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Unit Labour Cost Position of Austrian Manufacturing Slightly Improved in 2015

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Despite moderate economic growth, the international labour cost position of Austrian manufacturing improved with respect to the weighted sum of all trading partners in 2015. This improvement can be mainly attributed to the devaluation of the euro against other currencies. Compared to the EU's trading partners, price competitiveness of Austrian exports declined. In a longer-term perspective, the overall unit labour cost position of Austrian manufacturing has been subject to only moderate fluctuations since 2005, with a slight deterioration since the outbreak of the economic crisis.

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

Changes in production costs, productivity developments and exchange rates play a central role in the evolution of the international competitiveness of economies. Relative unit labour cost development is a synthetic measure of the effects of changes in these variables on cost-determined competitiveness. The development of unit labour costs (labour costs per unit produced) expresses changes in labour costs in relation to productivity development. As econometric studies show, the change in relative unit labour costs contributes significantly to the explanation of shifts in market shares among trading partners (e.g., *Carlin – Glyn – van Reenen*, 2001).

The present analysis compares the evolution of price competitiveness based on the course of unit labour costs in manufacturing as well as in the economy as a whole in Austria and its major trading partners on the basis of data from 1995 up to and including 2015 (the most recent year for which national accounts are available). The most recent values, in this case for 2015 as well as 2014, can still be subject to substantial revision and must be interpreted with caution. However, the interpretation of medium and long term development will hardly be affected by this.

2. Nominal-effective exchange rate declined by 2.7 percent in 2015

The relative unit labour cost position of an economy reflects the real external value of the national currency in international competition and corresponds to a real-effective exchange rate of the national currency. The starting point for any observation of price competitiveness is the nominal-effective exchange rate, i.e., a comparison of the national currency with a basket of currencies (see the box "Calculation method and data basis for the comparison of unit labour costs"), which ex-

presses the relevance of the individual trading partners to the foreign trade interdependencies of the domestic economy based on a weighting scheme. The nominal-effective exchange rate is then deflated with unit labour costs in order to determine the unit labour cost position of Austrian manufacturing of goods. Since the introduction of the euro, nominal exchange rate fluctuations have lost some of their significance for the Austrian export economy, as the main trading partners also belong to the European Monetary Union. In the weighting scheme of the nominal-effective exchange rate, more than 70 percent can be attributed to the euro area countries. Nevertheless, the course of the nominal-effective exchange rate (Figure 1) remains an important determinant of price competitiveness, as particularly seen in 2015.

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



Source: WDS – WIFO Data System, Macrobond.

While the euro immediately depreciated against the dollar and other major currencies after its introduction as book money (January 1999) so that from an Austrian perspective the exchange rate index weighted with foreign trade shares declined¹, between 2000 and 2009 the dollar lost around one thirds of its value against the euro. During the same period, however, the euro also noticeably appreciated against the currencies of other relevant trading partners. In this period, the nominal-effective exchange rate rose by a total of nearly 11 percent. Thus, imports from the non-euro area became cheaper, while Austrian exports in the non-euro area became more expensive.

Between 2009 and 2012 the development was more favourable from the perspective of the Austrian export economy: in these three years the nominal-effective exchange rate declined by a total of 4.5 percent. In 2013 and 2014, however, the weighted exchange rate increased by about 3 percent. The decline of 2.7 percent in 2015 was mainly due to the depreciation of the euro against the dollar (-16.5 percent). In 2015, the euro also weakened against the yen and the Canadian dollar compared to its performance in 2014.

¹ An increase in the exchange rate corresponds with an increase in value of the euro; a decrease corresponds with a devaluation.

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 following the national accounts methodology 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 area 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 economy as a whole were largely generated based on Eurostat figures. Where the Eurostat database did not contain current values, figures from the AMECO database and national statistics of the respective countries were used (this applied to the USA, Canada, Japan and Ireland).

Information on the selection of countries

The "EU trading partners" aggregate refers to the following countries: EU 28 without Bulgaria, Croatia, Cyprus, Malta, Austria and Romania. The term "all trading partners" considers data from the following countries: EU 28 without Bulgaria, Croatia, Cyprus, Malta, Austria and Romania, but including Norway, the USA, Japan and Canada. This selection of countries covers more than three quarters of all Austrian exports and imports.

Rates of change

The comparison of Austria and the weighted average of the trading partners or Germany is based on the rates of change of the respective indices, which are listed in the tables after the rates of change of the countries and country groups.

3. Rise in labour costs with slight increase in productivity

In the present analysis, the development of labour costs in the production of goods is evaluated based on gross salaries per employee in national currency (Table 1). This figure from the national accounts records total per capita wages and salaries including employers' social security expenditures.

Nominally, gross per capita earnings in Austrian manufacturing increased by 2.3 per cent in 2015. Thus, labour costs increased at approximately the same rate as in the

previous year (+2.2 percent) and at a significantly lower rate than in 2013 (+3.3 percent). In an international comparison, the rise in labour costs in Austria was only marginally higher than among the trading partners in 2015 – Austrian labour costs rose by about 0.1 percent more than in the weighted average of the EU trading partners and about 0.2 percent more than in the average of all trading partners. In a longer term perspective, labour costs in Austria developed somewhat more dynamically than in the average of trading partners. Over the past decade they increased by 2.9 percent p.a. in Austria, while in the average of the EU trading partners and all trading partners the increase was 2.6 percent and 2.4 percent respectively per year.

As the observation in a single currency, i.e., net of exchange rate fluctuations, shows, labour performance became significantly more expensive in Austria, particularly during the 2006-2009 period (Figure 2). In 2010, relative labour costs in Austria once again declined for the first time. Between 2011 and 2014 they again increased (in a single currency) more significantly than in the average of trading partners, only to decrease again in 2015.

Table 1: Development of per-capita labour costs in the manufacturing sector

In national currency

	Ø 2005- 2010 Year-to-year percentage changes	Ø 2010- 2015 Year-to-year percentage changes	Ø 2005- 2015 Year-to-year percentage changes	2013 Percentage changes from previous year	2014 Percentage changes from previous year	2015 Percentage changes from previous year
Austria	+ 2.7	+ 3.0	+ 2.9	+ 3.3	+ 2.2	+ 2.3
Belgium	+ 2.5	+ 2.8	+ 2.7	+ 3.4	+ 2.7	+ 0.7
Denmark	+ 3.7	+ 2.4	+ 3.1	+ 2.1	+ 3.1	+ 2.8
Germany	+ 1.7	+ 2.6	+ 2.1	+ 3.3	+ 2.7	+ 2.5
Ireland	+ 2.4	+ 1.7	+ 2.1	+ 3.8	+ 4.0	+ 0.4
Greece	+ 3.9	- 4.7	- 0.5	- 8.5	+ 0.0	- 2.9
Spain	+ 4.6	+ 1.2	+ 2.9	+ 1.4	+ 1.4	- 0.3
France	+ 3.0	+ 1.8	+ 2.4	+ 1.5	+ 1.4	+ 1.5
Italy	+ 2.1	+ 2.4	+ 2.3	+ 2.6	+ 2.6	+ 3.0
Luxembourg	+ 1.7	+ 1.7	+ 1.7	+ 2.8	+ 2.4	+ 0.2
Netherlands	+ 2.5	+ 2.5	+ 2.5	+ 2.6	+ 3.5	+ 0.2
Portugal	+ 3.2	+ 0.8	+ 2.0	+ 1.1	+ 0.6	+ 1.5
Finland	+ 2.4	+ 2.0	+ 2.2	+ 0.5	+ 1.1	+ 2.5
Sweden	+ 3.2	+ 2.9	+ 3.1	+ 1.9	+ 1.6	+ 4.5
UK	+ 4.2	+ 2.1	+ 3.2	+ 5.1	- 0.1	+ 1.7
Czech Republic	+ 4.3	+ 2.4	+ 3.3	+ 0.8	+ 3.6	+ 2.6
Estonia	+ 9.6	+ 5.7	+ 7.6	+ 2.4	+16.4	+ 0.6
Latvia	+10.3	+ 6.5	+ 8.4	+ 4.5	+11.0	+ 7.6
Lithuania	+ 6.6	+ 5.9	+ 6.3	+ 4.5	+ 6.9	+ 7.1
Hungary	+ 4.1	+ 4.7	+ 4.4	+ 7.4	- 0.0	+ 4.7
Poland	+ 6.0	+ 3.6	+ 4.8	+ 1.5	+ 5.0	+ 1.3
Slovenia	+ 5.6	+ 2.7	+ 4.1	+ 2.7	+ 3.7	+ 2.1
Slovakia	+ 6.4	+ 3.7	+ 5.0	+ 3.2	+ 3.1	+ 3.3
Norway	+ 3.7	+ 3.7	+ 3.7	+ 4.3	+ 3.1	+ 1.8
USA	+ 1.8	+ 1.6	+ 1.7	- 0.3	+ 2.8	+ 1.7
Japan	- 0.4	+ 1.3	+ 0.5	+ 0.4	+ 2.6	+ 0.8
Canada	+ 2.3	+ 2.8	+ 2.6	+ 3.4	+ 2.5	+ 2.1
All trading partners ¹	+ 2.5	+ 2.4	+ 2.4	+ 2.6	+ 2.5	+ 2.2
EU trading partners ²	+ 2.6	+ 2.5	+ 2.6	+ 2.9	+ 2.5	+ 2.3
Austria						
All trading partners ¹ = 100	+ 0.3	+ 0.6	+ 0.4	+ 0.7	- 0.3	+ 0.2
EU trading partners ² = 100	+ 0.1	+ 0.5	+ 0.3	+ 0.4	- 0.3	+ 0.1
Germany = 100	+ 1.1	+ 0.4	+ 0.7	+ 0.0	- 0.5	- 0.2

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

Germany plays an important role in this development pattern: in the 2000s and especially before the economic crisis, wages in Germany rose to a more limited extent than in the EU average and in Austria; from 2005 to 2010 Austria displayed a 1.1 percent p.a. greater increase in wage costs than Germany. After 2010, labour costs in Austria increased by 0.4 percent on average more per year than in Germany, while in 2015 Austria's development lagged behind by 0.2 percent (with wage costs in Germany at +2.5 percent).

In the other countries of the euro area, above all those which were and are more severely affected by the crisis, wage dynamics developed differently than in Germany. After a strong increase in labour costs prior to the outbreak of the crisis, a number of countries saw a significant adjustment – that is, costs rose only slightly or partly also declined. Greece, Portugal and Spain were particularly affected by this correction. Even France, the UK and Ireland saw significantly weaker wage growth in the past five years than the EU average.

Table 2: Development of per-capita productivity in the manufacturing sector

In national currency

	Ø 2005- 2010	Ø 2010- 2015	Ø 2005- 2015	2013	2014	2015
	Year-to-year percentage changes			Percentage changes from previous year		
Austria	+ 2.2	+ 1.8	+ 2.0	+ 1.0	+ 1.3	+ 1.1
Belgium	+ 2.2	+ 2.7	+ 2.4	+ 4.3	+ 3.1	+ 2.9
Denmark	+ 2.7	+ 3.2	+ 3.0	+ 1.3	+ 1.1	+ 1.9
Germany	+ 1.5	+ 1.3	+ 1.4	+ 0.4	+ 1.8	+ 1.4
Ireland	+ 4.5	+ 2.8	+ 3.7	- 7.1	+ 7.7	+11.5
Greece	- 2.1	- 0.4	- 1.3	+ 5.3	- 5.0	- 5.4
Spain	+ 2.5	+ 1.9	+ 2.2	+ 3.1	+ 1.8	+ 0.7
France	+ 2.3	+ 2.1	+ 2.2	+ 1.0	+ 0.7	+ 3.9
Italy	+ 0.3	+ 1.1	+ 0.7	+ 1.3	+ 0.9	+ 2.4
Luxembourg	- 5.6	+ 1.5	- 2.1	+10.6	+ 1.0	+ 1.1
Netherlands	+ 1.0	+ 1.6	+ 1.3	+ 0.6	+ 2.3	+ 0.9
Portugal	+ 3.0	+ 0.7	+ 1.8	+ 2.6	- 0.6	- 1.5
Finland	+ 2.2	- 1.7	+ 0.2	+ 4.9	+ 1.5	- 1.9
Sweden	+ 3.7	+ 1.0	+ 2.3	+ 1.5	+ 0.7	+ 4.8
UK	+ 2.4	- 0.1	+ 1.1	- 0.3	+ 1.9	- 2.4
Czech Republic	+ 7.9	+ 1.7	+ 4.8	- 2.6	+ 4.8	+ 4.6
Estonia	+ 6.0	+ 1.5	+ 3.8	+ 1.6	+ 5.7	- 6.3
Latvia	+ 3.6	+ 1.8	+ 2.7	- 1.2	+ 4.9	+ 5.3
Lithuania	+ 7.4	+ 4.1	+ 5.7	+ 5.1	+ 4.5	+ 0.5
Hungary	+ 2.2	+ 1.6	+ 1.9	+ 3.8	+ 0.3	+ 4.7
Poland	+ 9.0	+ 4.0	+ 6.5	- 0.7	+ 5.6	+ 4.7
Slovenia	+ 4.5	+ 2.5	+ 3.5	+ 1.7	+ 5.3	+ 4.3
Slovakia	+ 9.2	+ 3.5	+ 6.3	+ 1.4	+ 9.1	+ 5.8
Norway	+ 0.4	+ 1.5	+ 0.9	+ 2.1	+ 3.1	- 1.3
USA	+ 3.4	- 0.7	+ 1.3	+ 0.2	+ 0.1	- 0.2
Japan	+ 3.9	+ 0.6	+ 2.2	+ 1.9	+ 2.3	+ 0.1
Canada	+ 0.3	+ 1.8	+ 1.1	+ 2.2	+ 3.3	- 0.8
All trading partners ¹	+ 2.4	+ 1.3	+ 1.8	+ 0.8	+ 1.9	+ 1.8
EU trading partners ²	+ 2.2	+ 1.5	+ 1.9	+ 0.8	+ 2.0	+ 2.1
Austria						
All trading partners ¹ = 100	- 0.1	+ 0.5	+ 0.2	+ 0.3	- 0.6	- 0.6
EU trading partners ² = 100	- 0.0	+ 0.3	+ 0.2	+ 0.3	- 0.8	- 0.9
Germany = 100	+ 0.7	+ 0.6	+ 0.6	+ 0.6	- 0.5	- 0.3

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

In the Eastern and Central European countries a catching-up process has taken place with respect to Western European high-wage countries since the 1990s in terms of labour costs. Since the outbreak of the financial crisis, however, labour costs

have also developed in a differentiated way in these countries. While the catching-up process tended to continue in the Baltic countries, in Poland and in Hungary after a crisis-induced disruption, the Czech Republic and Slovenia recorded wage growth rates that corresponded with the average of the EU trading partners over the last five years.

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

In the Austrian manufacturing, productivity only moderately increased over the last two years. However, in the average of the 2010-2015 period, Austria expanded its advantage against the trading partners (EU trading partners +1.5 percent, all the trading partners +1.3 percent, Austria +1.8 percent p.a.), as well as with respect to Germany (+0.6 percent p.a.). At the same time, productivity developed more weakly in 2014 and 2015 in Austria than it did in Germany and in the average of the trading partners. Compared to Germany, the lag in growth amounted to 0.5 percent in 2014 and 0.3 percent in 2015, and compared to the average of all trading partners it amounted to 0.6 percent in both years (Table 2).

In Germany, gross per-capita value added rose by 1.4 percent in 2015, while it increased by 2.1 percent in the EU trading partners and 1.8 percent in the average of all trading partners. Productivity developed particularly favourably in Ireland², Sweden, France and most East-Central European countries. A drop or only slight rise was observed in the crisis countries Greece, Portugal and Spain in 2015. A similar development was observed in Norway, Estonia, Lithuania, Finland and the UK, as well as in the non-European countries of comparison (Japan, Canada, USA).

4. Worsening of relative unit labour cost position in manufacturing

The impact of changes in labour costs (gross earnings) and productivity (gross per-capita value added) yields the development of unit labour costs (labour costs per unit of output). After a significant increase of 2.3 percent in 2013, weak productivity development and an increase in costs in 2014 led to a further increase in unit labour costs in Austrian manufacturing of goods (+0.9 percent), which continued to accelerate slightly in 2015 (+1.2 percent). In the long-term average (2005-2015), the rise in unit labour costs was less marked (+0.8 percent p.a.). After an increase in the early 2000s, unit labour costs declined from 2005 to the outbreak of the financial and economic crisis, supported by robust productivity growth. In 2008 and particularly 2009, the crisis resulted in an unusually large increase in unit labour costs (+4.8 percent and +11.0 percent, respectively), which was partly offset in the years 2010 (-7.0 percent) and 2011 (-1.2 percent). However, the financial crisis also resulted in a abrupt increase in unit labour costs in other countries.

In relation to the average of the trading partners, in Austria competitiveness declined by a total of 0.1 percent per year between 2005 and 2015. The increase of 0.4 percent p.a. in the first five-year period 2005-2010 compared to all trading partners was followed by an improvement of 0.1 percent p.a. between 2010 and 2015 compared to all trading partners, and the development was similar in relation to Germany.

After a marked deterioration in 2013 (+1.9 percentage points), Austria's relative unit labour cost position further increased by 0.8 percent in 2014 in relation to the position of the trading partners. This trend was disrupted in 2015, with Austria's unit labour cost position improving by 1.2 percent, primarily as a result of the favourable development of exchange rates. Due to the appreciation of the dollar against the euro, relative unit labour costs in the USA significantly increased (+22.1 percent). Compared with the EU trading partners, for whom exchange rate fluctuations play an in-

² The unusually high increase in productivity in Ireland can be attributed to the resettlement of several multinational corporations and resulting one-off statistical effect on investments and the gross domestic product.

significant role due to the European Monetary Union, Austria's unit labour cost position deteriorated by 0.6 percent in 2015. With respect to Germany, the price competitiveness of Austrian manufacturing remained essentially unchanged (+0.1 percent).

For Austria, the deterioration with respect to the EU trading partners over the past three years was partly due to weak productivity development, but also due to reduced disequilibrium in the southern European crisis countries. These countries saw an improvement in their unit labour cost position after 2009. In Spain and Portugal this was above all due to above-average productivity development (in conjunction with a decline in employment) in the manufacturing sector. In Greece, a decline in per-capita labour costs (and the number of employees) was observed in the 2010-2015 period. Overall, mechanisms for reducing disparities in price competitiveness within the euro area are clearly also having an effect in terms of unit labour costs.

When interpreting labour cost dynamics, however, it is also important to consider that average rates of change over a period are highly influenced by the selection of the initial and final years. Thus, for the 2008-2014 period we find a cumulative increase of nearly 4 percent in unit labour costs in Austrian manufacturing compared to the average of all trading partners, while the unit labour cost position remains cumulatively unchanged for the 2009-2015 period, which has been shifted by one year. Based on the graphical representation of the development of Austria's unit labour cost position, i.e., the real-effective exchange rate deflated by unit labour costs, trend reversals and changes over time become more apparent (Figure 2). Accordingly, the price competitiveness of Austrian manufacturing improved significantly compared to the average of all trading partners in the second half of the 1990s. After a contrary trend in the early 2000s, little changed in the 2003-2008 period. Since the economic crisis, a slight deterioration has been observed, which has also become more pronounced in relation to the EU trading partners in recent years.

The most recent statistics published by the European Commission (Directorate General for Economic and Financial Affairs) draw a very similar picture despite some differences in the data base (*European Commission, 2016*). Accordingly, the relative unit labour cost position of Austrian goods production deteriorated somewhat more significantly than based on WIFO calculations in 2014 (+1.1 percent), while the 2015 improvement (-1.6 percent) was also assessed more favourably by the European Commission³. In the medium and long term, the calculations presented here largely correspond with those of the European Commission.

5. Economy as a whole: relative unit labour cost development mirrors that of manufacturing

The competitiveness of an export economy is determined by the unit labour costs of goods production as well as those of the economy as a whole. As long as services and non-tradable goods are important as inputs, its cost development has an impact on the competitiveness of the sectors involved in foreign trade (*Deutsche Bundesbank, 1998*).

In Austria, labour costs per unit of output increased by 1.5 percent across all sectors in 2015 – 2.1 percent weaker than the weighted average of all trading partners. This improvement was mainly attributable to exchange rate fluctuations. Compared to the EU trading partners, relative unit labour costs across all sectors increased slightly by 0.1 percent in 2015. In 2014, unit labour costs across all sectors in Austria (2.1 percent) and its trading partners (0.8 percent) had also increased, resulting in a deterioration of Austria's unit labour cost position of 1.2 percent. The year 2013 also saw a decline of 1.3 percentage points. In the long term (2005-2015), unit labour costs grew 0.4 percentage points more quickly annually across all sectors in Austria than in

³ These figures of comparison are based on calculations carried out by the European Commission for a group of countries labelled "IC37". This group of 37 industrialised countries includes the 28 EU member countries as well as the USA, Canada, Japan, Switzerland, Norway, Australia, New Zealand, Mexico and Turkey.

the average of the trading partners. In the medium term (2010-2015), they grew 0.2 percentage points more quickly. In the pre-crisis period, this pattern was mainly determined by Germany – in no other country did unit labour costs rise so slowly for the economy as a whole. The difference between Germany and the other EU countries was particularly pronounced between the early 2000s and 2008. Since 2010, wage dynamics increased in Germany, so that unit labour costs grew more rapidly in recent years than in the average of the other trading partners, and the cumulative change in the 2010-2015 period took a very similar course to that in Austria.

Table 3: Development of per-capita unit labour costs in the manufacturing sector and in the total economy

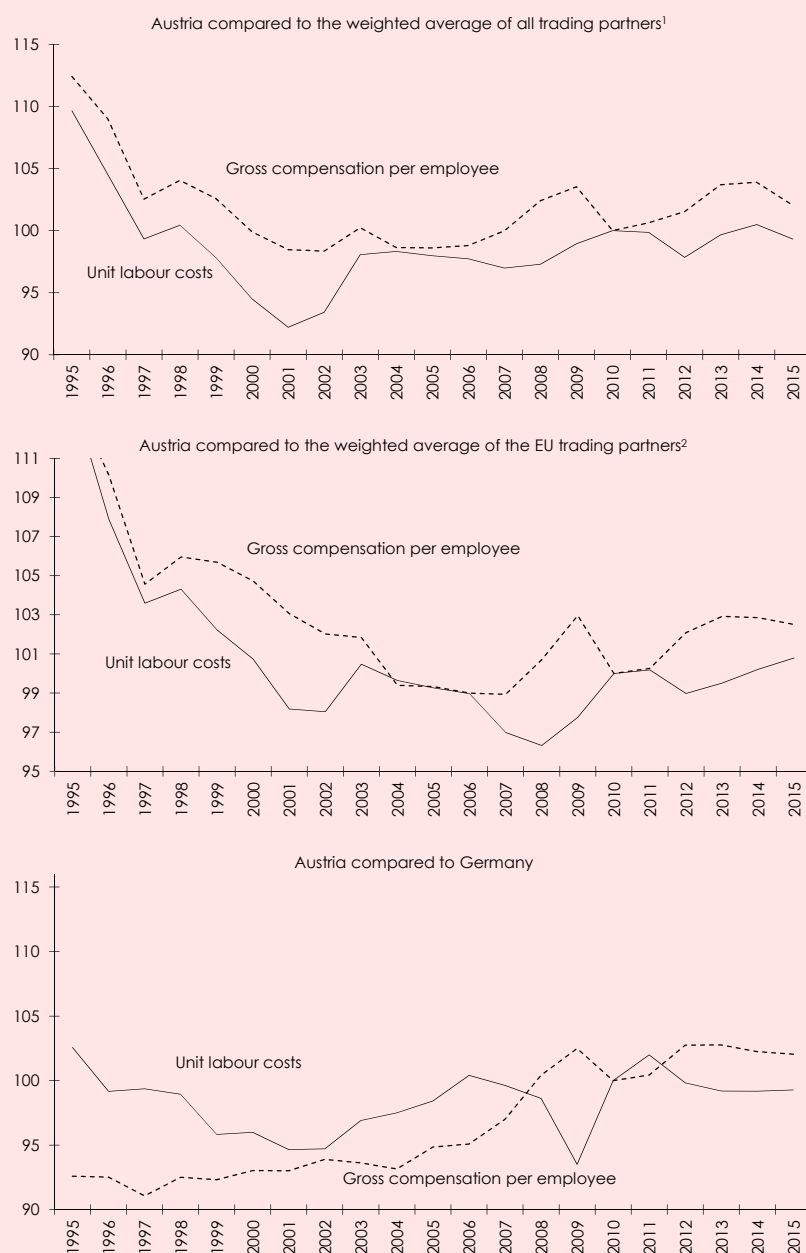
In €

	Ø 2005-2010	Ø 2010-2015	Ø 2005-2015	2013	2014	2015
	Year-to-year percentage changes			Percentage changes from previous year		
<i>Manufacturing</i>						
Austria	+ 0.5	+ 1.2	+ 0.8	+ 2.3	+ 0.9	+ 1.2
Belgium	+ 0.3	+ 0.1	+ 0.2	- 0.9	- 0.4	- 2.2
Denmark	+ 0.9	- 0.8	+ 0.1	+ 0.7	+ 2.0	+ 0.8
Germany	+ 0.2	+ 1.3	+ 0.7	+ 2.9	+ 0.9	+ 1.1
Ireland	- 2.0	- 1.1	- 1.5	+11.8	- 3.4	-10.0
Greece	+ 6.2	- 4.4	+ 0.8	-13.1	+ 5.3	+ 2.6
Spain	+ 2.1	- 0.7	+ 0.7	- 1.7	- 0.4	- 1.0
France	+ 0.7	- 0.3	+ 0.2	+ 0.5	+ 0.6	- 2.3
Italy	+ 1.8	+ 1.2	+ 1.5	+ 1.3	+ 1.8	+ 0.6
Luxembourg	+ 7.7	+ 0.2	+ 3.9	- 7.0	+ 1.4	- 0.9
Netherlands	+ 1.4	+ 0.9	+ 1.1	+ 2.0	+ 1.2	- 0.7
Portugal	+ 0.2	+ 0.1	+ 0.1	- 1.5	+ 1.2	+ 3.0
Finland	+ 0.1	+ 3.8	+ 1.9	- 4.1	- 0.4	+ 4.4
Sweden	- 1.0	+ 2.4	+ 0.7	+ 1.0	- 4.0	- 3.0
UK	- 2.7	+ 5.7	+ 1.4	+ 0.6	+ 3.2	+15.7
Czech Republic	- 0.1	- 0.9	- 0.5	+ 0.2	- 6.8	- 1.0
Estonia	+ 3.3	+ 4.1	+ 3.7	+ 0.8	+10.2	+ 7.4
Latvia	+ 6.1	+ 4.9	+ 5.5	+ 5.2	+ 5.6	+ 2.2
Lithuania	- 0.7	+ 1.8	+ 0.5	- 0.6	+ 2.3	+ 6.6
Hungary	- 0.3	+ 0.7	+ 0.2	+ 0.9	- 4.2	- 0.4
Poland	- 2.6	- 1.3	- 2.0	+ 1.9	- 0.3	- 3.3
Slovenia	+ 1.0	+ 0.2	+ 0.6	+ 1.0	- 1.5	- 2.1
Slovakia	+ 2.3	+ 0.2	+ 1.3	+ 1.9	- 5.5	- 2.4
Norway	+ 3.3	- 0.0	+ 1.6	- 2.3	- 6.5	- 3.7
USA	- 2.8	+ 6.0	+ 1.5	- 3.7	+ 2.7	+22.1
Japan	- 0.9	- 2.2	- 1.5	-22.1	- 7.4	+ 5.3
Canada	+ 4.0	+ 0.2	+ 2.1	- 5.0	- 7.5	+ 6.5
All trading partners ¹	+ 0.1	+ 1.3	+ 0.7	+ 0.4	+ 0.1	+ 2.4
EU trading partners ²	+ 0.3	+ 1.0	+ 0.7	+ 1.7	+ 0.2	+ 0.6
<i>Austria</i>						
All trading partners ¹ = 100	+ 0.4	- 0.1	+ 0.1	+ 1.9	+ 0.8	- 1.2
EU trading partners ² = 100	+ 0.1	+ 0.2	+ 0.2	+ 0.5	+ 0.7	+ 0.6
Germany = 100	+ 0.3	- 0.1	+ 0.1	- 0.6	- 0.0	+ 0.1
<i>Total economy</i>						
Austria	+ 2.1	+ 1.9	+ 2.0	+ 2.3	+ 2.1	+ 1.5
All trading partners ¹	+ 1.6	+ 1.7	+ 1.6	+ 0.1	+ 0.8	+ 3.6
EU trading partners ²	+ 1.8	+ 1.3	+ 1.5	+ 1.0	+ 0.8	+ 1.4
<i>Austria</i>						
All trading partners ¹ = 100	+ 0.5	+ 0.2	+ 0.4	+ 2.3	+ 1.3	- 2.1
EU trading partners ² = 100	+ 0.4	+ 0.6	+ 0.5	+ 1.3	+ 1.2	+ 0.1
Germany = 100	+ 1.2	- 0.0	+ 0.6	+ 0.2	+ 0.2	- 0.2

Source: Eurostat, AMECO, 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 Bulgaria, Croatia, Cyprus, Malta, Austria, Romania, but including Norway, the USA, Japan and Canada; weighted average of the trading partners based on the calculation of the WIFO Exchange Rate Index. – ² Without Bulgaria, Croatia, Cyprus, Malta, Austria, Romania; weighted average of the trading partners based on the calculation of the WIFO Exchange Rate Index.

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

In €, 2010 = 100



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

In 2015 and in the longer term, unit labour costs in the economy as a whole increased more significantly than they did in the manufacture of goods, both in Austria and in the trading partners. This is because in manufacturing the potential to increase labour productivity through mechanisation and automation is much greater than in the average of the other sectors.

6. Summary

In Austria, subdued economic growth resulted in an increase in unit labour costs in the production of goods in 2015, yet in an international comparison the price competitiveness of Austrian manufacturing improved slightly. After moderate develop-

ment in 2014 (+1.3 percent), gross per-capita value added increased marginally in 2015 (+1.1 percent). Labour costs increased by 2.3 percent in 2015, about the same extent to which they did in 2014 (+2.2 percent).

Taken together, these developments resulted in an increase in unit labour costs of 1.2 percent. However, the nominal-effective exchange rate developed favourably in 2015, so that Austrian exports became cheaper abroad, particularly in the USA. This was reflected in an improvement of 1.2 percent in Austria's unit labour cost position relative to the weighted average of all trading partners. At the same time, compared to the EU trading partners, which largely belong to the euro area, Austria's unit labour cost position deteriorated by +0.6 percent. Compared to Germany, relative unit labour costs remained almost unchanged in 2015 (+0.1 percent).

Unit labour costs for the economy as a whole increased by 1.5 percent in Austria in 2015, but they also developed more favourably than in the average of all trading partners (-2.1 percent) and approximately in parallel with the EU trading partners (+0.1 percent). Compared to Germany a slight improvement was observed for the first time in three years (-0.2 percent).

The generally unfavourable trend in the development of the international unit labour cost position of Austrian manufacturing when viewed in the medium term (since 2008) was brought to a halt in 2015 as a result of favourable exchange rate developments. From today's perspective, however, there is no evidence that this has sparked a trend reversal. In a longer term perspective, different stages in the development of the price competitiveness of Austrian manufacturing can be observed. Strong improvement compared to the average of all trading partners in the second half of the 1990s was followed by a contrary trend in the early 2000s. Since 2003, the relative unit labour cost position of Austrian goods production has varied considerably less significantly, displaying consistency until 2008 and after that a slightly negative course, particularly in comparison to the EU trading partners. With respect to Germany, Austria's unit labour cost position has remained largely unchanged since 2010.

The unfavourable development of Austrian unit labour costs in recent years can be partly explained by cyclical developments. In recent years Austria's economy has grown only moderately. In relation to the EU trading partners other factors play a role, such as stronger inflation dynamics in Austria and adjustment processes in the EU crisis countries.

However, the development of Austrian foreign trade in the past decade lagged behind that of world trade and the Austrian export markets (Tichy, 2015). This loss of world market shares, which was not specific to Austria and also applied to Germany, among others, could be a possible sign that weak productivity development in Austria is related to a stagnation in international competitiveness. The extent to which this is due mainly to the specific cyclical situation and therefore temporarily limited or due to longer-term structural factors, such as the specialisation pattern of the Austrian export industry, is not yet clear.

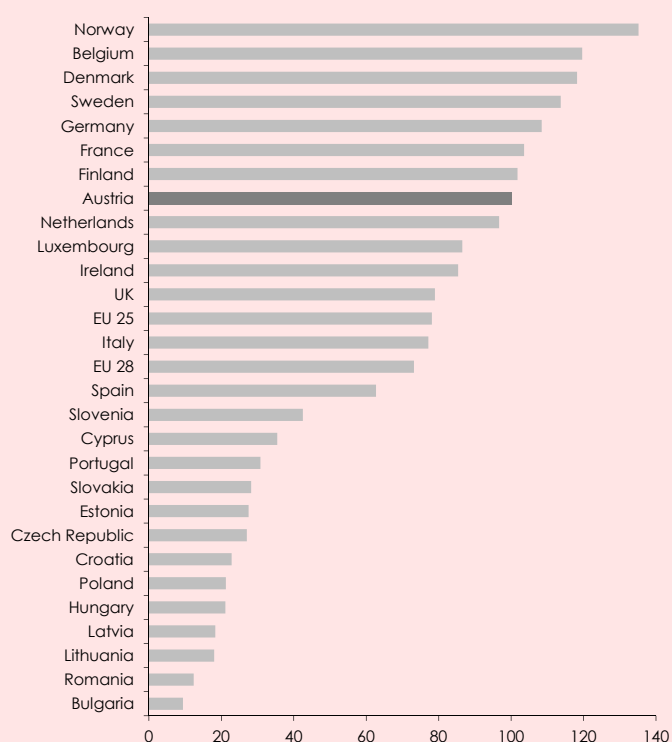
7. Appendix: hourly labour costs in manufacturing

While data on labour costs per worker are the only data available for the calculation of current, internationally comparable labour costs in the production of goods, for the present report labour costs per hour worked may also be submitted for the European countries. These are based on the Labour Cost Survey, which is conducted every four years in the EU countries. The annual rate of change between two surveys is updated using a labour cost index. The results in the present analysis are based on the 2012 survey published at the end of 2014.

Unlike the Labour Cost Survey, the labour cost index is not calculated using the same statistical approach in all countries. This somewhat limits international comparability. For Austria the index is based on data from the WIFO Business Cycle Survey. Because of these methodological limitations, the values of the labour cost index should be interpreted with caution.

Figure 3: Labour costs in the manufacturing sector in international comparison

In €, 2015, Austria = 100



Source: Eurostat, employee survey 2012, labour cost index; WIFO calculations. No data are available for Greece and Malta.

Table 4: Hourly labour costs in the manufacturing sector

	2011	2012	2013 In €	2014	2015	Ø 2010-2015 Percentage change
Bulgaria	2.7	2.8	2.9	3.1	3.4	+ 5.6
Romania	3.6	3.7	3.9	4.1	4.5	+ 5.8
Lithuania	5.3	5.5	5.8	6.1	6.5	+ 5.0
Latvia	5.2	5.5	5.8	6.1	6.6	+ 6.2
Poland	7.1	7.5	7.4	7.4	7.6	+ 2.5
Bulgaria	6.7	6.8	7.0	7.4	7.7	+ 3.1
Croatia	7.7	8.0	8.2	8.1	8.3	+ 1.4
Czech Republic	9.6	9.7	9.6	9.4	9.8	+ 2.0
Estonia	7.7	8.2	8.9	9.4	10.0	+ 6.5
Slovakia	8.5	8.9	9.4	9.8	10.2	+ 4.8
Portugal	11.5	10.9	10.8	10.7	11.1	- 0.6
Cyprus	13.6	13.5	13.1	13.0	12.8	- 0.9
Slovenia	14.3	14.6	14.8	15.3	15.4	+ 1.9
Spain	21.9	22.4	22.7	22.8	22.7	+ 1.0
EU 28	24.2	24.9	25.4	26.0	26.5	+ 2.4
Italy	26.3	27.1	27.6	27.8	27.9	+ 1.7
EU 25	25.9	26.6	27.1	27.7	28.3	+ 2.4
UK	22.1	24.0	23.3	25.0	28.6	+ 5.4
Ireland	29.6	30.8	30.6	31.3	30.9	+ 0.5
Luxembourg	29.7	30.2	31.0	31.5	31.3	+ 1.5
Netherlands	32.2	33.3	33.7	34.8	35.0	+ 2.3
Austria	32.3	33.4	34.4	35.3	36.2	+ 2.8
Finland	33.5	35.0	35.4	36.0	36.8	+ 2.4
France	35.1	36.1	36.5	36.9	37.5	+ 2.1
Germany	35.3	36.1	37.3	38.2	39.2	+ 2.9
Sweden	38.0	41.3	42.2	41.2	41.1	+ 3.4
Denmark	40.1	40.6	41.3	42.1	42.8	+ 1.9
Belgium	40.7	42.0	42.7	43.2	43.3	+ 1.8
Norway	49.9	53.8	53.6	51.8	48.9	+ 0.9

Source: Eurostat, employee survey 2012, labour cost index; WIFO calculations. No data are available for Greece and Malta.

Table 4 shows the estimated hourly labour costs for the 2010-2015 period. In 2015, an hour of labour in Austrian goods production cost 36.2 €, which amounted to slightly less than in Finland. In contrast to the previous year, Austria ranked ahead of the Netherlands at 8th place in 2015. In the 2010-2015 period, hourly labour costs in Austria increased by an average of +2.8 percent and thus more significantly than in the average of the EU countries (+2.4 percent p.a.), while increasing at a slightly weaker rate than in Germany (+2.9 percent p.a.).

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