	+ 1.4	+ 3.0	+ 3.2	– 0.8
Denmark	+ 2.5	+ 5.4	+ 3.9	+ 13.3	+ 4.3	+ 9.7
Germany	+ 2.2	+ 0.6	+ 1.4	+ 10.3	+ 0.4	+ 0.7
Ireland	+ 15.6	+ 4.0	+ 9.6	+ 15.8	+ 15.6	– 23.5
Greece	+ 1.0	+ 3.4	+ 2.2	+ 11.2	+ 0.6	+ 1.8
Spain	+ 0.8	+ 0.9	+ 0.8	+ 14.3	+ 3.9	+ 0.6
France	+ 2.0	– 0.8	+ 0.6	+ 8.0	– 2.8	+ 1.2
Italy	+ 1.8	– 0.0	+ 0.9	+ 15.4	+ 1.5	– 2.7
Luxembourg	+ 0.8	+ 2.4	+ 1.6	+ 6.0	– 8.5	+ 3.7
Netherlands	+ 2.5	+ 1.2	+ 1.8	+ 11.0	+ 2.4	– 3.2
Portugal	+ 1.0	+ 0.7	+ 0.9	+ 4.7	+ 3.0	– 2.0
Finland	+ 2.2	– 0.5	+ 0.8	+ 0.1	– 5.2	+ 0.1
Sweden	+ 2.5	+ 1.2	+ 1.9	+ 18.1	+ 1.8	– 6.7
Bulgaria	+ 2.6	+ 4.5	+ 3.5	+ 1.6	+ 25.8	+ 3.5
Czech Republic	+ 3.5	+ 2.2	+ 2.8	+ 1.3	+ 8.3	+ 2.9
Estonia	+ 2.7	+ 0.4	+ 1.5	+ 13.5	– 11.0	– 2.4
Croatia	+ 1.5	+ 0.2	+ 0.9	+ 9.8	+ 2.2	– 2.3
Cyprus	+ 7.6	– 0.1	+ 3.7	– 3.5	– 1.3	+ 0.3
Latvia	+ 4.8	+ 1.3	+ 3.0	+ 5.4	+ 0.8	– 3.3
Lithuania	+ 2.0	+ 2.0	+ 2.0	+ 5.2	+ 5.2	– 6.4
Hungary	+ 1.8	+ 0.5	+ 1.1	+ 6.4	+ 3.6	– 3.8
Poland	+ 2.9	+ 3.3	+ 3.1	– 1.4	+ 8.9	+ 2.9
Romania	+ 4.7	– 0.1	+ 2.3	+ 5.7	– 1.0	– 3.5
Slovenia	+ 2.3	+ 1.2	+ 1.8	+ 7.1	– 5.5	+ 0.9
Slovakia	+ 5.8	+ 2.9	+ 4.4	+ 4.2	– 6.1	+ 20.1
UK	+ 0.9	+ 1.7	+ 1.3	+ 5.0	– 4.9	+ 2.5
Norway	+ 0.8	– 0.4	+ 0.2	+ 5.7	– 2.7	– 1.2
USA	+ 0.7	+ 0.5	+ 0.6	+ 5.7	– 3.1	– 0.6
Japan	+ 1.6	+ 1.5	+ 1.5	+ 11.3	– 0.6	+ 3.1
Canada	+ 0.8	– 0.7	+ 0.1	– 1.0	– 0.2	– 3.5
All trading partners[1,5]	+ 2.1	+ 0.9	+ 1.5	+ 8.4	+ 0.8	– 0.2
EU trading partners[2,5]	+ 2.4	+ 0.9	+ 1.6	+ 9.0	+ 1.7	– 0.3
EU member countries before 2004[3,5]	+ 2.2	+ 0.6	+ 1.4	+ 10.8	+ 1.0	– 0.9
"New" EU member countries (accession from 2004)[4,5]	+ 3.2	+ 1.9	+ 2.5	+ 3.1	+ 4.3	+ 2.0
	Growth difference in percentage points p. a.			Growth difference in percentage points		
Austria						
All trading partners[1,5] = 100	– 0.2	– 0.2	– 0.2	+ 1.6	+ 3.4	– 2.8
EU trading partners[2,5] = 100	– 0.5	– 0.2	– 0.4	+ 1.0	+ 2.5	– 2.6
EU member countries before 2004[3,5]	– 0.3	+ 0.1	– 0.1	– 0.6	+ 3.2	– 2.0
"New" EU member countries (accession from 2004)[4,5]	– 1.3	– 1.2	– 1.2	+ 6.9	+ 0.0	– 4.8
Germany = 100	– 0.4	+ 0.0	– 0.2	– 0.1	+ 3.9	– 3.6

Source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. Japan: due to missing data, the rate of change of the overall economy was quoted for 2023. – [1] EU trading partners (excluding Malta), Norway, UK, USA, Canada and Japan. – [2] Excluding Malta, UK. – [3] Excluding UK. – [4] Bulgaria, Czech Republic, Estonia, Croatia, Cyprus, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia. – [5] Weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods.

Besides labour costs per employee, productivity is the second important component for calculating relative unit labour costs. This is measured as real gross value added per capita (employed persons). Table 2 shows the development of productivity per

employee in manufacturing in an international comparison in national currency.

High inflation slowed productivity growth per capita.

As a result of the COVID-19 pandemic, per capita productivity in Austrian manufacturing fell by 6.8 percent in 2020. However, this decline was more than offset in 2021 (+10.2 percent). According to the national accounts data published in September 2023, per capita productivity increased again in 2022 (+4.3 percent) despite the energy and inflation crisis. However, this was followed by a decline of 2.9 percent in 2023. This means that per capita productivity in Austria was significantly weaker than the weighted average of all trading partners (+0.2 percent).

Persistent inflationary pressure slowed the recovery after the COVID-19 crisis not only in Austria, but also in many partner countries. In Germany, where per capita productivity increased by 10.3 percent in 2021, this was followed by timid growth of 0.4 and 0.7 percent in 2022 and 2023 respectively. In addition to Germany, many other important trading partners also experienced stagnation after the strong productivity growth of 2021. In 2022, inflationary pressure and the energy crisis mostly only allowed muted growth, if at all. Only Ireland (+15.6 percent) was able to build on the high growth of the previous year in 2022, but suffered a decline in productivity of 23.5 percent in 2023. With Slovakia (+20.1 percent), Denmark (+9.7 percent), Luxembourg (+3.7 percent), Bulgaria (+3.5 percent) and Japan (+3.1 percent), only a few countries achieved significant per capita productivity growth in 2023. In contrast, the majority of trading partners recorded only moderate growth rates or – similar to Austria – productivity losses, partly due to high inflationary pressure. However, the decline in productivity per capita was much more pronounced in this country than in many trading partners. In an international comparison, only Ireland (–23.5 percent), Sweden (–6.7 percent), Hungary (–3.8 percent), Romania (–3.5 percent), Canada (–3.5 percent) and the Netherlands (–3.2 percent) performed weaker than Austria in 2023.

The comparison of productivity development with the trading partners is therefore slightly negative for Austria in the medium term: in the years 2018 to 2023, productivity per capita increased by an average of 0.2 percentage points per year weaker than the average of the trading partners, and even 1.2 percentage points weaker in comparison with the "new" EU trading partners (accession from 2004).

The latest revised data also confirms this picture when analysed over a ten-year time window (2013-2023). While productivity per capita in Austria has grown by an average of 1.3 percent p.a. over the last ten years, the weighted average growth of all trading partners was around 1.5 percent p.a. (EU trading partners +1.6 percent p.a.). In the same period, growth in Germany was 0.2 percentage points p.a. stronger than in Austria. Austria's growth was significantly more subdued compared to its Eastern Central European trading partners ("new" EU member countries –1.2 percentage points p.a.). This means that productivity in Austria developed somewhat less dynamically in the medium to long term than in its main trading partners.

4. Significant deterioration in relative unit labour costs in manufacturing

On average of the last ten years the development of productivity in Austria has developed less dynamically than in its most important trading partners.

The change in labour costs (gross compensation per capita) and productivity (gross value added per capita) results in the development of unit labour costs (labour costs per unit of production). They have fluctuated considerably over the last three years. In 2021, labour costs per unit of production in manufacturing fell significantly by 6.2 percent. In 2022, there was stagnation; the value of –0.4 percent implies a downward revision compared to the previous year's contribution (Bittschi & Meyer, 2023), which had assumed +2.2 percent. By contrast, unit labour costs are expected to rise strongly by 9.7 percent in 2023 (Table 3). The medium-term average for 2018-2023 is an annual increase of 2.5 percent, while the longer-term average for 2013-2023 is 1.4 percent.

The analysis of unit labour costs as an indicator of price competitiveness is only meaningful if developments in other countries are considered at the same time. Table 3 provides a detailed overview of the unit labour cost dynamics of the individual trading partners and the development of Austria's unit labour cost position, i.e., the real effective exchange rate deflated by unit labour costs in relation to its trading partners. In 2023, Austria's unit labour cost position deteriorated by 3.3 percentage points compared to the weighted average of all trading partners. This is primarily the result of a significantly more dynamic development in Austria compared to its two most important trading partners, Germany and the USA. Unit labour costs there increased by only 4.9 and 1.8 percent respectively in 2023. Compared to Western Europe as a whole (EU member countries before 2004 +5.7 percent), the increase in Austria was also stronger at +9.7 percent. In contrast, the development in the East-Central European EU member countries (accession from 2004) had a positive influence on the relative unit labour cost development in Austria. The significantly

faster growth in labour costs in these countries in particular results in a weighted average growth difference in unit labour costs of –3.1 percentage points (2023).

Table 3: **Development of unit labour costs per capita (employees or persons employed) in manufacturing and in the economy as a whole**

In €

	Ø 2013-2018	Ø 2018-2023	Ø 2013-2023	2021	2022	2023
	Percentage changes p.a.			Percentage changes from previous year		
Manufacturing						
Austria	+ 0.3	+ 2.5	+ 1.4	– 6.2	– 0.4	+ 9.7
Belgium	– 0.4	+ 2.5	+ 1.1	+ 2.4	+ 2.7	+ 8.0
Denmark	– 0.5	– 2.1	– 1.3	– 8.9	– 1.2	– 4.6
Germany	+ 0.4	+ 2.0	+ 1.2	– 6.1	+ 3.4	+ 4.9
Ireland	– 9.6	– 0.2	– 5.0	–12.1	– 8.6	+42.5
Greece	– 2.1	– 1.2	– 1.7	– 7.3	+ 2.8	+ 1.9
Spain	– 0.5	+ 2.3	+ 0.9	– 8.0	– 0.1	+ 4.2
France	+ 0.1	+ 1.8	+ 0.9	– 1.4	+ 6.9	+ 3.6
Italy	+ 0.0	+ 2.3	+ 1.2	– 4.0	+ 1.8	+ 6.2
Luxembourg	+ 0.5	+ 0.8	+ 0.6	– 0.2	+13.7	+ 2.9
Netherlands	– 0.5	+ 2.2	+ 0.9	– 7.2	+ 0.5	+ 9.1
Portugal	+ 1.1	+ 4.9	+ 3.0	+ 1.7	+ 4.3	+10.2
Finland	– 1.2	+ 3.4	+ 1.1	+ 6.9	+ 9.1	+ 4.0
Sweden	– 3.1	– 1.0	– 2.0	– 6.7	– 7.7	+ 3.0
Bulgaria	+ 6.2	+ 7.6	+ 6.9	+ 8.2	–10.2	+19.7
Czech Republic	+ 2.2	+ 5.2	+ 3.7	+ 8.7	+ 4.2	+ 7.2
Estonia	+ 3.1	+ 7.5	+ 5.3	– 1.9	+19.5	+14.7
Croatia	+ 0.2	+ 4.2	+ 2.2	– 5.6	+ 9.6	+14.4
Cyprus	– 4.9	+ 3.0	– 1.1	+ 8.9	+ 1.6	+ 6.6
Latvia	+ 3.7	+ 7.2	+ 5.4	+ 0.2	+13.5	+16.0
Lithuania	+ 5.3	+ 6.3	+ 5.8	+ 3.2	+10.2	+11.3
Hungary	+ 2.3	+ 5.5	+ 3.8	– 0.1	– 0.0	+25.2
Poland	+ 1.1	+ 5.8	+ 3.4	+ 9.2	– 2.4	+16.3
Romania	+ 2.9	+ 8.7	+ 5.8	– 0.1	+13.6	+20.6
Slovenia	+ 0.9	+ 4.8	+ 2.8	+ 0.1	+13.4	+ 8.3
Slovakia	– 0.4	+ 2.9	+ 1.2	+ 3.3	+13.7	– 8.9
UK	– 0.4	+ 3.2	+ 1.4	+ 3.1	+13.2	+ 4.0
Norway	– 2.7	+ 0.7	– 1.0	+ 4.2	+ 7.3	– 4.3
USA	+ 4.0	+ 4.7	+ 4.4	– 5.1	+19.5	+ 1.8
Japan	– 0.1	– 3.2	– 1.7	–13.8	– 3.2	– 9.1
Canada	– 1.3	+ 5.7	+ 2.1	+ 3.2	+18.8	– 0.3
All trading partners[1,5]	+ 0.6	+ 3.0	+ 1.8	– 3.2	+ 5.2	+ 6.2
EU trading partners[2,5]	+ 0.4	+ 2.9	+ 1.6	– 2.8	+ 3.1	+ 7.6
EU member countries before 2004[3,5]	– 0.1	+ 1.9	+ 0.9	– 5.0	+ 2.7	+ 5.7
"New" EU member countries (accession from 2004)[4,5]	+ 1.8	+ 5.7	+ 3.7	+ 4.3	+ 4.1	+13.2
	Growth difference in percentage points p.a.			Growth difference in percentage points		
Austria						
All trading partners[1,5] = 100	– 0.2	– 0.5	– 0.4	– 3.2	– 5.3	+ 3.3
EU trading partners[2,5] = 100	– 0.0	– 0.4	– 0.2	– 3.6	– 3.3	+ 1.9
EU member countries before 2004[3,5]	+ 0.4	+ 0.5	+ 0.5	– 1.3	– 3.0	+ 3.8
"New" EU member countries (accession from 2004)[4,5]	– 1.4	– 3.0	– 2.2	–10.1	– 4.3	– 3.1
Germany = 100	– 0.1	+ 0.5	+ 0.2	– 0.2	– 3.6	+ 4.6

Source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. Unit labour costs: ratio of gross compensation per capita (employees) to real gross value added or real GDP per capita (persons employed). Japan: due to missing data, the rate of change of the overall economy was quoted for 2023. – [1] EU trading partners (excluding Malta), Norway, UK, USA, Canada and Japan. – [2] Excluding Malta, UK. – [3] Excluding UK. – [4] Bulgaria, Czech Republic, Estonia, Croatia, Cyprus, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia. – [5] Weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods and for the total economy.

Table 3/continuation: **Development of unit labour costs per capita (employees or persons employed) in manufacturing and in the economy as a whole**

In €

	Ø 2013-2018	Ø 2018-2023	Ø 2013-2023	2021	2022	2023
	Percentage changes p.a.			Percentage changes from previous year		
Overall economy						
Austria	+ 1.6	+ 4.0	+ 2.8	+ 0.3	+ 2.2	+ 8.7
All trading partners[1,5]	+ 1.6	+ 3.8	+ 2.7	– 0.2	+ 5.6	+ 6.6
EU trading partner[2,5]	+ 1.5	+ 3.7	+ 2.6	+ 0.1	+ 4.3	+ 8.1
EU member countries before 2004[3,5]	+ 1.2	+ 3.1	+ 2.2	– 0.3	+ 3.6	+ 6.3
"New" EU member countries (accession from 2004)[4,5]	+ 2.1	+ 5.5	+ 3.8	+ 1.0	+ 6.6	+13.3
	Growth difference in percentage points p.a.			Growth difference in percentage points		
Austria						
All trading partners[1,5] = 100	+ 0.0	+ 0.2	+ 0.1	+ 0.5	– 3.2	+ 2.0
EU trading partners[2,5] = 100	+ 0.1	+ 0.3	+ 0.2	+ 0.2	– 2.1	+ 0.6
EU member countries before 2004[3,5]	+ 0.4	+ 0.8	+ 0.6	+ 0.6	– 1.4	+ 2.3
"New" EU member countries (accession from 2004)[4,5]	– 0.5	– 1.4	– 0.9	– 0.7	– 4.2	– 4.1
Germany = 100	– 0.4	+ 0.4	+ 0.0	+ 0.6	– 2.1	+ 1.7

Source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. Unit labour costs: ratio of gross compensation per capita (employees) to real gross value added or real GDP per capita (persons employed). Japan: due to missing data, the rate of change of the overall economy was quoted for 2023. – [1] EU trading partners (excluding Malta), Norway, UK, USA, Canada and Japan. – [2] Excluding Malta, UK. – [3] Excluding UK. – [4] Bulgaria, Czech Republic, Estonia, Croatia, Cyprus, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia. – [5] Weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods and for the total economy.

Unit labour costs in Austrian manufacturing industry increased significantly in 2023 compared to its trading partners.

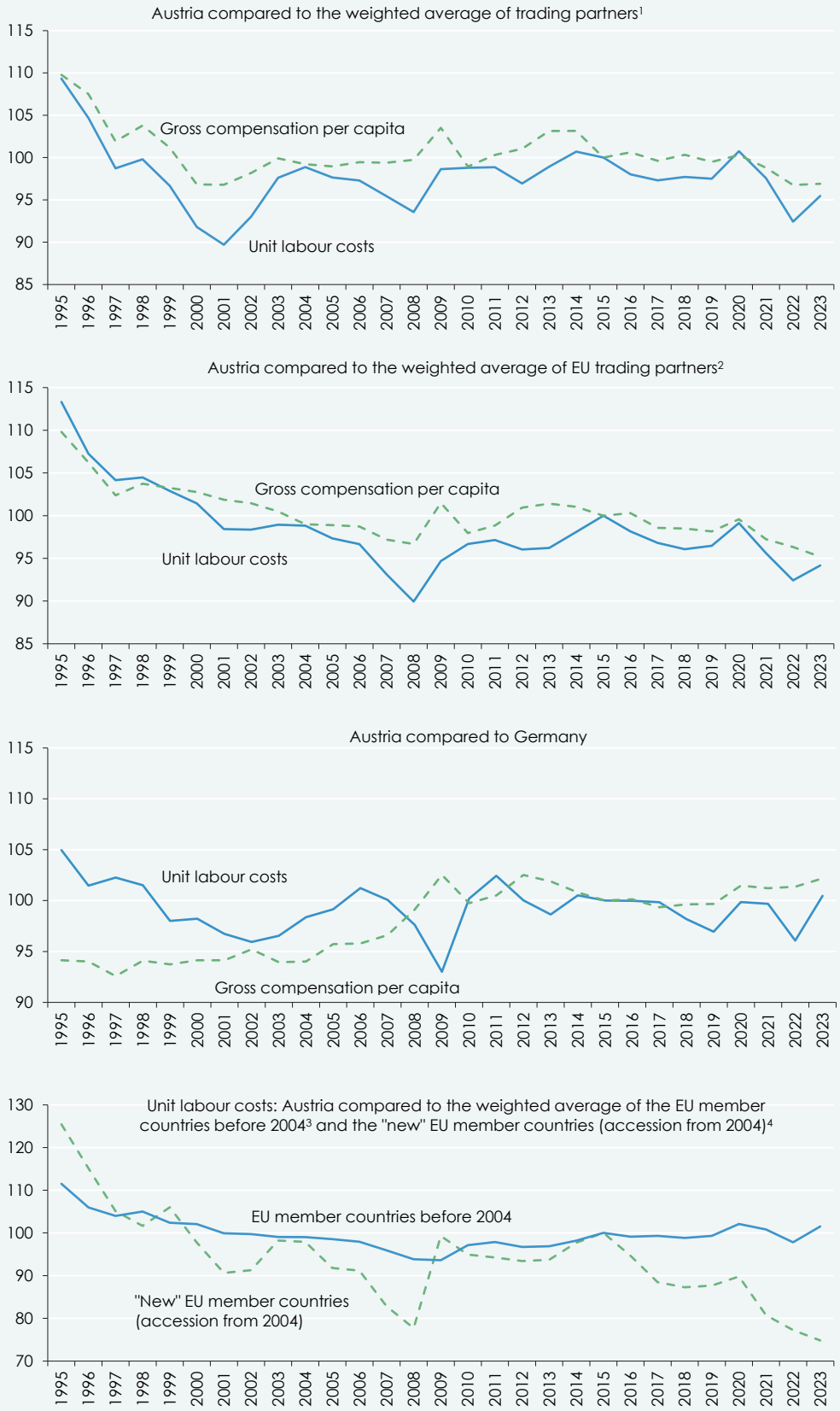
The high unit labour cost growth in Austria in 2023 is also due to a catch-up effect in labour costs, which results from the delayed consideration of inflation due to the rollover in wage negotiations. For this reason, the long-term development of unit labour costs in Austria was still more favourable compared to the weighted average of all or the EU trading partners (–0.4 or –0.2 percentage points) over the past ten years (2013-2023). However, this is no longer the case compared to Western Europe ("old" EU member countries +0.5 percentage points) and Germany (+0.2 percentage points).

The trend reversals and long-term changes become clearer in the graph (Figure 2). Accordingly, the price competitiveness of Austrian goods manufacturing improved considerably in the second half of the 1990s compared to the average of all trading partners. After an opposite trend in the early 2000s, Austria saw an improvement until the outbreak of the financial market and economic crisis. The economic crisis triggered a further trend reversal, with a deterioration in the relative unit labour costs of Austrian industry in 2009-2010. From 2010 to 2020, the development compared to the weighted average of trading partners was fluctuating but largely stable. The years 2021 and 2022 then brought significant improvements in domestic unit labour costs. However, this was followed by another trend reversal in 2023. Relative unit labour costs approached the longer-term average again, with index values relative to all trading partners remaining well below the average of the 2010s. In comparison to Germany and Western Europe, however, the upward trend in 2023 has already returned to the values observed over the longer term.

The comparison of relative unit labour costs and relative labour costs (gross compensation per capita, Figure 2) implicitly shows how productivity in Austria developed in comparison with its trading partners. If unit labour costs declined more strongly than relative gross compensation, productivity in Austria developed more favourably than in the other countries. A parallel development of both time series signals an even progress in productivity, while a stronger decline in gross compensation than in relative unit labour cost time series indicates a deterioration in productivity in Austria relative to its trading partners. The trend decline in gross compensation with rising unit labour costs therefore indicates a weaker productivity development compared to the weighted average of all trading partners (see Chapter 3). Compared to Germany and the other "old" EU countries, on the other hand, the rising unit labour costs in recent years are primarily due to the stronger increase in labour costs. However, due to the COVID-19 measures and the strong influence of inflation and the associated government price interventions, the development at the current margin should be interpreted with caution. Price interventions can dampen inflation in the short term and thus lead to a weaker pass-through of price increases to labour costs, but bear the risk of higher inflation in the medium and long term. Possible revisions to the national accounts must also be taken into account.

Figure 2: **Development of relative labour costs and unit labour costs in manufacturing**

In €, 2015 = 100



Source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. – [1] EU trading partners (excluding Malta), Norway, UK, USA, Canada and Japan. – [2] Excluding Malta, UK. – [3] Excluding UK. – [4] Bulgaria, Czech Republic, Estonia, Croatia, Cyprus, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia, Slovakia.

On average over the last five years, Austria has shown the least favourable development in unit labour costs compared to similar economies.

Unit labour costs developed heterogeneously in the individual countries of comparison. The trend is also characterised by institutional peculiarities[4]. This applies in particular to the development of the last five years, which were characterised by strong government intervention, both in connection with the COVID-19 pandemic and the high inflation rates resulting from the Russian war of aggression. If we compare Austria with economies that are similar in terms of their population and GDP per capita, there are no countries with a less favourable development in unit labour costs over the last five years (2018-2023). Both in Scandinavian countries such as Denmark (–2.1 percent p.a.) or Sweden (–1.0 percent p.a.) and in the Benelux countries, the trend was more favourable than in Austria (+3.2 percent p.a.). In the East-Central European EU countries in contrast, unit labour cost growth has accelerated noticeably over the last five years ("new" EU countries +5.7 percent p.a.) and was significantly stronger than in Austria, as productivity did not keep pace with labour costs despite robust growth rates.

5. Strong increase in overall economic unit labour costs, also in international comparison

In 2023, overall unit labour costs in Austria increased significantly faster than those of its trading partners.

In addition to the unit labour costs in manufacturing, the competitiveness of Austrian exports is also partly determined by further sectors of economy: since services and non-tradable goods are required as intermediate inputs, their cost development has an influence on the competitiveness of the sectors involved in foreign trade (Deutsche Bundesbank, 1998). However, unit labour costs across all sectors are also significantly influenced by sectors in which productivity growth is conceptually difficult to measure, such as the public sector. Accordingly, unit labour costs in the overall economy should also be interpreted with caution. This also applies because the most recent data is still subject to revision and government measures to combat inflation vary internationally. This also results in considerable heterogeneity in the pass-through of inflation into labour costs.

In Austria, labour costs per unit of production across all sectors increased by 8.7 percent in 2023, 1.7 percentage points more than in Germany, while the difference to the weighted average of EU trading partners and all trading partners is +0.6 and +2.0 percentage points respectively.

In the long term (2013-2023), unit labour costs in the overall economy in Austria grew by 0.2 percentage points p.a. faster than the average of the EU trading partners and at the same rate as in Germany.

In the longer term, the dynamics of unit labour costs in the overall economy are significantly stronger than in manufacturing, both in Austria and in its trading partner economies. This is in line with expectations, as manufacturing offers the greatest potential for increasing labour productivity through mechanisation and automation.

6. Summary

The available data show a significant increase in relative unit labour costs in Austria for 2023. Compared to the weighted average of all trading partners. This unfavourable development is mainly due to weaker productivity growth and, compared to Western Europe, also to higher labour cost dynamics.

Specifically, labour costs per capita in Austrian manufacturing increased by 0.5 percentage points weaker than the weighted average of trading partners in 2023. In contrast, value added per capita in manufacturing grew 2.8 percentage points slower than the average of all trading partners and 3.6 percentage points slower than the most important trading partner, Germany.

In total, at +9.7 percent, unit labour costs in Austrian manufacturing increased by 3.3 percentage points more than the weighted average of its trading partners. The gap to Germany is even 4.6 percentage points.

In a long-term comparison, unit labour costs in 2023 were still well below the weighted average of the (EU) trading partners. Compared to Germany and the other "old" EU member countries, however, a deterioration can be observed at the current data edge.

[4] In Ireland, for example, a correction to the national accounts in 2015 led to an oversized increase in productivity. The new national accounts rules provide for the income from intellectual property rights held in Ireland to be allocated to Irish GDP (OECD, 2016). This mainly relates to manufacturing and therefore more accurately reflects economic activity in Ireland, but distorts the assessment of unit labour costs. The presentation of unit labour cost development in manufacturing can only take full account of intellectual property rights if the production and allocation of these rights take place in the same country. However, this is not necessarily the case in global value chains.

This is due in particular to the dynamic development of labour costs in Austria.

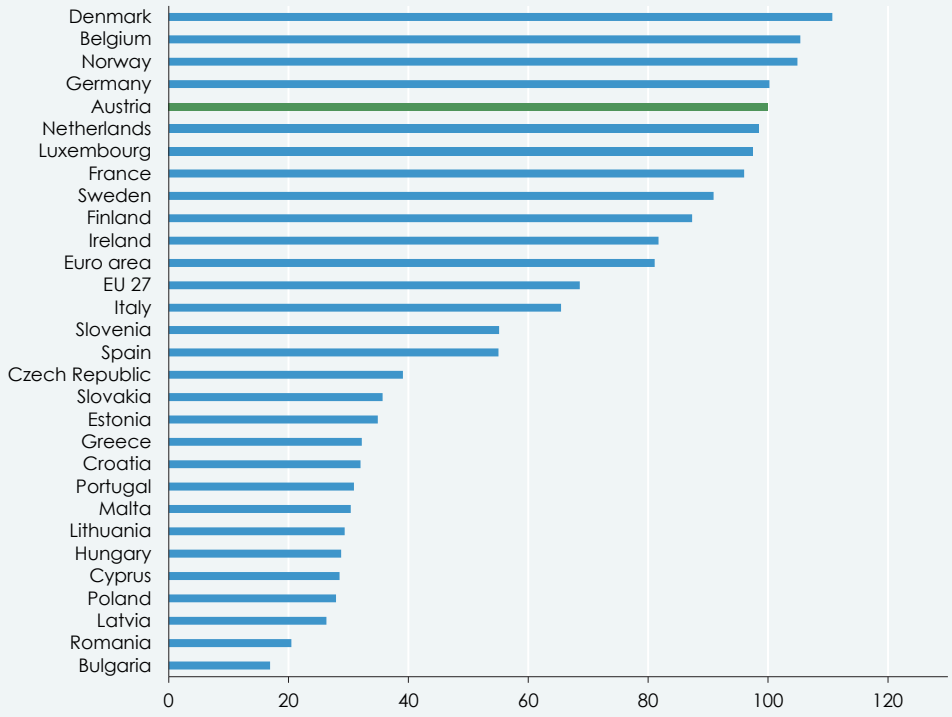
In 2023, unit labour costs across all sectors in Austria grew 2.0 percentage points faster than the average of all trading partners and 0.6 percentage points faster than in the EU trading partners. There was also a deterioration compared to Germany in 2023 (+1.7 percentage points).

The deterioration in relative unit labour costs was also due to unfavourable exchange rate developments. The nominal effective exchange rate increased by 0.6 percent in 2023, as the euro appreciated against the dollar and the Japanese yen, among others.

When interpreting the results, especially the medium and longer-term development, possible distortions due to the different country-specific approaches to mitigating the COVID-19 crisis and inflation must also be taken into account.

Figure 3: **Labour costs in manufacturing compared internationally**

Labour costs per hour in €, 2023, Austria = 100



Source: Eurostat, Labour Force Survey 2020, Labour Cost Index, WIFO, WIFO calculations. Without apprentices.

7. Annex: Labour costs per hour in manufacturing

While only data on labour costs per worker are available for the calculation of current, internationally comparable unit labour costs in manufacturing, labour costs per hour worked can also be considered for European countries. They are based on the labour cost survey, which is conducted in the EU countries every four years. The annual development between two surveys is updated using a labour cost index. The results published here are based on Eurostat labour cost index and the Labour Force Survey of 2020.

Unlike the labour cost survey, the labour cost index is not calculated according to the same statistical concept in all countries. This limits international. The values of the labour cost index should therefore be interpreted with caution. For Austria, the index is based on data from the business survey. In some cases, these data may deviate noticeably from the national accounts values on the development of gross compensation on which the unit labour cost calculations are based. This may also be because labour costs, unlike the national accounts gross compensation, include wage-related taxes paid by employers in addition to social security contributions. It should also be noted that labour costs are a measure of the burden on the factor labour, but do not allow any conclusions to be drawn about who ultimately bears these costs. For the years since 2020, it should also be taken into account that government aid measures in the

context of the COVID-19 pandemic and the inflation crisis, which affect the labour factor, could distort the values presented in this paper.

Table 4 shows the labour costs per hour calculated on the basis of the labour cost index for the period 2018-2023. In 2023, the average hourly labour costs in Austria's manufacturing industry was 47.21 €. This put Austria in 5th place in a European comparison. Since 2018, hourly labour costs in Austria have grown by 4.1 percent p.a., 0.8 percentage points faster than the EU 27 average (+3.3 percent p.a.), 1.3 percentage points faster than in the euro area (+2.8 percent p.a.) and 1.6 percentage points faster than in Germany. Compared to 2022, the increase was 7.5 percent in Austria, 5.7 percent on average in the EU and 4.8 percent in Germany.

Table 4: **Labour costs per hour in manufacturing**

	2018	2019	2020	2021	2022	2023	Ø 2018-2023
				In €			Percentage change
Bulgaria	4.60	5.15	5.41	5.79	6.83	7.99	+11.7
Romania	6.02	6.60	7.00	7.30	8.29	9.66	+ 9.9
Latvia	8.79	9.51	10.12	10.31	11.27	12.43	+ 7.2
Poland	9.31	9.86	10.07	10.60	11.48	13.18	+ 7.2
Cyprus	11.92	12.44	12.24	12.42	12.84	13.46	+ 2.5
Hungary	9.61	10.46	10.32	10.78	11.13	13.58	+ 7.2
Lithuania	8.79	9.31	9.79	11.03	12.50	13.86	+ 9.5
Malta	11.91	11.93	11.15	11.36	13.12	14.34	+ 3.8
Portugal	11.69	11.83	12.75	13.12	13.78	14.60	+ 4.5
Greece	13.82	14.37	14.28	13.94	14.77	15.21	+ 1.9
Estonia	11.77	12.59	12.98	13.58	15.51	16.47	+ 6.9
Slovakia	12.09	12.92	13.37	14.20	15.66	16.85	+ 6.9
Czech Republic	12.75	13.75	14.32	15.19	16.66	18.45	+ 7.7
Spain	22.82	23.29	24.23	24.01	24.57	25.97	+ 2.6
Slovenia	19.38	20.09	20.42	21.77	23.59	26.04	+ 6.1
Italy	27.73	28.70	29.41	28.82	29.70	30.91	+ 2.2
EU 27	27.48	28.35	28.96	29.16	30.64	32.38	+ 3.3
euro area	33.34	34.21	34.84	34.84	36.44	38.29	+ 2.8
Ireland	32.42	33.58	33.12	34.81	36.66	38.58	+ 3.5
Finland	36.91	37.13	36.98	38.46	39.72	41.23	+ 2.2
Sweden	41.82	41.98	42.03	45.54	44.72	42.92	+ 0.5
France	40.18	41.02	41.94	42.07	43.62	45.33	+ 2.4
Luxembourg	40.08	40.73	40.98	41.18	43.19	46.02	+ 2.8
Netherlands	37.72	38.52	40.13	40.65	43.62	46.43	+ 4.2
Austria	**38.59**	**39.78**	**40.84**	**41.45**	**43.90**	**47.21**	**+ 4.1**
Germany	41.71	42.83	43.22	43.09	45.16	47.33	+ 2.6
Norway	49.78	50.21	47.10	51.15	52.31	49.53	– 0.1
Belgium	41.16	42.01	42.74	43.30	46.29	49.75	+ 3.9
Denmark	45.34	46.68	47.37	49.38	50.93	52.27	+ 2.9

Q: Eurostat, Labour Force Survey 2020, Labour Cost Index, WIFO, WIFO calculations. Without apprentices. Countries ranked in ascending order of labour costs in 2023.

8. References

Bittschi, B., & Meyer, B. (2023). Improvement in Relative Unit Labour Costs in 2022 . *WIFO Reports on Austria,* (14). https://www.wifo.ac.at/publication/pid/49641535.

Carlin, W., Glyn, A., & Van Reenen, J. (2001). Export market performance of OECD countries: An empirical examination of the role of cost competitiveness. *The Economic Journal*, *111*(468), 128-162.

Deutsche Bundesbank (1998). Zur Indikatorqualität unterschiedlicher Konzepte des realen Außenwerts der D-Mark. *Deutsche Bundesbank Monatsberichte*, 41-55.

Dosi, G., Grazzi, M., & Moschella, D. (2015). Technology and costs in international competitiveness: From countries and sectors to firms. *Research Policy*, *44*(10), 1795-1814.

Köhler-Töglhofer, W., Url, T., & Glauninger, U. (2017). Revised competitiveness indicators for Austria reflect a comparatively stable competitiveness development of the Austrian economy over the longer horizon. *Monetary Policy & the Economy,* Q2/17, 73-107.

OECD (2016). *Irish GDP up by 26.3% in 2015*. https://www.oecd.org/sdd/na/Irish-GDP-up-in-2015-OECD.pdf.

Turner, P., & Van 't dack, J. (1993). Measuring international price and cost competitiveness. *BIS Economic Papers*, *39*. https://www.bis.org/publ/econ39.htm.