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in 2021**

Benjamin Bittschi, Birgit Meyer

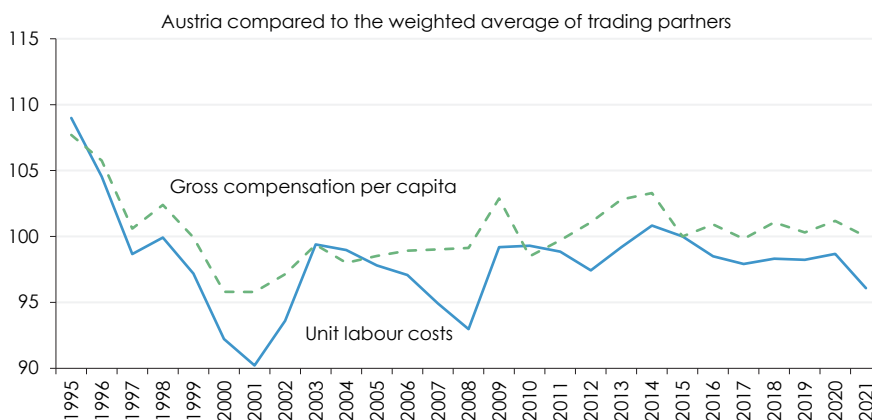
Improvement in Unit Labour Cost Position in 2021

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- The paper examines the development of wage-related competitiveness on the basis of labour costs developments in manufacturing and in the entire Austrian economy, relative to the main 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 increased by 0.4 percent in 2021. This corresponds to a slight appreciation.
- Unit labour costs in the Austrian manufacturing fell by 5.4 percent in 2021.
- Austria's unit labour cost position improved compared to the weighted average of all trading partners (–2.6 percentage points) as well as compared to EU trading partners (–2.7 percentage points).
- The 2021 data are distorted by the COVID-19 measures, so the results should be interpreted with caution.

Development of relative labour costs and unit labour costs in manufacturing

In €, 2015 = 100



"Austria's unit labour cost position improved significantly in 2021."

After a prolonged period of stable unit labour costs, Austria's unit labour cost position improved vis-à-vis its trading partners in 2021 (source: Statistics Austria, Eurostat, AMECO, national statistical offices, WIFO calculations. Trading partners: EU trading partners (excluding Malta), Norway, the UK, the USA, Canada, and Japan).

Improvement in Unit Labour Cost Position in 2021

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October 2022

Improvement in Unit Labour Cost Position in 2021

In 2021, unit labour costs in manufacturing decreased significantly by 5.4 percent compared to the previous year. Austria's unit labour cost position improved in 2021 relative to the weighted average of all its trading partners (–2.6 percentage points) and relative to its EU trading partners (–2.7 percentage points). Moreover, the unit labour cost position has also improved significantly relative to Germany, Austria's main trading partner (–2.5 percentage points). Due to the differences in policy design and implementation of the COVID-19 aid measures (especially with regard to short-time work) across countries as well as the statistical treatment of these measures in the National Accounts, this year's values should still be interpreted with caution, both over time and across individual countries.

JEL-Codes: F16, F31, J3, L6 • **Keywords:** Unit labour costs, price competitiveness, manufacturing

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

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 with the help of 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 (i.e., labour costs per unit produced) of the main trading partners adjusted for exchange rate changes.

However, unit labour costs are only a partial measure of the international competitiveness of a sector or even of an entire economy, as they only reflect the price or, more precisely, the wage-related dimension of competitiveness. Some econometric studies show that 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 (e.g., Carlin et al., 2001; Köhler-Töglhofer et al., 2017). However, other studies emphasise the role of further factors, such as

technology and organisational structures, in the development of exports and market shares, while attributing only limited explanatory power to changes in unit labour costs (Dosi et al., 2015).

This paper is the annual update of the analysis of unit labour cost development. It examines the period from 1995 to 2021 and thus also covers the effects of the COVID-19 pandemic on the development of Austria's relative unit labour costs in relation to its main trading partners. However, the results for the pandemic years 2020 and 2021 must be interpreted with caution, both in a time comparison and in comparison with the main trading partner countries. This is due to country-specific differences in the design, implementation, and statistical accounting of COVID-19 measures (e.g., short-time work).

The choice of countries included in the comparison is limited by the availability of longer time series on unit labour costs or their individual components. The analysis is therefore concentrated on the EU member countries (except for Malta) as well as Norway, the UK,

the USA, Japan, and Canada. These 30 countries cover about three quarters of Austrian imports and exports.

With the National Accounts for the year 2021, which were published in September 2022, the data for the years 2017 to 2020 were also revised. In addition, the calculation of the weights for the relative unit labour costs was adjusted to reflect the trade

linkages 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 analysis of the previous year (Bittschi & Reinstaller, 2021), the revised data show a significantly more favourable development of relative unit labour costs in Austrian manufacturing.

2. In 2021, the nominal effective exchange rate was up by 0.4 percent

The starting point for the consideration of 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 by means of a weighting scheme¹. By deflating the nominal effective exchange rate with unit labour

costs, the unit labour cost position of domestic manufacturing can be determined. The unit labour cost position thus reflects the real external value of the national currency in international competition and thus 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 group of countries according to the calculation of unit labour costs.

In 2021, there was a slight appreciation of the nominal effective exchange rate for industrial goods from an Austrian perspective (+0.4 percent)². This increase was the result of a combination of appreciation and depreciation of the euro against the national currencies of the different trading partners (Figure 1). The euro appreciated against the

Japanese yen (+6.64 percent), the dollar (+3.70 percent), the Polish zloty (+2.72 percent), the Hungarian forint (2.07 percent), the Romanian lei (+1.71 percent) and the Swiss franc (+1.04 percent). These upward developments were contrasted by devaluation movements against other currencies. The euro depreciated against the

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

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 2021, the development of the nominal effective exchange rate in the recent past shows a stable picture.

Norwegian krone (-5.23 percent), the British pound (-3.70 percent), the Swedish krona (-3.27 percent), the Canadian dollar (-3.00 percent) and the Danish krone (-0.23 percent). Despite these devaluations, there was a slight overall increase in the nominal effective exchange rate for Austrian industrial goods.

Since 2004, the nominal effective exchange rate for Austrian industrial goods has been largely stable and has fluctuated within a relatively narrow range³. Since 2015, a slight upward trend has been recognisable (2021 +2.6 percent compared to 2015).

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 entire 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 wage bill and gross value added by a measure of labour input gives the two components of unit labour costs: labour costs per unit of labour and labour productivity.

A change in the share of the self-employed in the labour force can be considered by presenting unit labour costs as the 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 with data determined according to the National Accounts survey concept. For the determination of unit labour costs in Austrian manufacturing, the number of jobs or employment relationships is used instead of the concept of persons (employees and workers).

For international comparisons, unit labour costs must be expressed in a common currency because exchange rate shifts can affect a country's cost position the same way as unit labour cost developments. The **relative unit labour cost position** of a country is thus the quotient of the unit labour costs of both countries, measured in a single currency. For a comparison with several countries, a weighting scheme must be used since the individual markets usually have different importance in foreign trade. Irrespective 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 the 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 manufactured goods (SITC 5 to 8; for details on the method see Turner & Dack, 1993). The double export weighting takes into account competition with trading partners in the respective domestic markets and competition in all other export markets. Since 2022, the double export weights have been calculated and applied separately for each year based on the OECD's "Trade in Value Added" information. For the years 2019, 2020 and 2021, the average of the years 2016-2018 was used due to missing data. The switch of the weighting scheme to annual, variable weights allows for the consideration of market share shifts 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 of country-specific trade links.

The international data on gross compensation (remuneration), productivity and unit labour costs in manufacturing and the entire economy are mainly based on Eurostat data. Only when the Eurostat database did not contain up-to-date values, figures from the AMECO database and national statistics of the respective countries were used (this concerns the USA, Canada, Japan, and the UK).

About the country selection

The aggregate "EU trading partners" includes the following countries: EU 27 excluding Austria and Malta. The term "All trading partners" includes the aggregate "EU trading partners" and additionally Norway, the UK, the USA, Canada, and Japan.

3. Dynamic catch-up process of labour costs and productivity after COVID-19-related slump in previous year

The development of labour costs in manufacturing is assessed based on gross compensation (remuneration) per employee in national currency (Table 1). This national account figure records the total wages and salaries including employers' social security contributions per capita.

In nominal terms, gross compensation per capita in Austrian manufacturing increased by 3.2 percent in 2021 compared to the previous year, according to the latest National Accounts data. In the second year of the COVID-19 crisis, labour costs in Austria thus increased more strongly than in the pre-crisis year 2019 (+2.5 percent). The COVID-19 relief measures in 2020 and 2021 shifted a

³ The range of variation would be greater if a larger number of non-euro countries could be included in

the analysis than is possible here due to data availability.

significant part of the financing of employee compensation from companies to the public sector. In addition, companies increasingly complain that their business activities are impaired due to shortages of labour force and the difficulty of retaining employees (Hölzl et al., 2021). As these circumstances impair the National Accounts, also the data on labour costs is affected and thus, information on the actual expenditure of companies should be interpreted with caution concerning its influence as a determinant of price competitiveness for the year 2021. As in the previous year, this also applies to the reference countries. In 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.

The development of labour costs per capita shows a similar pattern for Austria's main trading partners. On a weighted average of all trading partners, labour costs per capita increased by 5.0 percent. Compared to the EU trading partners (+5.3 percent), the increase in labour costs in Austria was more moderate; compared to Germany (+3.3 percent) it was similarly strong.

Current data suggest that labour costs per capita in Austria developed similarly to the weighted average of trading partners over the longer term. Over the past ten years they have increased by 2.4 percent p.a. in Austria, by 2.5 percent in the weighted average of all trading partners and by 2.5 percent p.a. in the weighted average of EU trading partners. However, these comparisons based on figures in national currency have not yet taken exchange rate fluctuations into account.

As the analysis in the single currency – i.e., after taking exchange rate fluctuations into account – shows, labour costs in Austria rose relative to the reference countries, especially in the crisis year 2009 and then again between 2011 and 2014 (Figure 2). In 2015, relative labour costs in Austria declined again and fluctuated only slightly in the following years, although a slight decline can be seen again at the current margin. After taking exchange rate changes into account, labour costs per capita in Austria in 2021 were at a similar level relative to the trading partners as in 2006. The same applies when looking at the EU trading partners. Here, relative labour costs in 2021 were at the level of the mid-2000s.

The weighted average of all trading partners results from partly very different labour cost trends in the individual countries or country groups. As the main trading partner, Germany plays a special role in the analysis of labour costs. In the 2000s and up to the financial market and economic crisis in 2009,

labour costs per capita in German manufacturing rose very moderately. During this period, labour costs in Austria increased significantly more than in Germany (Figure 2). This pattern changed after the outbreak of the crisis. Until 2017, there was no clear shift in the cost ratio between the two countries. However, the data for 2018 to 2020 show a stronger increase in gross compensation per capita in Austria than in Germany, with weaker labour cost dynamics at the same time.

While labour costs per capita in Germany and Austria increased to about the same extent as the average of all EU countries in the 2010s, other countries in the euro area recorded lower increases. Except for Ireland, this applies in particular to those countries that suffered considerably from the financial market and economic crisis and the subsequent sovereign debt crisis. After a strong increase in labour costs per capita in the 2000s, there was a noticeably subdued development in the 2010s in countries such as Greece, Spain, and Portugal, with only a slight increase or decrease in costs. In other countries, such as France, Italy or Finland, labour cost dynamics were also significantly weaker than the EU average during this period.

At the current margin, compared to 2020, all EU countries are experiencing increasing cost dynamics. This can be observed especially in the Eastern European countries. Since the 1990s, these countries have been catching up with the Western European high-wage countries 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 at the present time, rates of increase well above the EU average have been registered again, indicating a continuation of the catching-up process.

In addition to 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).

The subdued development of productivity per capita in 2019 was followed by a sharp slump in 2020 (Table 2): As a result of the COVID-19 pandemic, productivity per capita in Austrian manufacturing fell by 4.6 percent. However, this decline is likely to have been more than offset in 2021: according to National Accounts figures published in September 2022, productivity per capita increased by 9.1 percent in 2021. Compared to the trading partners, this is an above-average increase. With the exception of Finland and Canada, Austria's trading partners underwent similar catching-up processes in 2021. In the weighted average of the

Labour costs per capita in Austria developed similarly to the weighted average of trading partners between 2011 and 2021.

Productivity per capita recovered significantly in 2021 from the crisis-related slump in the previous year.

trading partners, productivity per capita increased by 7.4 percent (EU trading partners +8.2 percent). In Germany, where productivity per capita had slumped by 5.7 percent in

2020 due to the onset of the economic downturn in industry, a recovery followed in 2021 (+6.5 percent).

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

In national currency

	Ø 2011-2016	Ø 2016-2021	Ø 2011-2021	2019	2020	2021
	Percentage changes p.a.			Percentage changes from previous year		
Austria	+ 2.7	+ 2.0	+ 2.4	+ 2.5	- 0.3	+ 3.2
Belgium	+ 2.2	+ 1.7	+ 1.9	+ 2.4	- 2.8	+ 5.0
Denmark	+ 2.0	+ 2.2	+ 2.1	+ 3.2	+ 2.2	+ 3.1
Germany	+ 2.5	+ 1.4	+ 2.0	+ 2.4	- 2.4	+ 3.3
Ireland	+ 2.7	+ 3.9	+ 3.3	+ 5.7	- 1.5	+ 1.6
Greece	- 3.6	+ 0.2	- 1.7	+ 3.2	- 1.1	+ 1.8
Spain	+ 0.4	+ 1.9	+ 1.1	+ 0.2	+ 1.6	+ 5.0
France	+ 1.9	+ 0.3	+ 1.1	- 3.4	- 3.9	+ 4.7
Italy	+ 1.8	+ 1.1	+ 1.4	+ 1.4	- 7.0	+ 8.5
Luxembourg	+ 1.5	+ 2.0	+ 1.7	+ 1.4	- 1.6	+ 7.2
Netherlands	+ 2.1	+ 2.5	+ 2.3	+ 2.5	+ 3.5	+ 2.6
Portugal	+ 0.7	+ 3.5	+ 2.1	+ 4.6	+ 0.9	+ 5.2
Finland	+ 1.5	+ 1.1	+ 1.3	+ 1.2	- 0.6	+ 5.5
Sweden	+ 2.9	+ 2.7	+ 2.8	+ 2.7	+ 1.1	+ 5.7
Bulgaria	+ 7.3	+ 9.3	+ 8.3	+ 9.7	+ 6.2	+ 10.4
Czech Republic	+ 2.6	+ 5.2	+ 3.9	+ 6.1	+ 0.4	+ 4.8
Estonia	+ 7.2	+ 6.6	+ 6.9	+ 7.4	+ 2.3	+ 11.1
Croatia	+ 1.2	+ 0.4	+ 0.8	- 5.1	+ 2.5	+ 1.8
Cyprus	- 1.5	+ 2.3	+ 0.4	+ 4.1	- 4.6	+ 7.3
Latvia	+ 7.7	+ 8.0	+ 7.9	+ 8.6	+ 5.4	+ 7.5
Lithuania	+ 6.7	+ 6.9	+ 6.8	+ 11.4	+ 4.2	+ 6.0
Hungary	+ 4.0	+ 6.5	+ 5.3	+ 7.5	+ 3.4	+ 8.5
Poland	+ 3.6	+ 7.5	+ 5.5	+ 9.9	+ 7.3	+ 9.4
Romania	+ 6.4	+ 8.4	+ 7.4	+ 10.2	+ 2.3	+ 9.7
Slovenia	+ 2.8	+ 4.2	+ 3.5	+ 4.4	+ 2.3	+ 7.3
Slovakia	+ 3.9	+ 5.8	+ 4.8	+ 5.0	+ 0.6	+ 7.5
UK	+ 2.5	+ 4.3	+ 3.4	+ 4.3	+ 4.5	+ 7.7
Norway	+ 3.3	+ 2.4	+ 2.8	+ 3.7	+ 0.2	+ 4.5
USA	+ 1.8	+ 3.2	+ 2.5	+ 1.4	+ 4.7	+ 4.1
Japan	+ 0.7	+ 0.6	+ 0.6	+ 0.4	- 1.8	+ 0.2
Canada	+ 2.0	+ 2.1	+ 2.1	- 1.2	+ 7.0	- 0.5
All trading partners ¹	+ 2.3	+ 2.7	+ 2.5	+ 2.7	- 0.2	+ 5.0
EU trading partner ²	+ 2.5	+ 2.6	+ 2.5	+ 2.9	- 1.1	+ 5.3
	Growth difference in percentage points p.a.			Growth difference in percentage points		
Austria						
All trading partners ¹ = 100	+ 0.4	- 0.6	- 0.1	- 0.1	- 0.1	- 1.7
EU trading partners ² = 100	+ 0.2	- 0.6	- 0.2	- 0.4	+ 0.9	- 2.0
Germany = 100	+ 0.2	+ 0.6	+ 0.4	+ 0.2	+ 2.2	- 0.1

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 2021. –¹ EU trading partners (excluding Malta), Norway, the UK, the USA, Canada, and Japan; weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods. –² Excluding Malta, the UK; weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods.

Besides Germany, many other important trading partners also experienced strong productivity growth in 2021 compared to the crisis year 2020. Growth was particularly strong in Spain (+11.6 percent) and Italy

(+13.3 percent), where productivity per capita had shrunk by more than 10 percent in 2020. In France, which had suffered a similarly drastic slump in 2020, productivity growth was moderate (+5.0 percent). In

Norway, the USA, Belgium or the Netherlands, productivity growth is likely to have been somewhat weaker than in Austria. For other countries such as Ireland, the UK, or

some Eastern European countries, however, the data point to even stronger productivity growth than in Austria.

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

In national currency

	Ø 2011-2016 Ø 2016-2021 Ø 2011-2021			2019	2020	2021
	Percentage changes p.a.			Percentage changes from previous year		
Austria	+ 1.6	+ 1.4	+ 1.5	- 0.7	- 4.6	+ 9.1
Belgium	+ 2.5	+ 1.6	+ 2.1	+ 2.9	- 3.1	+ 8.7
Denmark	+ 2.9	+ 3.4	+ 3.1	+ 3.3	+ 0.4	+ 3.9
Germany	+ 0.9	+ 0.1	+ 0.5	- 1.9	- 5.7	+ 6.5
Ireland	+ 10.0	+ 9.7	+ 9.8	- 0.1	+ 20.0	+ 14.7
Greece	- 1.4	+ 3.5	+ 1.0	+ 2.2	+ 6.7	+ 3.2
Spain	+ 2.1	- 0.8	+ 0.7	- 2.3	- 11.5	+ 11.6
France	+ 1.5	- 0.8	+ 0.4	- 0.9	- 11.6	+ 5.0
Italy	+ 1.4	+ 0.8	+ 1.1	- 1.1	- 10.5	+ 13.3
Luxembourg	+ 9.3	- 0.2	+ 4.5	+ 12.9	+ 2.0	+ 6.4
Netherlands	+ 1.3	+ 2.0	+ 1.6	- 1.7	- 2.0	+ 7.0
Portugal	+ 0.7	+ 0.7	+ 0.7	+ 1.2	- 4.4	+ 4.4
Finland	+ 0.5	+ 0.6	+ 0.5	+ 2.9	- 0.4	- 0.8
Sweden	+ 0.6	+ 1.0	+ 0.8	- 1.4	- 3.9	+ 9.5
Bulgaria	+ 3.7	+ 1.2	+ 2.5	+ 2.2	- 8.0	+ 9.4
Czech Republic	+ 0.4	+ 1.9	+ 1.2	+ 5.3	- 8.0	+ 5.0
Estonia	+ 3.1	+ 2.4	+ 2.7	+ 2.9	- 4.2	+ 8.2
Croatia	+ 1.9	- 0.7	+ 0.5	- 3.3	- 2.6	+ 5.0
Cyprus	+ 2.0	+ 4.1	+ 3.1	+ 4.1	- 6.3	+ 5.8
Latvia	+ 2.0	+ 4.3	+ 3.1	+ 3.1	+ 2.6	+ 2.7
Lithuania	+ 2.5	+ 3.4	+ 3.0	+ 4.0	+ 2.5	+ 5.9
Hungary	+ 1.3	+ 0.9	+ 1.1	+ 1.0	- 3.4	+ 8.0
Poland	+ 2.2	+ 4.1	+ 3.2	+ 5.8	- 1.4	+ 14.2
Romania	+ 0.9	+ 3.6	+ 2.2	+ 0.8	+ 1.7	+ 7.9
Slovenia	+ 1.6	+ 3.2	+ 2.4	+ 5.5	- 1.2	+ 9.5
Slovakia	+ 4.6	+ 2.5	+ 3.6	+ 7.2	- 12.3	+ 12.9
UK	+ 1.7	+ 1.8	+ 1.7	+ 4.4	- 6.9	+ 10.0
Norway	+ 0.9	+ 1.0	+ 0.9	- 0.1	- 0.7	+ 3.1
USA	- 0.0	+ 2.2	+ 1.1	+ 0.5	+ 0.8	+ 4.8
Japan	+ 0.7	- 0.1	+ 0.3	- 2.7	- 4.6	+ 1.7
Canada	+ 1.1	- 0.8	+ 0.1	- 3.4	+ 0.2	- 2.8
All trading partners ¹	+ 1.2	+ 1.1	+ 1.1	- 0.1	- 4.9	+ 7.4
EU trading partner ²	+ 1.3	+ 1.0	+ 1.1	- 0.2	- 5.8	+ 8.2
	Growth difference in percentage points p.a.			Growth difference in percentage points		
Austria						
All trading partners ¹ = 100	+ 0.4	+ 0.3	+ 0.3	- 0.6	+ 0.3	+ 1.5
EU trading partners ² = 100	+ 0.2	+ 0.4	+ 0.3	- 0.5	+ 1.2	+ 0.8
Germany = 100	+ 0.6	+ 1.3	+ 1.0	+ 1.2	+ 1.2	+ 2.4

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 2021. – ¹ EU trading partners (excluding Malta), Norway, the UK, the USA, Canada, and Japan; weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods. – ² Excluding Malta, the UK; weighted average of trading partners according to WIFO calculations of single import weighting and double export weighting for industrial goods.

The comparison of productivity development with trading partners is positive for Austria in the medium term: between 2016 and 2021, productivity per capita in Austria grew by an average of about 0.3 percentage

points per year more strongly than the average of the trading partners, and by even 1.3 percentage points more strongly in relation to Germany.

Between 2011 and 2021, productivity in Austria developed more dynamically than in its main trading partners.

Compared to trading partners, unit labour costs in Austrian manufacturing fell significantly in 2021.

In the Central Eastern European EU countries, labour costs continued to develop much more dynamically than productivity.

The latest data also confirm this picture when looking at a ten-year time window. While productivity per capita grew by 1.5 percent per year in Austria between 2011 and 2021, the average weighted growth of all trading partners was around 1.1 percent per year (EU trading partners

+1.1 percent p.a.). In Germany, growth in the same period was only about 0.5 percent per year. Thus, in the medium to long term, productivity developed more dynamically in Austria than in its main trading partners.

4. Improving the unit labour cost position in goods manufacturing

The development of unit labour costs (labour costs per unit of production) results from the change in labour costs (gross compensation per capita) and productivity (gross value added per capita). For 2019 and 2020, the corresponding National Accounts values show an increase in unit labour costs of 3.2 percent and 4.5 percent, respectively (Table 3). This implies a downward revision compared to the values shown in the previous year's contribution (+3.3 percent and +6.0 percent). For 2021, the very strong productivity growth results in a significant decline in unit labour costs (-5.4 percent) despite increased labour costs. The medium-term average for 2016-2021 shows an annual increase of 0.6 percent, while the longer-term average for 2011-2021 shows an annual increase of 0.9 percent.

To assess unit labour costs as an indicator of price competitiveness, we need to compare them internationally. Table 3 provides a detailed overview of the unit labour cost dynamics of the individual trading partners and the development of the Austrian unit labour cost position, i.e., the real effective exchange rate deflated by unit labour costs in relation to the trading partners. Accordingly, the Austrian unit labour cost position improved in 2021 with a decline of 2.6 percentage points compared to the weighted average of its trading partners. This development is characterised by a significant improvement compared to the three main trading partners Germany (-3.0 percent), the USA (-4.2 percent) and Italy (-4.2 percent). Except for the Czech Republic (+3.0 percent), the development of unit labour costs also improved compared to the previous year in Hungary (-1.5 percent), Poland (-6.8 percent), Slovenia (-2.0 percent) and Slovakia (-4.8 percent). In total, unit labour costs in manufacturing in Austria therefore developed more favourably in 2021 than in the EU trading partners (-2.7 percentage points).

In the past ten years (2011-2021), Austria's unit labour cost position improved both in comparison to the weighted average of (EU) trading partners and to Germany. Compared to the weighted average of all trading partners and the EU trading partners, a decline was recorded in each case (-0.3 percentage points and -0.2 percentage points), as well as compared to Germany (-0.6 percentage points).

In the graphical representation, trend reversals and long-term changes become clearer (Figure 2). Accordingly, the price competitiveness of Austrian manufacturing improved considerably compared to the average of all trading partners in the second half of the 1990s. After a contrary development in the early 2000s, there was again an improvement from Austria's perspective until the outbreak of the financial market and economic crisis. The economic crisis triggered another trend reversal, with a deterioration in the relative unit labour costs of Austrian manufacturing in 2009-10. From 2010 to 2020, there is a fluctuating, but largely stable development compared to the weighted average of trading partners. In 2021, on the other hand, there was a significant drop in unit labour costs compared to the weighted average of the trading partners. In comparison to Germany, however, a steady improvement in Austria's unit labour cost position has been observable since 2018.

The comparison of the time series of relative unit labour costs and relative labour costs (gross compensation per capita) also 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 better than in the other countries. A parallel progression of both time series signals an even productivity progress, a stronger decline in gross wages than in relative unit labour costs, and thus a deterioration of productivity in Austria relative to its trading partners. The even course of both components in recent years thus reflects an even productivity progress. In contrast, Figure 2 for the year 2021 also graphically shows the significantly stronger improvement in productivity than in labour costs. However, the current development should be interpreted with caution due to the COVID-19 measures and possible National Accounts revisions.

Unit labour costs developed heterogeneously in the individual countries: In those countries that were most affected by the financial market and economic crisis or the subsequent sovereign debt crisis in the euro area, a reduction in the imbalance positions in price competitiveness was observed in the years immediately after the crisis. Apart from Ireland, where a correction of the National Accounts in 2015 resulted in an

outsized increase in productivity⁴, Greece recorded the strongest decline in unit labour costs among the euro countries after the financial market and economic crisis. Unit labour costs also developed more favourably in Spain and Italy than in Austria, while in Portugal, after a significant correction immediately after the crisis, they recently increased more strongly. Comparing Austria with economies that are similar in terms of their population and GDP per capita

(Sweden, Finland, the Netherlands), a similar development can also be seen in unit labour costs over the last five years (2016-2021). Only Denmark showed a significantly better development. In contrast, unit labour cost dynamics accelerated significantly in the Central Eastern European EU countries in recent years, as productivity has not kept pace with labour cost dynamics despite robust growth rates.

5. Slight increase in overall economic unit labour costs in the entire economy in international comparison

In addition to the unit labour costs in manufacturing, the competitiveness of domestic exports is also partly determined by further sectors of the economy: insofar as 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).

In Austria, labour costs per unit of production across all sectors increased by 0.3 percent in 2021, 0.3 percentage points weaker than in Germany and in line with the weighted average of EU trading partners. Against all trading partners, there was an increase of 0.1 percentage points. However, caution is also needed in interpreting these results, firstly because of the susceptibility of the

data to revision already mentioned and secondly because of the specifics of the COVID-19 pandemic.

In the long run (2011-2021), unit labour costs in the overall economy in Austria grew 0.7 percentage points p.a. faster than the average of EU trading partners and slightly faster than in Germany (+0.1 percentage points p.a.).

In the longer term, both in Austria and among its trading partners, the dynamics of overall unit labour costs are significantly stronger than those of unit labour costs in manufacturing. This is in line with expectations since the greatest potential for increasing labour productivity through mechanisation and automation exists in manufacturing.

Unit labour cost developments in the domestic economy were in line with trading partners in 2021.

6. Summary

The available data show a significant decline in unit labour costs for 2021. This effect is due to a much stronger increase in productivity per capita compared to labour costs. However, when interpreting these data in 2021, it must be considered that they are influenced by the aid measures taken in the course of the COVID-19 pandemic. Particularly, due to the use of short-time work, valid data on labour costs are difficult to obtain and the sharp drop in unit labour costs does not necessarily depend entirely on real economic changes.

A comparison with the trading partners in 2021 is therefore more meaningful than a comparison with the previous year, assuming that similar measures were adopted internationally to combat the economic consequences of the COVID-19 pandemic. This shows that labour costs in Austria developed

significantly more favourably compared to the average of the trading partners in 2021 (-1.7 percentage points). At the same time, the value added per employee in 2021 developed better than the average of all trading partners (+1.5 percentage points) and especially than that of the main trading partner Germany (+2.4 percentage points).

The nominal effective exchange rate deteriorated by 0.4 percent in 2021 because the euro appreciated mainly against the dollar and the Japanese yen.

Overall, these developments led to a 5.4 percent decline in unit labour costs in Austrian manufacturing and a 2.6 percentage point improvement relative to the weighted average of trading partners. Compared to Germany, unit labour costs declined significantly by 2.5 percentage points.

⁴ These changes are also likely to be reflected in the jump in productivity in 2015. The new National Accounts rules provide for the inclusion of income from intellectual property rights held in Ireland in Irish GDP (OECD, 2016). This relates primarily to manufacturing, thereby more accurately reflecting economic activity

in Ireland, but distorts the assessment of unit labour costs. Unit labour cost trends in manufacturing can only fully reflect intellectual property rights if the country of production and the country of allocation of these property rights match. In global value chains, however, these can be different.

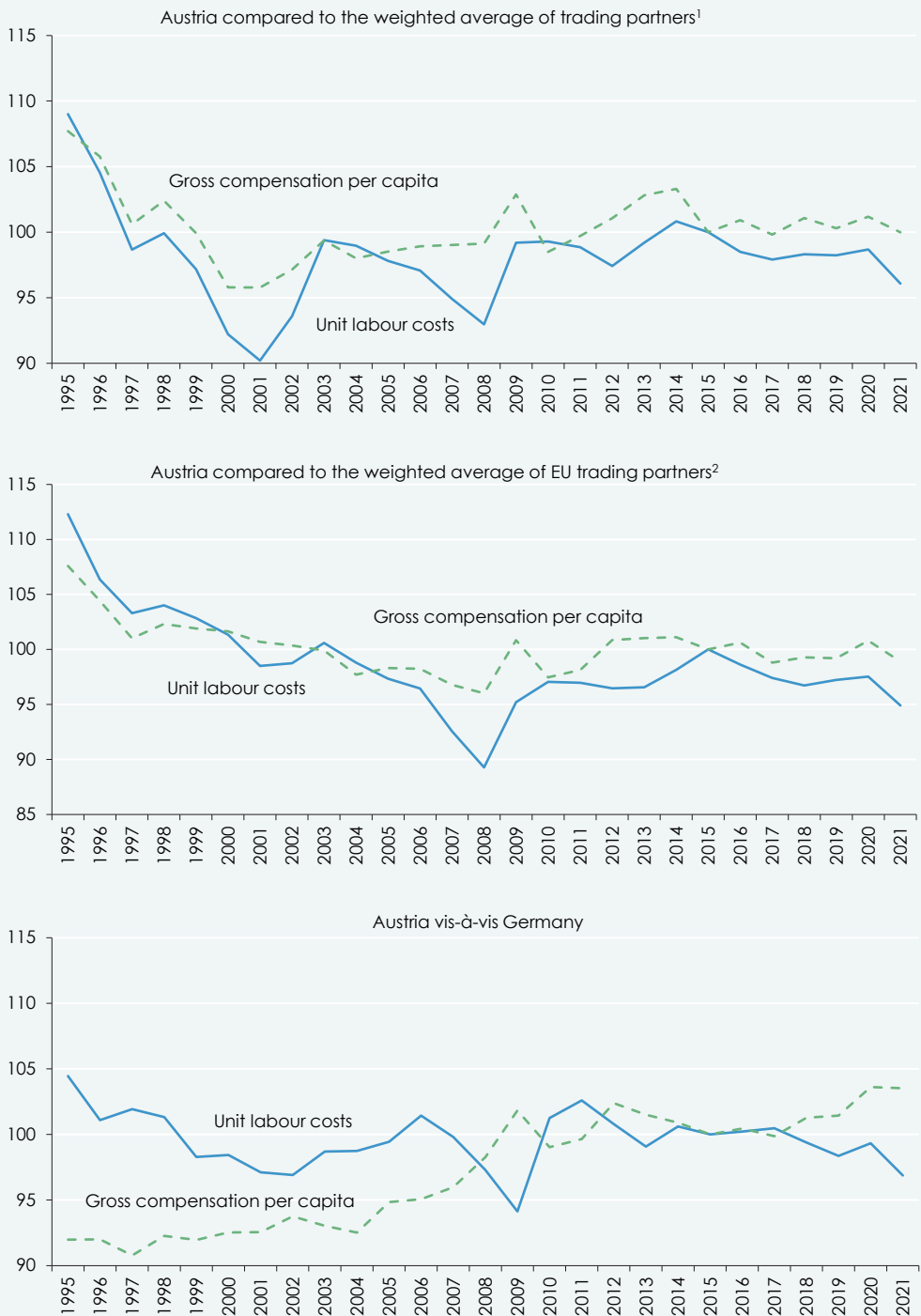
Table 3: Development of unit labour costs per capita (persons employed) in manufacturing and in the economy as a whole

	Percentage changes p.a.			Percentage changes from previous year		
	Ø 2011-2016	Ø 2016-2021	Ø 2011-2021	2019	2020	2021
Manufacturing						
Austria	+ 1.1	+ 0.6	+ 0.9	+ 3.2	+ 4.5	- 5.4
Belgium	- 0.4	+ 0.0	- 0.2	- 0.5	+ 0.3	- 3.4
Denmark	- 0.8	- 1.1	- 1.0	- 0.3	+ 2.0	- 0.5
Germany	+ 1.6	+ 1.3	+ 1.5	+ 4.3	+ 3.5	- 3.0
Ireland	- 6.7	- 5.3	- 6.0	+ 5.7	-17.9	-11.4
Greece	- 2.3	- 3.1	- 2.7	+ 0.9	- 7.3	- 1.4
Spain	- 1.7	+ 2.7	+ 0.5	+ 2.5	+14.8	- 5.9
France	+ 0.4	+ 1.1	+ 0.8	- 2.5	+ 8.8	- 0.3
Italy	+ 0.4	+ 0.4	+ 0.4	+ 2.4	+ 3.9	- 4.2
Luxembourg	- 7.2	+ 2.2	- 2.6	-10.2	- 3.5	+ 0.8
Netherlands	+ 0.9	+ 0.5	+ 0.7	+ 4.3	+ 5.6	- 4.1
Portugal	+ 0.0	+ 2.8	+ 1.4	+ 3.4	+ 5.5	+ 0.8
Finland	+ 1.0	+ 0.6	+ 0.8	- 1.7	- 0.3	+ 6.3
Sweden	+ 1.3	+ 0.3	+ 0.8	+ 0.9	+ 6.2	- 0.2
Bulgaria	+ 3.4	+ 7.9	+ 5.7	+ 7.4	+15.4	+ 0.9
Czech Republic	+ 0.3	+ 4.3	+ 2.3	+ 0.7	+ 5.8	+ 3.0
Estonia	+ 4.0	+ 4.2	+ 4.1	+ 4.3	+ 6.8	+ 2.7
Croatia	- 0.9	+ 1.2	+ 0.1	- 1.8	+ 3.6	- 2.9
Cyprus	- 3.4	- 1.7	- 2.6	- 0.0	+ 1.8	+ 1.4
Latvia	+ 5.7	+ 3.6	+ 4.6	+ 5.3	+ 2.8	+ 4.7
Lithuania	+ 4.1	+ 3.4	+ 3.8	+ 7.1	+ 1.7	+ 0.1
Hungary	+ 0.5	+ 2.7	+ 1.6	+ 4.3	- 0.8	- 1.5
Poland	+ 0.2	+ 2.3	+ 1.2	+ 3.0	+ 5.2	- 6.8
Romania	+ 4.2	+ 2.8	+ 3.5	+ 7.2	- 1.4	- 0.0
Slovenia	+ 1.2	+ 0.9	+ 1.1	- 1.0	+ 3.5	- 2.0
Slovakia	- 0.6	+ 3.1	+ 1.2	- 2.1	+14.8	- 4.8
UK	+ 2.0	+ 1.4	+ 1.7	+ 0.8	+10.8	+ 1.2
Norway	- 1.2	- 0.4	- 0.8	+ 1.1	- 7.3	+ 7.0
USA	+ 6.6	- 0.4	+ 3.0	+ 6.4	+ 1.9	- 4.2
Japan	- 1.6	- 0.9	- 1.3	+10.3	+ 3.1	- 7.6
Canada	- 0.4	+ 2.7	+ 1.2	+ 5.3	+ 3.8	+ 5.6
All trading partners ¹	+ 1.2	+ 1.1	+ 1.2	+ 3.3	+ 4.0	- 2.9
EU trading partner ²	+ 0.8	+ 1.4	+ 1.1	+ 2.7	+ 4.2	- 2.8
	Growth difference in percentage points p.a.			Growth difference in percentage points		
Austria						
All trading partners ¹ = 100	- 0.1	- 0.5	- 0.3	- 0.1	+ 0.5	- 2.6
EU trading partner ²	+ 0.3	- 0.8	- 0.2	+ 0.5	+ 0.3	- 2.7
Germany = 100	- 0.5	- 0.7	- 0.6	- 1.0	+ 1.0	- 2.5
	Percentage changes p.a.			Percentage changes from previous year		
Overall economy						
Austria	+ 2.2	+ 2.6	+ 2.4	+ 2.4	+ 7.1	+ 0.3
All trading partners ¹	+ 1.5	+ 2.1	+ 1.8	+ 3.2	+ 3.7	+ 0.2
EU trading partner ²	+ 1.1	+ 2.3	+ 1.7	+ 2.5	+ 3.8	+ 0.3
	Growth difference in percentage points p.a.			Growth difference in percentage points		
Austria						
All trading partners ¹ = 100	+ 0.7	+ 0.5	+ 0.6	- 0.8	+ 3.3	+ 0.1
EU trading partners ² = 100	+ 1.1	+ 0.3	+ 0.7	- 0.1	+ 3.2	- 0.0
Germany = 100	+ 0.1	+ 0.2	+ 0.1	- 0.8	+ 3.6	- 0.3

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 2021. – ¹ EU trading partners (excluding Malta), Norway, the UK, the USA, Canada, and Japan; 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, respectively. – ² Excluding Malta, the UK; weighted average of trading partners according to WIFO calculations of the single import weighting and double export weighting for industrial goods or for the total economy.

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, the UK, the USA, Canada, and Japan. – ² Excluding Malta, the UK.

A longer-term analysis of relative unit labour costs in domestic manufacturing shows a sharp decline between 1995 and 2001, followed by two years of increase. In a long-term comparison, unit labour costs in 2020 compared to the weighted average of the (EU) trading partners were roughly at the same level as in 2003. Compared to Germany, a steady improvement can be

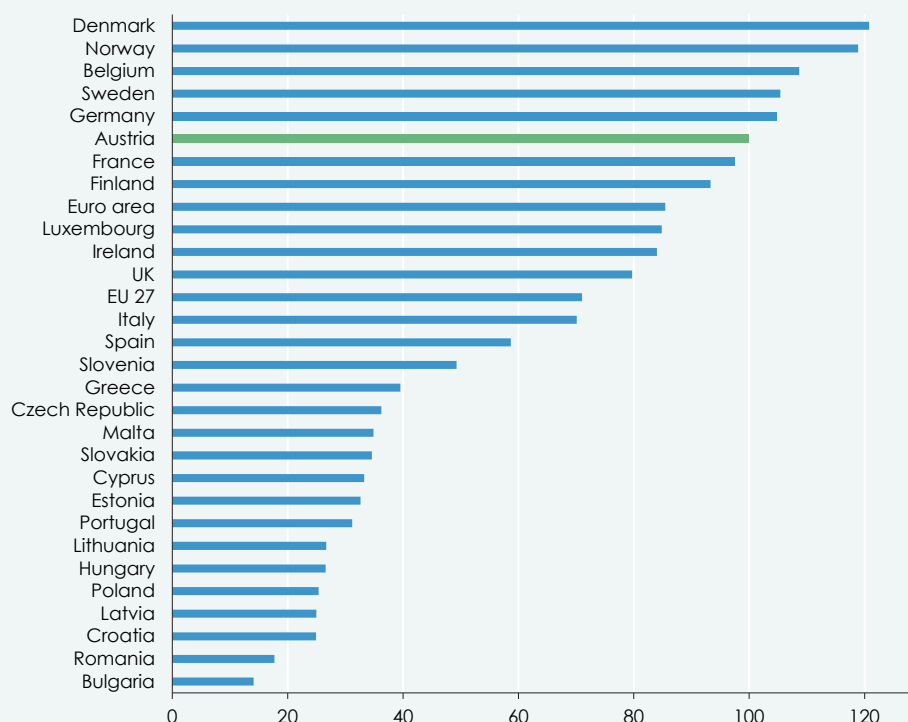
observed since 2018. In 2021, unit labour costs in Austria developed significantly more favourably in an international comparison, but it remains to be seen whether this is a more permanent development or is due to the specific circumstances of the COVID-19 pandemic.

In 2021, Austria's unit labour costs for all sectors of the economy grew 0.1 percentage point faster than the average of all trading partners and to the same extent as the EU

trading partners. Compared to Germany, there was a slight improvement in aggregate unit labour costs in 2021 (-0.3 percentage points).

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

Labour costs per hour in €, 2021, Austria = 100



Source: Eurostat, Office for National Statistics (UK), Labour Force Survey 2016, Labour Cost Index, WIFO, WIFO calculations. Without apprentices.

7. Annex: hourly labour costs 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 are only available for the European countries in this paper. They are based on the Labour Force 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 the 2016 survey published in 2018.

Unlike the Labour Cost Survey, the Labour Cost Index is not calculated according to the same statistical concept in all countries. This limits international comparability somewhat. Due to these methodological limitations, the values of the Labour Cost Index should 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 National Accounts values for the development of gross compensation, which form the basis for the

unit labour cost calculations. This may also be because labour costs, unlike National Accounts gross wages, 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 the incidence, i.e., about who ultimately bears these costs. For 2020 and 2021, it must be considered that government aid measures within the framework of the COVID-19 pandemic that affect the labour factor could distort the values presented in this paper.

Table 4 shows the labour costs per hour for the period 2016-2021 determined on the basis of the Labour Cost Index. In 2021, the hourly labour costs in Austria's manufacturing industry were 41.25 €. Austria thus took 6th place in the European comparison, as in the previous year. Since 2016, hourly labour costs in Austria have increased at a slightly more dynamic rate of +2.5 percent p.a.

than the average for the EU 27 (+2.3 percent p.a.) and more strongly than in Germany (+1.9 percent p.a.). Compared to the

previous year, the increase in 2021 was 1.4 percent in Austria, 1.1 percent on average in the EU and 0.6 percent in Germany.

Table 4: Labour costs per hour in manufacturing

	2016	2017	2018	2019	2020	2021	Ø 2016-2021 Percentage change
	In €						
Bulgaria	3.77	4.26	4.62	5.18	5.42	5.81	+ 9.0
Romania	4.79	5.44	6.01	6.59	6.99	7.30	+ 8.8
Croatia	8.42	8.92	9.80	10.15	9.93	10.28	+ 4.1
Latvia	7.24	7.78	8.77	9.49	10.10	10.30	+ 7.3
Poland	7.81	8.51	9.18	9.72	9.93	10.46	+ 6.0
Hungary	8.38	9.21	9.78	10.64	10.49	10.97	+ 5.5
Lithuania	7.33	8.06	8.77	9.29	9.77	11.01	+ 8.5
Portugal	10.76	11.06	11.43	11.57	12.47	12.86	+ 3.6
Estonia	10.34	10.98	11.68	12.48	12.87	13.46	+ 5.4
Cyprus	11.75	11.90	12.30	12.87	12.74	13.72	+ 3.2
Slovakia	10.33	11.12	12.04	12.86	13.48	14.27	+ 6.7
Malta	13.01	13.75	13.80	13.83	14.04	14.39	+ 2.0
Czech Republic	10.23	11.39	12.71	13.70	13.95	14.95	+ 7.9
Greece	15.11	15.17	15.52	16.12	16.44	16.30	+ 1.5
Slovenia	16.29	17.43	18.10	18.77	19.06	20.33	+ 4.5
Spain	22.64	22.84	23.02	23.48	24.43	24.20	+ 1.3
Italy	27.36	27.50	27.85	28.81	29.60	28.92	+ 1.1
EU 27	26.11	26.74	27.49	28.30	28.98	29.30	+ 2.3
UK	26.93	25.88	26.55	27.71	30.56	32.88	+ 4.1
Ireland	31.25	31.56	32.28	33.44	33.00	34.66	+ 2.1
Luxembourg	32.83	33.65	34.11	34.67	34.90	35.00	+ 1.3
Euro area	32.13	32.77	33.51	34.35	35.05	35.25	+ 1.9
Finland	37.11	36.44	36.81	37.04	36.89	38.48	+ 0.7
France	36.80	37.39	38.31	39.04	40.15	40.22	+ 1.8
Austria	36.47	37.13	38.40	39.61	40.66	41.25	+ 2.5
Germany	39.34	40.40	41.35	42.37	42.92	43.20	+ 1.9
Sweden	42.28	41.99	40.66	40.83	40.87	43.48	+ 0.6
Belgium	41.39	41.93	42.59	43.50	44.25	44.83	+ 1.6
Norway	47.51	47.99	47.73	48.00	45.07	49.04	+ 0.6
Denmark	43.92	44.62	45.63	47.00	48.08	49.82	+ 2.6
Netherlands	36.41	37.28	38.19	39.03	39.87	.	.

Source: Eurostat, Office for National Statistics (UK), Labour Force Survey 2016, Labour Cost Index, WIFO, WIFO calculations. Excluding apprentices.

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