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The modest development in workers' productivity due to the downturn led to a rise in unit labour costs of about 2.1 percent compared to the year before. Combined with an unfavourable exchange rate development (+1.8 percent), this affected the unit labour cost position for Austrian goods producers compared to the average of Austria's trading partners. A comparison with Germany nevertheless found a slight improvement, same as last year. In the long term the unit labour cost position of goods producers in Austria has hardly budged relative to its trading partners since 2003.

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1. Relative unit labour costs as a measure of price competitiveness

The development of unit labour costs (labour costs per unit produced) places changes in labour costs in relation to developments in productivity. In an international comparison the relative unit labour cost position is a synthetic measure of the impact of changes in labour costs, productivity and the exchange rate on the cost-determined competitiveness. As econometric studies show, the development of relative unit labour costs contributes significantly to an explanation of shifts in market shares between trading partners (e.g., *Carlin – Glyn – Van Reenen,* 2001).

The present analysis examines the development of price competitiveness based on the course of the unit labour costs in the manufacturing sector and the total economy, comparing the development of Austria and its most important trading partners based on data from 1995 up to and including 2013, the most recent year for which national account data are available. The values for 2013 are, however, to be considered provisional and subject to revision. The interpretation of medium and long-term developments is not affected by this.

2. Increase in the nominal effective exchange rate

The relative unit labour cost position of a country is determined based on the real effective exchange rate. This indicator expresses the real external value of the national currency. The starting point for such a perspective on price competitiveness is

the nominal effective exchange rate index – that is, a comparison of the national currency with a basket of currencies, which represents the relevance of the individual trading partners for the foreign trade interdependencies of the domestic economy based on a weighting scheme (see box "Calculation method and data basis for the comparison of unit labour costs"). This indicator is subsequently deflated with unit labour costs. For the estimation of the competitiveness of Austrian industry the development of the nominal effective exchange rate is therefore of interest in a first step (Figure 1).

Since the introduction of the euro, exchange rate fluctuations have become less influential for Austrian exports, as Austria's most important trading partners are also situated within the euro zone. In the weighting scheme of the effective exchange rate index more than 70 percent are apportionable to the euro zone countries.

Calculation method and data basis for the comparison of unit labour costs

Unit labour costs in national currency (ULC) in an industry, a sector or the total economy are defined by the relation between the nominal wage sum (WS) and real gross value added (GVA):

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

If one divides both the wage sum and value added by a measure of labour input, this yields both components of unit labour costs: labour costs per labour unit and labour productivity. A change in the share of self-employed in the number of persons engaged can be considered through a representation of unit labour costs as a quotient of labour costs per employee (LF) and gross value added, measured against the number of all persons engaged in employment (EMP):

$$ULC = \frac{\frac{WS}{LF}}{\frac{GVA}{EMP}}.$$

WIFO uses this formula and data obtained through the survey concept of national accounts to calculate the unit labour costs. For Austrian manufacturing, however, instead of using the person-based concept (employees and persons engaged), it bases its calculations on the number of jobs.

For international comparisons, unit labour costs have to be expressed in a common currency, as exchange rate fluctuations can alter the cost position of a country similarly to the development of unit labour costs. The relative unit labour cost position of a country is the ratio of unit labour costs of both countries, as measured in a single currency. For a comparison with several countries, a weighted method has to be used, as the relevance of countries to an international comparison will usually differ. Independently of the methodological approach, such a weighted scheme is based on foreign trade data statistics and therefore reflects the foreign trade interdependence of an economy.

WIFO uses a harmonised method, which is also used by the central banks of the euro zone to measure international competitiveness. The weighting scheme consists of simple (bilateral) import weights and double (multilateral) export weights for industrial goods (SITC 5 to 8). In 2013 a new calculation of the weights and a new method of interlinking the weighted country data were implemented (for a detailed illustration and explanation of this method, see *Mooslechner,* 1995, and *Köhler-Töglhofer – Magerl,* 2013). Due to the double export weighting, competition with trading partners on the respective domestic markets can be taken into account, in addition to competition on all other export markets. The weights are calculated and applied for specific time periods. The most recent calculations are based on the three-year averages for the periods 1995-1997, 1998-2000, 2001-2003, 2004-2006 and 2007-2009; and the most recent weights are applicable for the period after 2007. Using this variable weighting method makes it possible to take into account shifts in market shares. The new calculation should ensure as accurate a picture as possible of country-specific trade interdependencies.

The data on gross wages, productivity and unit labour costs in manufacturing and the total economy were largely generated based on Eurostat figures, because these are generally more up-to-date than those of the AMECO database. The AMECO database was only used to fill gaps in the data, and in cases where the AMECO database had no current figures, data were taken from the European Central Bank and national statistics of the respective countries (USA, Canada, Japan, Ireland, Poland, France). For Japan, the figures for 2012 and 2013 had to be extrapolated due to incomplete data.

Information on the selection of countries

The "EU trading partners" aggregate refers to the following countries: EU 27 without Austria, Malta, Cyprus, Romania and Bulgaria. The term "all trading partners" considers data from the following countries: EU 27 without Austria, Malta, Cyprus, Romania and Bulgaria, but including Norway, the USA, Canada and Japan. This selection of countries covers more than three quarters of all Austrian exports and about 85 percent of all imports.

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

Source: WIFO database.

Directly after its introduction as an electronic currency (January 1999), the euro lost ground to the dollar and other major currencies. From an Austrian perspective, this resulted in a decline in the nominal effective exchange rate – that is, the exchange rate index weighted with export and import shares. In the following years, between 2000 and 2009, the dollar lost about one third of its value against the euro. The euro also noticeably increased its value against the currencies of other relevant trading partners: over 46 percent against the British pound, 30 percent against the yen and 25 percent against the Swedish krona. The significant appreciation of the euro between 2000 and 2009 exerted slight pressure on the production costs of Austria's export economy. Within this period, the nominal effective exchange rate rose by nearly 11 percent.

Between 2010 and 2012 developments have been more favourable from the perspective of Austria's export economy: during these three years the nominal effective exchange rate declined by a total of 4.5 percent. In 2013, however, the weighted exchange rate increased by 1.8 percent, resulting in a rise in the index value to the level of 2005-2006. This nominal effective appreciation is above all due to a strong depreciation of the yen against the euro. The Japanese currency depreciated by 26 percent against the euro in 2013 in the course of the Japanese central bank's highly expansive monetary policy. At the same time, Austria's exports to the USA (+3.3 percent), Canada (+6.5 percent), UK (+4.7 percent), Switzerland (+2.1 percent) and Norway (+4.4 percent) became slightly more expensive.

3. Rise in labour costs with weak increase in productivity

The development of labour costs in manufacturing can be assessed on the basis of gross wages per employee in national currency (Table 1). This figure from national accounts measures the per-capita sum of wages and salaries including the social security contributions of employers.

Nominally, per-capita gross salaries in Austrian industry rose by 3.2 percent, as in the previous year. As a result, labour costs in Austria rose 0.7 percentage points more than the weighted average of all trading partners. From a longer-term perspective, labour costs in Austria also tended to develop more dynamically than in the average of the trading partners. Within the last ten years they rose by 3.0 percent per

year, whereas in the average of the EU trading partners and all trading partners they rose by 2.7 percent and 2.6 percent per year, respectively.

As shown when viewed in a single currency, i.e. taking currency fluctuations into account, labour in Austria grew significantly more expensive, above all in the 2006-2009 period (Figure 2). In 2010, relative labour costs in Austria declined again, after having remained largely constant in 2011 and 2012 (in a single currency).

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

In national currency

	Ø 2003-2008	Ø 2008-2013	Ø 2003-2013	2011	2012	2013
	Year-to-year percentage changes					
Austria	+ 3.4	+ 2.5	+ 3.0	+ 3.4	+ 3.2	+ 3.2
Belgium	+ 2.9	+ 2.6	+ 2.8	+ 2.7	+ 3.7	+ 2.9
Denmark	+ 3.8	+ 2.9	+ 3.4	+ 2.4	+ 1.6	+ 2.0
Germany	+ 1.8	+ 2.0	+ 1.9	+ 4.0	+ 2.1	+ 2.6
Greece	+ 4.8	– 2.7	+ 1.0	– 5.2	– 4.8	– 6.3
Spain	+ 4.9	+ 1.8	+ 3.3	+ 1.8	+ 1.8	+ 1.1
France	+ 3.4	+ 2.6	+ 3.0	+ 4.9	+ 1.9	+ 1.8
Ireland	+ 5.2	– 0.9	+ 2.1	– 2.5	+ 0.5	– 0.9
Italy	+ 3.3	+ 1.7	+ 2.5	+ 3.9	+ 1.5	+ 2.8
Luxembourg	+ 3.3	+ 1.6	+ 2.5	+ 2.6	+ 1.7	+ 3.2
Netherlands	+ 2.8	+ 2.4	+ 2.6	+ 2.1	+ 2.2	+ 4.0
Portugal	+ 3.8	+ 4.4	+ 4.1	+ 1.3	+ 1.0	+ 1.6
Finland	+ 3.1	+ 1.4	+ 2.3	+ 3.1	+ 3.3	+ 0.2
Sweden	+ 3.3	+ 2.1	+ 2.7	+ 1.4	+ 3.3	+ 1.9
UK	+ 5.1	+ 3.6	+ 4.3	+ 3.3	+ 2.4	+ 4.7
Czech Republic	+ 6.3	+ 1.7	+ 4.0	+ 3.2	+ 2.4	– 0.3
Estonia	+ 12.3	+ 3.7	+ 7.9	– 3.6	+ 9.7	+ 8.4
Latvia	+ 21.6	+ 2.6	+ 11.7	+ 6.4	+ 9.7	+ 5.4
Lithuania	+ 12.1	+ 3.8	+ 7.8	+ 6.1	+ 2.5	+ 7.6
Hungary	+ 8.5	+ 4.1	+ 6.3	+ 4.8	+ 4.6	+ 10.6
Poland	+ 3.8	+ 5.2	+ 4.5	+ 5.0	+ 4.8	+ 1.3
Slovenia	+ 6.6	+ 3.4	+ 5.0	+ 2.6	+ 2.4	+ 2.7
Slovakia	+ 8.0	+ 3.5	+ 5.7	+ 2.9	+ 5.9	+ 2.6
Japan	– 0.0	+ 0.5	+ 0.2	+ 2.2	+ 0.6	+ 2.1
Canada	+ 3.6	+ 2.2	+ 2.9	+ 4.2	+ 3.8	+ 1.9
Norway	+ 5.6	+ 3.1	+ 4.4	+ 4.5	+ 3.8	+ 4.3
USA	+ 2.5	+ 1.4	+ 1.9	+ 2.3	+ 1.4	+ 0.3
EU trading partners[1]	+ 3.2	+ 2.3	+ 2.7	+ 3.6	+ 2.3	+ 2.6
All trading partners[2]	+ 3.0	+ 2.1	+ 2.6	+ 3.5	+ 2.2	+ 2.4
Austria						
All trading partners[2] = 100	+ 0.3	+ 0.4	+ 0.4	– 0.1	+ 0.9	+ 0.7
EU trading partners[1] = 100	+ 0.2	+ 0.3	+ 0.2	– 0.2	+ 0.8	+ 0.5
Germany = 100	+ 1.6	+ 0.5	+ 1.0	– 0.6	+ 1.0	+ 0.5

Source: Eurostat, AMECO, ECB, national statistics, WIFO calculations. – [1] Without Austria, Malta, Cyprus, Romania, Bulgaria; weighted average of the trading partners based on the calculation of the WIFO exchange rate index. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria, but including Norway, the USA, Canada and Japan; weighted average of the trading partners based on the calculation of the WIFO exchange rate index.

Germany played a significant role in this development: in the 2000s and above all before the outbreak of the financial crisis, German wage growth was very modest (2003-2008 +1.8 percent per year). In 2010 and 2011, labour costs in Germany rose much more significantly than in Austria. However, this trend did not continue in 2012 and 2013, resulting in a worsening of Austria's cost position.

In the other countries of the euro zone, above all in those more greatly affected by the crisis, wage dynamics developed completely differently than in Germany. After a strong rise in labour costs before the outbreak of the crisis, many countries saw a noticeable correction – that is, costs rose only weakly or even partly declined. This adjustment mainly affected Greece, but also to varying degrees Ireland, Portugal and Spain. Beyond this, several traditionally high-wage countries such as Sweden, Denmark and Finland showed a modest cost increase in the last two to three years.

The eastern central European countries have experienced a catching-up process with respect to high-wage western countries since the 1990s. Since the outbreak of the crisis, however, labour costs have taken a differentiated course. While the catching-up process continued in countries like Poland and the Baltics after a crisis-related interruption, other countries, notably the Czech Republic, have only experienced modestly increasing wage rates in more recent years.

An assessment of price competitiveness not only requires an international comparison of exchange rate relations and labour costs, but also a comparison of productivity development. This is measured as real gross per-capita value added (number engaged in employment).

Table 2: Development of per-capita productivity (employees) in the manufacturing of goods

In national currency

	Ø 2003-2008	Ø 2008-2013	Ø 2003-2013	2011	2012	2013
	Year-to-year percentage changes					
Austria	+ 4.3	+ 1.5	+ 2.9	+ 6.6	+ 0.1	+ 1.1
Belgium	+ 2.7	– 0.4	+ 1.1	– 0.7	– 1.3	+ 1.8
Denmark	+ 1.5	+ 5.3	+ 3.4	+ 7.2	+ 4.0	+ 5.4
Germany	+ 3.6	+ 0.9	+ 2.2	+ 7.1	– 2.2	– 0.2
Greece	– 2.1	+ 5.6	+ 1.7	– 5.0	+ 9.7	+ 3.7
Spain	+ 1.3	+ 4.7	+ 3.0	+ 3.3	+ 4.7	+ 4.6
France	+ 2.7	+ 2.2	+ 2.4	+ 4.9	+ 1.1	+ 0.7
Ireland	+ 1.2	+ 3.0	+ 2.1	+ 4.8	– 0.4	– 4.2
Italy	+ 1.4	– 0.6	+ 0.4	+ 2.2	– 1.8	– 1.4
Luxembourg	– 1.9	– 4.4	– 3.1	– 12.8	+ 4.2	+ 0.8
Netherlands	+ 3.5	+ 1.1	+ 2.3	+ 4.1	– 0.6	+ 0.5
Portugal	+ 2.5	+ 3.8	+ 3.1	+ 2.6	+ 3.9	+ 4.3
Finland	+ 5.1	– 3.2	+ 0.9	– 1.2	– 6.7	– 1.2
Sweden	+ 4.9	+ 3.2	+ 4.0	+ 3.4	– 1.6	+ 1.4
UK	+ 3.8	+ 0.8	+ 2.3	+ 2.6	– 2.1	+ 0.7
Czech Republic	+ 11.2	+ 2.1	+ 6.6	+ 5.8	– 0.9	– 1.4
Estonia	+ 4.6	+ 6.0	+ 5.3	+ 4.6	+ 2.0	+ 2.9
Latvia	+ 4.6	+ 7.1	+ 5.9	+ 8.1	+ 4.4	+ 0.0
Lithuania	+ 6.9	+ 7.7	+ 7.3	+ 8.3	+ 2.3	+ 5.4
Hungary	+ 6.0	– 0.0	+ 2.9	– 2.7	+ 2.0	+ 0.5
Poland	+ 5.7	+ 7.0	+ 6.3	+ 7.8	+ 2.9	+ 0.9
Slovenia	+ 5.6	+ 1.8	+ 3.7	+ 3.6	– 1.3	+ 1.6
Slovakia	+ 11.1	+ 6.7	+ 8.9	+ 1.4	+ 3.9	+ 4.7
Japan	+ 4.5	+ 1.0	+ 2.7	– 1.9	– 1.3	+ 1.1
Canada	+ 1.7	+ 0.9	+ 1.3	+ 2.4	+ 1.8	+ 0.6
Norway	+ 2.1	+ 2.0	+ 2.0	+ 2.0	+ 1.9	+ 2.1
USA	+ 3.8	+ 2.1	+ 3.0	+ 0.8	– 0.6	+ 1.8
EU trading partners[1]	+ 3.7	+ 1.3	+ 2.5	+ 4.9	– 1.0	+ 0.2
All trading partners[2]	+ 3.7	+ 1.3	+ 2.5	+ 4.3	– 1.0	+ 0.4
Austria						
All trading partners[2] = 100	+ 0.6	+ 0.2	+ 0.4	+ 2.2	+ 1.1	+ 0.7
EU trading partners[1] = 100	+ 0.6	+ 0.2	+ 0.4	+ 1.6	+ 1.2	+ 0.8
Germany = 100	+ 0.7	+ 0.7	+ 0.7	– 0.4	+ 2.4	+ 1.2

Source: Eurostat, AMECO, ECB, national statistics, WIFO calculations. – [1] Without Austria, Malta, Cyprus, Romania, Bulgaria; weighted average of the trading partners based on the calculation of the WIFO exchange rate index. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria, but including Norway, the USA, Canada and Japan; weighted average of the trading partners based on the calculation of the WIFO exchange rate index.

Productivity has developed in spurts in Austrian manufacturing in response to strong cyclical fluctuations since the outbreak of the crisis. Between 2003 and 2008, annual growth reached 4.3 percent on average. In 2008 and above all in 2009, the strong decline in foreign demand resulted in a collapse of orders, which in turn resulted in a decline in gross per-capita value added (persons engaged). In 2010 and 2011, the economy and production in manufacturing again became more dynamic, compensating for the crisis-related slump in value added. In 2012 and 2013, however, productivity developed only weakly; after stagnating in 2012 (+0.1 percent) it rose

by a modest 1.1 percent in 2013. This value was the result of a dampened increase in goods production (+1.2 percent) at nearly constant employment (+0.2 percent)[1].

Despite the cyclical stagnation of productivity, Austria compares favourably in an international context (Table 2). In Germany, gross per-capita value added (number engaged in employment) rose by 2.2 percent in 2012 and 0.2 percent in 2013. In other EU countries such as Italy, Finland and the Czech Republic, productivity also declined two years in a row, while most other trading partners experienced only weakly increasing or stagnant productivity in recent years. Only in Greece, Spain and Portugal did productivity increase noticeably, both in 2012 and 2013. However, this increase can be less attributed to a recovery of gross value than to job losses at constant value. Outside of Europe, Japan and the USA in particular have recorded only weak productivity growth in recent years.

In a longer-term comparison, productivity in Austrian industry also showed above-average growth (productivity of persons engaged in manufacturing 2003-2013 reached +2.9 percent and +0.4 percent per year, compared with the average of all trading partners). Between 2003 and 2008, the growth advantage over the trading partners both within the EU and in total was about ½ percentage point per year. In the 2008-2013 period the gap compared to the weighted average of the trading partners decreased to +0.2 percentage points per year.

The advantage over Germany (+0.7 percentage points per year) carries great weight here. Compared to the average of the trading partners without Germany, productivity gains in Austria have declined slightly since the crisis (–0.1 percentage point per year between 2008 and 2013). During this period, the highest rates of increase were recorded in Poland, Slovakia and the Baltic countries.

4. Worsening of relative unit labour cost position in manufacturing

From changes in labour costs (gross wages) and productivity (gross per-capita value added) it derives the development of unit labour costs (labour costs per unit of production). After an increase of 3.0 percent in 2012, weak productivity development and an increase in costs in 2013 resulted in a further increase in unit labour costs in Austrian manufacturing (+2.1 percent). In the long-term average (2003-2013), unit labour costs remained constant, with the 2013 unit labour cost index corresponding to the index level of 2003. However, this average value cloaks heterogeneous development. After rising in the early 2000s, unit labour costs, supported by robust productivity growth, declined from 2004 until the outbreak of the financial crisis. In 2008 (+5.4 percent) and above all in 2009 (+10.7 percent) the crisis resulted in an unusually large increase in unit labour costs, which was partly offset by a decline in 2010 (–6.9 percent) and 2011 (–3.0 percent).

In the other countries the financial crisis also partly resulted in sharp jumps in unit labour costs. In Germany, the price competitiveness of industry improved more during the pre-crisis period than in Austria, but collapsed to such an extent during the crisis of 2008 and 2009 that unit labour costs cumulatively increased by almost 30 percent within those two years (+17 percent in Austria). Much as in Austria, this effect was partly offset in the subsequent years: in 2012 labour costs per unit of production rose by 4.5 percent in German industry, again rising by 2.8 percent in 2013. In total, Germany's unit labour cost position deteriorated slightly in the 2008-2013 period compared to Austria (by 0.2 percentage points per year). In a longer-term comparison (2003-2013) the price competitiveness of German industry still developed better on average than that of Austria (+0.4 percentage points per year).

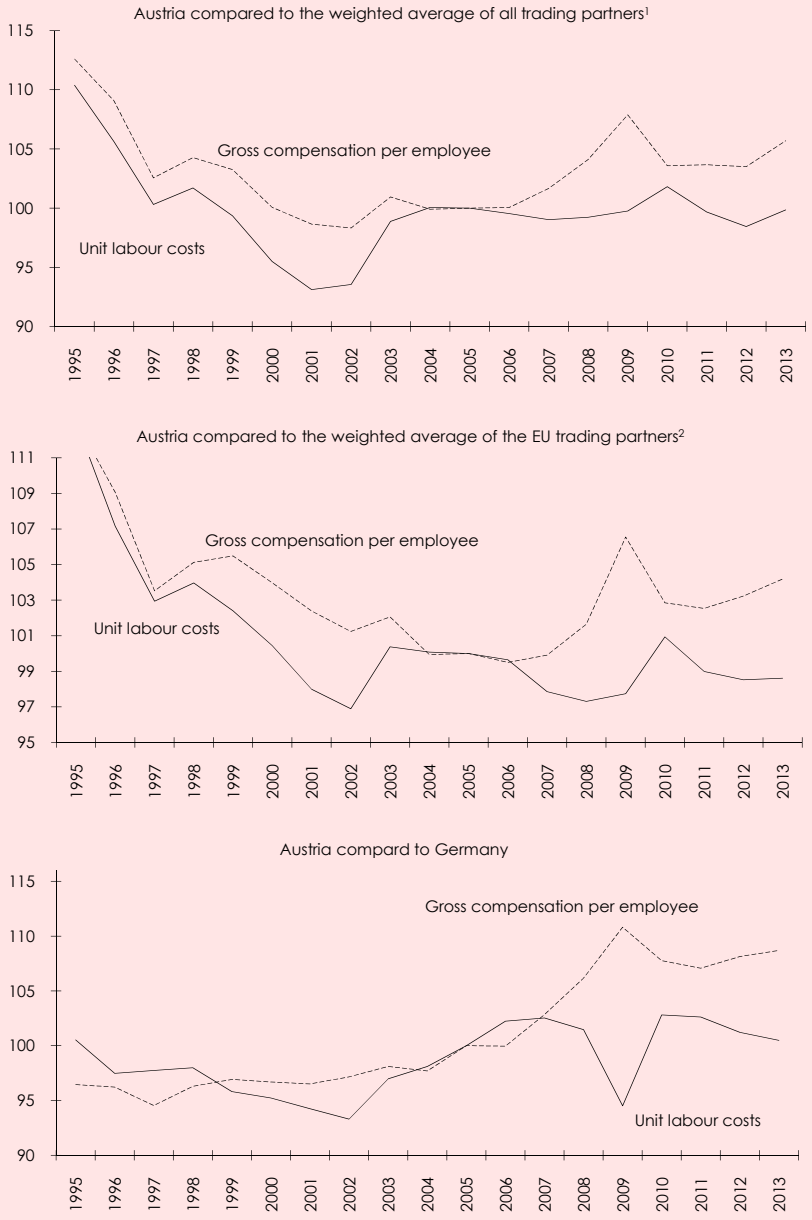
In relation to the average of the trading partners, competitiveness in Austria deteriorated by 0.1 percentage points per year between 2003 and 2013; and the same value was obtained for the sub-periods 2003-2008 and 2008-2013. Compared to the

[1] Source: National accounts, Statistics Austria, WIFO calculations.

EU trading partners, Austria's position improved in the 2003-2008 period (by 0.6 percentage points per year) and worsened in the subsequent period (0.2 percentage points per year). In 2013, unit labour costs in Austria increased by 1.4 percent with respect to all trading partners, after dropping by 1.4 percent in the previous year. The development in Germany, which strongly characterises the average, was therefore partly opposite to that of the non-European and other EU trading partners. This was particularly true for the 2008-2013 period: in Germany, unit labour costs increased more significantly after the crisis than in Austria, while rising less significantly in the average of the other countries and particularly the EU countries excluding Germany.

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

In €, 2005 = 100



Source: Eurostat, AMECO, ECB, national statistics, WIFO calculations. – [1] Without Austria, Malta, Cyprus, Romania, Bulgaria, but including Norway, the USA, Canada and Japan. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria.

In the southern European crisis countries – with the exception of Italy – the unit labour cost position has improved since 2008. In Spain and Portugal this has mainly

been due to above-average productivity growth (in connection with a decline in employment) in manufacturing. In Greece, a decrease in per-capita labour costs (employees) was also observed. These developments are the first signs of a reduction in imbalances of price competitiveness in the euro zone. In Italy, however, productivity declined slightly between 2008 and 2013, which was reflected in a further deterioration of Italy's unit labour cost position.

When interpreting unit labour cost dynamics it is important to take into account that average rates of change over a period are influenced by the selection of the initial and final year. Based on the development of Austria's unit labour cost position – that is, the nominal effective exchange rate index deflated by unit labour costs, reversals and changes over time become more apparent. Accordingly, the price competitiveness of the Austrian manufacturing sector improved significantly compared to the average of all trading partners in the second half of the 1990s. After a contrary development in the early 2000s, Austria's relative unit labour cost position has fluctuated only slightly since 2003.

5. Above-average increase in unit labour costs in the total economy

The competitiveness of the export economy is not only determined by unit labour costs in manufacturing but also by those of the total economy. As long as services and non-tradable goods are important as intermediate inputs, their cost development will have an impact on the competitiveness of the sectors involved in foreign trade (*Deutsche Bundesbank,* 1998).

In Austria, the labour costs per unit of production increased by 2.5 percent across all sectors in 2013, which was significantly higher than the weighted average of the trading partners (+0.1 percent). The small increase in unit labour costs of the trading partners can on the one hand be attributed to the decline in unit labour costs in euro-countries like Spain, Greece, Slovakia and Slovenia. On the other hand, in 2013 unit labour costs also partly declined outside the euro zone and the EU. The strongest decline was recorded in Japan, the UK, the Czech Republic, the USA and Canada due to exchange rate fluctuations.

In previous years, the overall unit labour costs of Austria and its trading partners developed similarly to 2013 (2011: Austria +0.8 percent, trading partners +0.6 percent; 2012: Austria +3.0 percent, trading partners 3.5 percent). In the long term, unit labour costs grew across all sectors in Austria by ½ percentage point per year more quickly than the average of trading partners. In the pre-crisis period this pattern was mainly determined by Germany, as in no other country did the overall unit labour costs rise so slowly. The difference between Germany and the other EU countries was particularly marked from the early 2000s to 2008. Since the outbreak of the economic crisis, overall unit labour costs in Germany increased at about the same rate as in Austria.

Unit labour costs for the total economy increased more significantly in a longer-term view both in Austria and among the trading partners than they did in the manufacturing sector. This is consistent with expectations, as manufacturing has the greatest potential to increase labour productivity through mechanisation and automation.

6. Summary

The economic downturn in the year 2013 resulted in an increase in unit labour costs in Austrian manufacturing. After stagnant productivity in 2012 (+0.1 percent), gross per-capita value added climbed only weakly in 2013 (+1.1 percent). At the same time, labour costs increased by 3.2 percent, to the same extent as in the year 2012.

Together, these developments led to an increase in unit labour costs of 2.1 percent. Because Germany and the other trading partners were also under the influence of the economic crisis, this increase only partly resulted in a deterioration of the international unit labour cost position of the Austrian export economy. For 2013, the available data show a slight improvement in price competitiveness against Germany (reduction in relative unit labour costs of 0.7 percent). Relative to the weighted av-

erage of all trading partners, Austria's unit labour cost position deteriorated by 1.4 percent. This development was influenced by the increase in the nominal effective exchange rate index (+1.8 percent in 2013). In 2012, Austria's labour costs had decreased by 1.2 percent relative to the trading partners and by 1.4 percent compared to Germany.

Table 3: Development of per-capita unit labour costs (employees) in the manufacturing of goods in the total economy

In €

	Ø 2003-2008	Ø 2008-2013	Ø 2003-2013	2011	2012	2013
	Year-to-year percentage change					
Manufacturing of goods						
Austria	– 0.9	+ 1.0	+ 0.0	– 3.0	+ 3.0	+ 2.1
Belgium	+ 0.2	+ 3.1	+ 1.6	+ 3.4	+ 5.0	+ 1.1
Denmark	+ 2.2	– 2.2	– 0.0	– 4.5	– 2.2	– 3.4
Germany	– 1.8	+ 1.2	– 0.3	– 2.9	+ 4.5	+ 2.8
Greece	+ 7.1	– 7.8	– 0.7	– 0.2	– 13.3	– 9.7
Spain	+ 3.6	– 2.8	+ 0.4	– 1.5	– 2.7	– 3.3
France	+ 0.7	+ 0.4	+ 0.6	– 0.0	+ 0.8	+ 1.1
Ireland	+ 3.1	– 3.8	– 0.4	– 6.9	+ 0.9	+ 3.4
Italy	+ 1.9	+ 2.3	+ 2.1	+ 1.7	+ 3.4	+ 4.2
Luxembourg	+ 5.3	+ 6.3	+ 5.8	+ 17.7	– 2.4	+ 2.4
Netherlands	– 0.7	+ 1.3	+ 0.3	– 2.0	+ 2.8	+ 3.5
Portugal	+ 1.3	– 1.9	– 0.3	– 1.3	– 2.8	– 2.6
Finland	– 1.9	+ 4.8	+ 1.4	+ 4.4	+ 10.7	+ 1.5
Sweden	– 2.5	+ 1.1	– 0.7	+ 3.6	+ 8.9	+ 1.1
UK	– 1.6	+ 1.4	– 0.1	– 0.5	+ 11.9	– 0.7
Czech Republic	+ 0.3	– 1.2	– 0.4	+ 0.3	+ 1.0	– 2.2
Estonia	+ 7.4	– 2.1	+ 2.5	– 7.8	+ 7.5	+ 5.3
Latvia	+ 14.1	– 4.2	+ 4.6	– 1.2	+ 6.4	+ 4.7
Lithuania	+ 4.8	– 3.6	+ 0.5	– 2.0	+ 0.2	+ 2.2
Hungary	+ 2.6	+ 0.8	+ 1.7	+ 6.1	– 0.9	+ 7.3
Poland	+ 2.8	– 5.7	– 1.5	– 5.5	+ 0.3	+ 0.1
Slovenia	+ 0.5	+ 1.6	+ 1.0	– 1.0	+ 3.8	+ 1.1
Slovakia	+ 2.9	– 2.2	+ 0.3	+ 1.4	+ 2.0	– 2.1
Japan	– 7.2	+ 2.8	– 2.3	+ 9.3	+ 10.2	– 20.1
Canada	+ 2.2	+ 4.1	+ 3.1	+ 1.1	+ 9.1	– 4.9
Norway	+ 2.9	+ 2.2	+ 2.6	+ 5.3	+ 6.2	– 2.2
USA	– 6.3	+ 1.3	– 2.6	– 3.2	+ 10.4	– 4.6
EU trading partners[1]	– 0.3	+ 0.7	+ 0.2	– 1.1	+ 3.5	+ 2.0
All trading partners[2]	– 1.0	+ 0.9	– 0.1	– 1.0	+ 4.3	+ 0.6
Austria						
All trading partners[2] = 100	+ 0.1	+ 0.1	+ 0.1	– 2.1	– 1.2	+ 1.4
EU trading partners[1] = 100	– 0.6	+ 0.3	– 0.2	– 1.9	– 0.5	+ 0.1
Germany = 100	+ 0.9	– 0.2	+ 0.4	– 0.2	– 1.4	– 0.7
Total economy						
Austria	+ 1.2	+ 2.2	+ 1.7	+ 0.8	+ 3.0	+ 2.5
EU trading partners[1]	+ 1.4	+ 1.5	+ 1.5	+ 1.0	+ 2.6	+ 1.1
All trading partners[2]	+ 0.8	+ 1.7	+ 1.2	+ 0.6	+ 3.5	+ 0.1
Austria						
All tradings partners[2] = 100	+ 0.4	+ 0.5	+ 0.5	+ 0.2	– 0.5	+ 2.4
EU tradings partners[1] = 100	– 0.1	+ 0.7	+ 0.3	– 0.2	+ 0.4	+ 1.4
Germany = 100	+ 1.6	+ 0.1	+ 0.9	– 0.2	– 0.1	+ 0.4

Source: Eurostat, AMECO, ECB, national statistics, WIFO calculations. Unit labour costs: Quotient of per-capita gross wages (employees) and real per-capita gross value added or GDP (persons employed). – [1] Without Austria, Malta, Cyprus, Romania, Bulgaria; weighted average of the trading partners based on the calculation of the WIFO exchange rate index. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria, but including Norway, the USA, Canada and Japan; weighted average of the trading partners based on the calculation of the WIFO exchange rate index.

Overall, the unit labour cost position in Austrian manufacturing has developed more favourably since the outbreak of the financial crisis than in the weighted average of the countries of reference. Due to strong cyclical fluctuations in recent years and some special effects (e.g., effects of short-time work and other labour market policy measures), the international unit labour cost data for the crisis period should be interpreted with some caution.

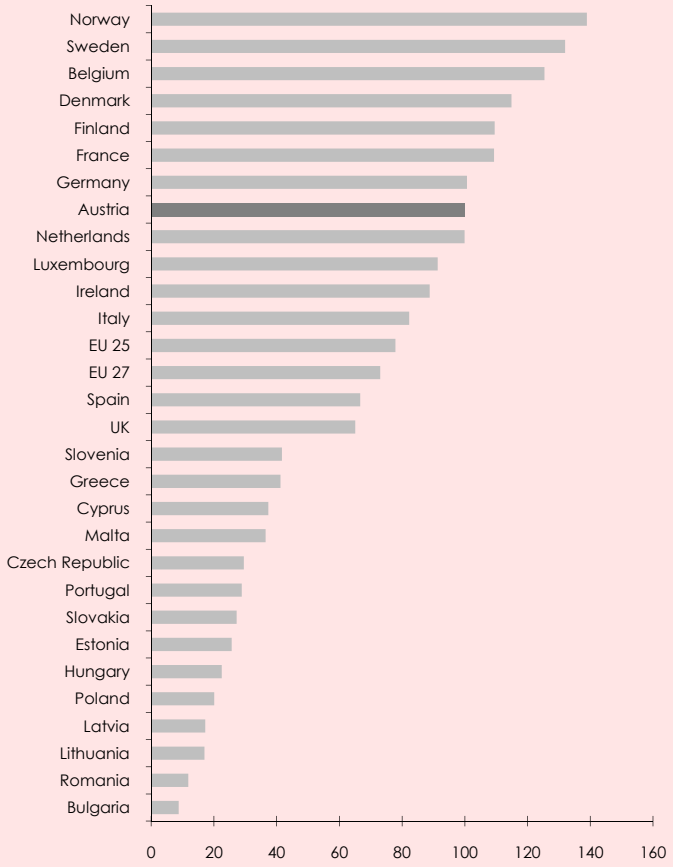
In a longer-term perspective, different phases in the development of the price competitiveness of Austrian industry can be discerned. A strong improvement of the Austrian unit labour cost position compared to the average of all trading partners in the second half of the 1990s was followed by an opposite trend in the early 2000s. Since 2003, the relative unit labour cost position of Austrian manufacturing has varied only slightly, with a slight increase up to the year 2010 and a decline in 2011 and 2012. Austria's favourable development compared to the trading partners in recent years is largely due to its cost advantages over Germany, whose foreign economy carries a weight of one third in the calculation of the real effective exchange rate index.

7. Appendix: Hourly labour costs in the manufacturing sector

While only available data on labour costs per worker can be used for the calculation of current, internationally comparable unit labour costs in manufacturing, in the present report labour costs per hour worked are available at least for European countries. These are based on the labour cost survey, which is carried out in the EU countries every four years. The annual rate of change between two surveys is updated using a labour cost index. The results published here, like the previous annual report (*Hölzl – Leoni,* 2013), are based on the 2008 survey published at the end of 2010 and the annually updated index values.

Figure 3: Labour costs in the manufacturing of goods in international comparison

In €, 2013, Austria = 100



Source: Eurostat (employee survey 2008; labour cost index), WIFO calculations.

Unlike the labour cost survey, the labour cost index is not calculated according to the same statistical concept in all countries. This somewhat limits international comparability. For Austria, the index is based on data from the short-term business statistics. Because of these methodological limitations and the fact that a revision is ex-

pected with the publication of the new labour cost survey at the end of 2014, the values of the labour cost index should be interpreted with caution.

Table 4 shows the labour costs obtained on the basis of the labour cost index for the 2009-2013 period. In 2013, a working hour in Austria manufacturing cost € 34, almost as much as in the Netherlands and a somewhat less than in Germany. Austria therefore ranks 8th in European comparison. In the 2009-2013 period labour costs per hour increased by an average of 1.9 percent per year in Austria – significantly more than in Germany, but weaker than in the high-wage countries, which rank ahead of Austria.

Table 4: Hourly labour costs in the manufacturing of goods

	2009	2010	2011	2012	2013	Ø 2009-2013
			In €			In percent
Bulgaria	2.4	2.6	2.7	2.9	3.0	5.3
Romania	3.2	3.5	3.7	3.8	4.0	5.5
Lithuania	5.2	5.1	5.2	5.5	5.8	2.8
Latvia	5.2	5.0	5.3	5.6	5.9	3.2
Poland	5.8	6.4	6.5	6.6	6.8	4.2
Hungary	6.9	7.0	7.4	7.7	7.7	2.6
Estonia	7.2	7.2	7.6	8.1	8.7	4.9
Slovakia	7.9	7.9	8.4	8.8	9.3	4.0
Portugal	10.4	10.6	10.5	10.0	9.8	– 1.4
Czech Republic	8.8	9.3	10.1	10.2	10.1	3.5
Malta	11.5	12.0	12.4	12.9	12.4	1.8
Cyprus	12.7	13.0	13.3	13.4	12.7	0.0
Slovenia	13.0	13.4	13.7	14.1	14.2	2.1
Greece	16.3	16.6	15.7	14.6	14.0	– 3.7
Spain	21.4	21.6	21.9	22.4	22.7	1.4
UK	19.6	21.0	21.0	22.8	22.1	3.0
EU 27	22.7	23.0	23.7	24.3	24.8	2.3
EU 25	24.2	24.5	25.3	25.9	26.5	2.3
Italy	25.7	26.0	26.6	27.5	28.0	2.1
Ireland	29.0	28.6	28.3	29.0	30.2	1.0
Luxembourg	29.3	29.1	29.7	30.2	31.1	1.5
Netherlands	31.0	31.5	32.2	32.8	34.0	2.4
Austria	31.5	31.2	31.9	33.0	34.0	1.9
Finland	32.0	31.6	32.4	33.8	37.2	3.9
Germany	33.9	34.1	35.4	36.2	34.2	0.2
France	33.3	34.6	35.9	36.8	37.2	2.8
Denmark	36.0	37.0	38.0	38.4	39.1	2.0
Belgium	38.2	39.5	40.6	41.9	42.6	2.8
Sweden	32.8	37.2	40.5	44.0	44.9	8.2
Norway	36.5	41.4	44.0	48.4	47.2	6.7

Source: Eurostat (employee survey 2008; labour cost index), WIFO calculations.

8. References

Carlin, W., Glyn, A. J., van Reenen, J. M., "Export Market Performance of OECD Countries: An Empirical Examination of the Role of Cost Competitiveness", Economic Journal, 2001, 111(468), pp. 128-162.

Deutsche Bundesbank, "Zur Indikatorenqualität unterschiedlicher Konzepte des realen Außenwerts der D-Mark", Monatsbericht, 1998, 11, pp. 41-55.

Hölzl, W., Leoni, Th., "Unit Labour Cost Position in the Production of Goods Stable in 2012 despite Economic Slump", Austrian Economic Quarterly, 2013, 17(3), pp. 177-187, http://www.wifo.ac.at/wwa/pubid/47053.

Köhler-Töglhofer, W., Magerl, Ch., "Neuberechnung der Indikatoren der preislichen und kostenmäßigen Wettbewerbsfähigkeit", WIFO-Monatsberichte, 2013, 86(9), pp. 753-768, http://monatsberichte.wifo.ac.at/46946.

Leoni, Th., "Unit Labour Costs in Goods Production Declined in 2011", Austrian Economic Quarterly, 2012, 16(4), pp. 243-255, http://www.wifo.ac.at/wwa/pubid/46078.

Mooslechner, P., "Abnehmende Inflationsdifferenz verstärkt real-effektive Schillingaufwertung. Neuberechnung der WIFO-Wechselkursindizes", WIFO-Monatsberichte, 1995, 68(9), pp. 580-592, http://monatsberichte.wifo.ac.at/206.