Thomas Leoni

Unit Labour Costs in Goods Production Declined in 2011

The strong increase in employee productivity accompanied by only a slight rise in costs resulted in a decline in unit labour costs in Austrian manufacturing in 2011. According to currently available and still incomplete data, Austria's unit labour cost position improved both compared to the average of all trading partners and compared to Germany. With exception of the development in 2011, which must be interpreted with caution due to incomplete data, Austria's unit labour costs in the manufacturing of goods have remained unchanged relative to those of the trading partners since 2003.

The author is thankful to Werner Hölzl for useful and constructive comments • The data were processed and analysed with the assistance of Doris Gabriel, Christa Magerl • **E-mail address: Thomas.Leoni@wifo.ac.at**

Data gaps restrict international unit labour cost comparison for 2011

This article examines the development of the price competitiveness of Austrian industry based on the progression of unit labour costs in the area "manufacturing of goods" and the economy as a whole, comparing developments between Austria and its trading partners[1]. Due to the revision of the classification of economic activities (NACE rev. 2 regulation) data for certain countries of comparison are still incomplete (see the box "Method of calculation and data basis for a comparison of unit labour costs"). The values extrapolated from partial annual data and published here must be interpreted as an approximation of the development in the year 2011. The weighted averages for the country groups in 2011 are also expected to change when all the data for 2011 become available. However, the existing data provide a good indicator of the long term development of competitiveness. The data set for Germany, Austria's most important country of reference, is complete. Therefore, special attention is paid in this article to the medium and long term development of Austria's labour cost position and the comparison between Austria and Germany.

The focus on a longer period of observation also seems sensible, because in recent years the international unit labour cost development has been strongly influenced by the decline in economic performance caused by the global financial crisis. Productivity slumped because companies did not reduce their workforce to the extent that their sales declined. This development was compensated to varying degrees, depending on the country, by the special effects of labour market policy measures (such as short-time work) on productivity and labour costs. The individual responses to the crisis and timing of related wage developments during the crisis and recovery phases in the countries are reflected in patterns of development of unit labour costs, which are difficult to evaluate. A meaningful examination of Austria's unit labour cost position relative to the trading partners must therefore encompass a longer period of time (*Ederer – Hölzl,* 2011).

[1] Due to the change in the NACE nomenclature from ÖNACE 2003 to ÖNACE 2008, the designation of "Manufacturing" (formerly Code D) has been changed to "Manufacturing of goods" (now Code C).

Nominal-effective exchange rate unchanged compared to the previous year

The competitiveness of an economy is shaped by numerous, sometimes hard to measure, factors, such as the education system, labour relations and the institutional structure of the economic system[2]. These factors provide information on long term competitive advantages and the resulting differences in economic development. In contrast, for the ongoing monitoring of competitive developments in foreign trade, indicators that relate to the price or cost dimensions of competitiveness are primarily used. All of the common indicators represent the real external value of the national currency (including the real exchange rate) relative to the trading partners. The starting point for such a comparison is the nominal-effective exchange rate – that is, a comparison of the national currency with a basket of currencies, which is based on a weighting scheme (see the box "Calculation method and data basis for the comparison of unit labour costs") and represents the relevance of the individual trading partners to the trade integration of the domestic economy. In order to assess the competitive position of Austrian industry, a relevant first step must therefore be to assess the progression of the nominal-effective exchange rate.

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

Source: WIFO database, exchange rate index for industrial goods.

Since the introduction of the euro, exchange rate fluctuations have lost some of their significance for the Austrian export economy, as Austria's most important trading partners are also within the euro zone. Immediately after its introduction as an electronic currency (January 1999), the euro lost ground to the dollar and other major currencies, resulting in a decline in the nominal-effective exchange rate from an Austrian perspective. Between 2001 and 2009 a noticeable appreciation of the euro and resulting slight pressure on the production costs of the Austrian export economy was observed (Figure 1). The nominal-effective exchange rate rose by nearly 11 percent within this period. The strength of the euro compared to the dollar was mainly responsible for this development: between 2000 and 2009 the dollar lost about a third of its value against the euro. However, the euro also rose in 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 upward trend did not continue in 2010 and the effective exchange rate declined by almost 3 percent. In 2011, the position of the euro changed little with respect to the basket of currencies weighted with Austrian foreign trade, so that in this year the ef-

[2] These qualitative aspects play a particularly central role in sectors with high technology content and intense use of research and development, making it possible to win market shares despite a decline in price competitiveness (*Lewney et al.*, 2012).

fective exchange rate played a neutral role in the development of the price competitiveness of Austrian industry.

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

Unit labour costs in national currency (ULC) in a branch, a sector or the economy as a whole 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 labour costs 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 persons employed (EMP):

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

The unit labour costs published in the macroeconomic database of the European Commission (AMECO) are calculated based on this equation. WIFO also calculates the unit labour costs of Austrian manufacturing of goods, as they are published in the WIFO database, however instead of using the person-based concept (employees and persons engaged) it bases its calculations on the number of positions of employment.

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. In calculating the relative development between two countries, 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 also uses the central banks of the euro region to measure international competitiveness. The weighting scheme consists of simple (bilateral) import weights and double (multilateral) export weights for industrial goods (SITC 5 bis 8). A detailed illustration and explanation of this method can be found in *Mooslechner* (1995) and *Köhler-Töglhofer – Magerl – Mooslechner* (2006). Due to the double export weighting, competition with trading partners on the respective domestic markets can be shown, 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 and 2004-2006; and the most recent weights are applicable for the period after 2004. Using this variable weighting method makes it possible to take into account shifts in market shares.

The data on gross wages, productivity and unit labour costs in manufacturing and the economy as a whole are taken from the AMECO database. They are calculated based on the survey concept for national accounts, and not by hour of labour, but rather by person engaged (employee or self-employed). As no current data are available for some of the countries, the present report had to rely on OECD statistics. The annual values missing in the AMECO database were extrapolated based on the corresponding rates of change in the OECD database. Complete OECD database annual data up to 2010 were used for the missing AMECO country data. Due to data gaps, the values for 2011 have been extrapolated based on partial annual OECD data.

Information on the selection of countries

"EU trading partners" 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 Austria visible exports and about 85 percent of all visible imports.

As the effective exchange rate is a nominal size, an economically meaningful comparison requires corresponding deflation. This is carried out in this report based on unit labour costs, in other words, a cost indicator for the use of the production factor labour. The resulting indicator is often called the real-effective exchange rate index. The development of unit labour costs places the change in labour costs in relation to developments in productivity. The share of labour costs in the total production value of manufacturing companies has decreased due to the increase in capital intensity and has currently dropped below 20 percent. However, the level of labour costs varies much more significantly in international comparison than other cost components of manufacturing (such as, for example, energy and raw materials

prices). Wage and labour costs therefore remain a crucial factor for location and competitiveness[3]. In an international comparison, the real-effective exchange rate (i.e., relative unit labour cost position) calculated based on unit labour costs serves as a synthetic measure of the impact of changes in labour costs, productivity and the exchange rate on cost-determined competitiveness.

Favourable development of gross wages and per-capita productivity

The analysis of international labour cost trends is based on data from the national accounts. It is based on the development of gross per-capita salaries in the manufacturing of goods, in other words wages and salaries including employers' per-capita social insurance (Table 1). In 2011, labour costs in Austria increased by 2.9 percent compared to the previous year and therefore more slowly than in Germany, Austria's most important trading partner (+4.0 percent). In the average of the EU trading partners, gross wages (in the respective national currencies) also increased more quickly than in Austria (+3.2 percent), while a moderate cost increase in large overseas industrial countries such as the USA and Japan somewhat dampened the weighted average of all trading partners (+2.8 percent). As the effective exchange rate barely changed in the previous year, the development in single currency corresponded approximately with that of national currency.

In the longer period of 2001-2011, per-capita gross wages in Austria increased by 2.8 percent on average annually. In the average of all trading partners and the EU trading partners, the respective rate of increase (in national currency) was also 2.8 percent and 2.9 percent per year. There are significant differences in the long term comparison with Germany, where per-capita labour costs increased by only 1.7 percent per year between 2001 and 2011. Germany thus dampened cost growth within its own industry significantly in the last decade. In an analysis excluding Germany, Austria also experienced a lower cost increase than its trading partners. As expected, gross wages in the Central and Eastern European countries caught up quickly. However, we also find that in Scandinavian countries and countries on the periphery of the euro zone (e.g., Ireland, Spain and Greece), labour costs rose much more significantly than they did in Austria.

An assessment of Austria's competitive position not only requires an international comparison of exchange rate relations and labour costs, but also a comparison of productivity developments. This is measured as the real net per-capita output value (GVA) of the working population. According to the available data, productivity in Austrian manufacturing rose by 7.2 percent in 2011, after an increase by 8.5 percent in 2010 (Table 2). This strong increase is explained by the cyclical pattern in connection with the financial and economic crisis of 2008-09: the crisis was accompanied by a collapse in world trade and therefore also a collapse in demand for Austrian exports. As production declined much faster than employment, productivity declined significantly in 2008 and 2009 (–0.5 percent and –9.3 percent)[4]. The sharp rise in the years 2010 and 2011 is thus to be interpreted as an echo effect of this decline.

Productivity increased similarly significantly in almost all industrialised countries. In the average of the trading partners, it collapsed by 2.4 percent and 11.2 percent in 2008 and 2009, and recovered by 11.9 percent and 4.4 percent in 2010 and 2011. Thus, the productivity of Austrian companies has made a better recovery than the weighted average of the other industrialised countries since the outbreak of the crisis. The below-average decline in the years 2008-09 was initially followed by a below-average increase in 2010, yet then followed by an above-average increase in 2011. The comparison with the trading partners is very much influenced by Germany,

[3] According to *Cerra – Soikkeli – Saxena* (2003), unit labour costs are the single best indicator for the ongoing monitoring of international competitiveness, as they reflect the range of tradable goods in a targeted way. As econometric studies have repeatedly shown, the evolution of relative unit labour costs contributes significantly to the explanation of shifts in market shares between trading partners (e.g., *Carlin – Glyn – Van Reenen,* 2001). A more detailed discussion of labour costs as a competitiveness indicator can be found in *Hölzl – Leoni* (2010).

[4] In a recession, sales and production tend to drop more quickly than employment, as companies only adjust their employee counts after a delay and have a tendency to hoard skilled labour.

where productivity declined by 4.8 percent in 2008 and by nearly a fifth (–19.7 percent) in 2009, because in Germany more than in other industrialised countries short-time work and other labour market policy measures stabilised employment and supported the hoarding of labour.

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

In national currency

	Ø 2001-2006	Ø 2006-2011	Ø 2001-2011	2009	2010	2011
	Year-to-year percentage changes					
Austria	+ 2.7	+ 2.9	+ 2.8	+ 1.1	+ 1.9	+ 2.9
Belgium	+ 2.9	+ 2.9	+ 2.9	– 0.9	+ 4.6	+ 3.9
Denmark	+ 4.2	+ 2.8	+ 3.5	+ 2.2	+ 3.6	+ 2.3
Germany	+ 2.0	+ 1.5	+ 1.7	– 2.8	+ 4.0	+ 4.0
Greece	+ 10.0	+ 1.3	+ 5.6	– 2.6	+ 3.9	– 3.0
Spain	+ 4.4	+ 3.6	+ 4.0	+ 2.0	+ 1.6	+ 1.8
France	+ 3.4	+ 2.3	+ 2.8	+ 0.4	+ 3.4	+ 2.0[1]
Ireland	+ 5.6	+ 0.6	+ 3.1	– 2.2	– 4.1	– 3.5[1]
Italy	+ 3.0	+ 3.3	+ 3.2	+ 2.6	+ 3.7	+ 2.6
Luxembourg	+ 2.4	+ 0.6	+ 1.5	– 4.0	+ 1.9	+ 3.0
Netherlands	+ 3.6	+ 2.4	+ 3.0	+ 1.5	+ 1.9	+ 2.1
Portugal	+ 3.5	+ 2.4	+ 3.0	+ 0.5	+ 2.2	+ 2.1[1]
Finland	+ 3.3	+ 2.2	+ 2.8	– 2.1	+ 5.8	+ 4.3
Sweden	+ 3.7	+ 2.3	+ 3.0	+ 1.9	+ 2.5	+ 1.4
UK	+ 5.2	+ 3.2	+ 4.2	+ 0.8	+ 2.0	+ 4.0[1]
Czech Republic	+ 6.6	+ 3.5	+ 5.1	– 2.6	+ 4.9	+ 4.1
Estonia	+ 12.2	+ 4.9	+ 8.5	– 3.7	+ 9.0	– 1.3
Latvia	+ 12.9	+ 7.5	+ 10.2	– 11.5	– 1.5	+ 8.7
Lithuania	+ 10.2	+ 3.4	+ 6.7	– 11.2	+ 6.8	+ 4.3
Hungary	+ 9.4	+ 5.9	+ 7.6	– 3.6	+ 14.7	+ 3.8[1]
Poland	+ 2.0	+ 4.5	+ 3.3	+ 1.2	+ 8.6	– 1.5[1]
Slovenia	+ 8.1	+ 5.0	+ 6.5	+ 0.9	+ 8.4	+ 3.7
Slovakia	+ 7.9	+ 8.7	+ 8.3	+ 1.8	+ 23.7	+ 2.6
Japan	+ 0.3	– 0.7	– 0.2	– 4.9	+ 4.2	– 0.7[1]
Canada	+ 3.7	+ 0.8	+ 2.2	– 3.9	+ 3.9	+ 1.9[1]
Norway	+ 5.7	+ 3.5	+ 4.6	+ 1.2	+ 4.0	+ 4.5
USA	+ 4.1	+ 3.0	+ 3.6	+ 3.6	+ 2.9	+ 0.5[1]
EU trading partners[2]	+ 3.3	+ 2.5	+ 2.9	– 1.1	+ 4.4	+ 3.2
All trading partners[3]	+ 3.3	+ 2.4	+ 2.8	– 0.9	+ 4.3	+ 2.8
Austria						
All trading partners[3] = 100	– 0.5	+ 0.5	– 0.0	+ 2.0	– 2.3	+ 0.1
EU trading partners[2] = 100	– 0.6	+ 0.4	– 0.1	+ 2.3	– 2.4	– 0.3
Germany = 100	+ 0.7	+ 1.4	+ 1.0	+ 4.1	– 2.0	– 1.0

Source: AMECO, Statistics Austria, OECD, WIFO calculations. – [1] Extrapolations based on partial annual OECD data. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria; weighted average of the trading partners based on the calculation of the WIFO exchange rate index. – [3] 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.

In a long term comparison, three phases can be identified for Austria: in the late 1990s and early 2000s the industry achieved sustained high growth in labour productivity, improving its position compared to other industrialised countries; between 2002 and 2004, however, productivity in Austria rose less than in the average of the trading partners; and from 2005 onward it once again showed an above-average increase. In total, the productivity of persons engaged in the Austrian manufacturing of goods increased by a third from 2001 to 2011, corresponding to an average annual increase of 2.9 percent.

During the same period, productivity in German industry increased by 1.8 percent per year on average, and in the average of EU trading partners and of all trading partners by 2.8 percent and 2.9 percent per year, respectively. Significantly above average growth rates could be found in some Central and Eastern European countries (Czech Republic, Slovakia, Lithuania and Poland), as well as Ireland, Sweden,

Finland and the USA. The lowest productivity increase in Europe was seen in Greece, Italy and Luxembourg.

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

In national currency

	Ø 2001-2006	Ø 2006-2011	Ø 2001-2011	2009	2010	2011
	Year-to-year percentage changes					
Austria	+ 3.7	+ 2.2	+ 2.9	– 9.3	+ 8.5	+ 7.2
Belgium	+ 2.9	+ 1.2	+ 2.1	– 10.6	+ 8.5	+ 5.3
Denmark	+ 2.9	+ 1.2	+ 2.1	– 0.4	+ 9.6	+ 2.5
Germany	+ 4.7	– 0.9	+ 1.8	– 19.7	+ 13.4	+ 6.2
Greece	+ 4.0	– 1.8	+ 1.1	+ 6.9	+ 0.3	+ 2.2
Spain	+ 2.1	+ 3.1	+ 2.6	+ 1.4	+ 6.8	+ 5.6
France	+ 3.6	+ 1.8	+ 2.7	– 4.0	+ 7.8	+ 5.1[1]
Ireland	+ 5.5	+ 8.8	+ 7.2	+ 12.9	+ 13.2	+ 7.2[1]
Italy	+ 0.7	+ 0.6	+ 0.6	– 7.1	+ 10.8	– 0.2
Luxembourg	– 0.5	– 3.4	– 2.0	– 24.7	+ 7.3	+ 6.6
Netherlands	+ 4.1	+ 2.3	+ 3.2	– 6.2	+ 10.2	+ 4.8
Portugal	+ 2.1	+ 2.0	+ 2.1	– 2.5	+ 5.8	+ 1.7
Finland	+ 7.1	+ 0.1	+ 3.5	– 20.5	+ 19.3	+ 3.6
Sweden	+ 9.6	+ 1.5	+ 5.5	– 12.6	+ 21.6	+ 5.8
UK	+ 4.6	+ 0.8	+ 2.7	– 3.3	+ 1.9	+ 0.9[1]
Czech Republic	+ 10.8	+ 7.3	+ 9.0	– 1.4	+ 15.4	+ 8.8
Estonia	+ 7.6	+ 3.2	+ 5.4	– 12.1	+ 28.6	+ 8.4
Latvia	+ 5.9	+ 3.8	+ 4.8	+ 1.3	+ 15.6	+ 5.7
Lithuania	+ 7.6	+ 5.5	+ 6.5	– 3.3	+ 19.3	+ 7.8
Hungary	+ 8.9	+ 2.0	+ 5.4	– 12.7	+ 17.0	+ 3.3
Poland	+ 8.3	+ 8.0	+ 8.1	+ 9.6	+ 15.3	+ 5.5
Slovenia	+ 7.0	+ 3.6	+ 5.3	– 8.3	+ 14.8	+ 4.6
Slovakia	+ 11.9	+ 11.5	+ 11.7	– 6.4	+ 45.9	+ 11.0
Japan	+ 5.4	+ 0.5	+ 2.9	– 14.4	+ 15.3	– 0.8[1]
Canada	+ 1.3	– 0.0	+ 0.7	– 5.1	+ 7.0	+ 1.0[1]
Norway	+ 3.5	+ 1.6	+ 2.5	– 2.4	+ 6.4	+ 2.3
USA	+ 7.5	+ 2.9	+ 5.2	+ 3.1	+ 5.6	+ 0.9[1]
EU trading partners[2]	+ 4.7	+ 0.9	+ 2.8	– 12.4	+ 12.5	+ 5.0
All trading partners[3]	+ 4.9	+ 1.1	+ 2.9	– 11.2	+ 11.9	+ 4.4
Austria						
All trading partners[3] = 100	– 1.1	+ 1.1	– 0.0	+ 2.2	– 3.0	+ 2.6
EU trading partners[2] = 100	– 0.9	+ 1.3	+ 0.2	+ 3.6	– 3.5	+ 2.1
Germany = 100	– 0.9	+ 3.2	+ 1.1	+ 13.0	– 4.3	+ 0.9

Source: AMECO, Statistics Austria, OECD, WIFO calculations. – [1] Extrapolation based on partial annual OECD data. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria; weighted average of the trading partners according to the calculation of the WIFO exchange rate index. – [3] Without Austria, Malta, Cyprus, Romania, Bulgaria, but including Norway, the USA, Canada and Japan; weighted average of the trading partners according to the calculation of the WIFO exchange rate index.

Long term stability of Austria's unit labour cost position

Unit labour costs (labour costs per unit of production) decreased in Austrian manufacturing in the late 1990s due to a moderate labour cost increase accompanied by a strong increase in productivity. This development continued until 2002, and the resulting rise in the years 2002 and 2003 could mainly be attributed to the weak development of productivity. Between 2004 and the start of the financial market crisis, unit labour costs again decreased. In 2009, due to the collapse in productivity and the simultaneous increase in labour costs, there was a significant rise in unit labour costs (+11.5 percent, which has only partly been compensated – the decline by 6.1 percent in 2010 was followed by a reduction of about 4 percent). The unit labour cost index was therefore most recently higher than in 2007. However, in the long term, unit labour cost growth development in Austria was stable: in the 2001-2011 period, they declined by 0.1 percent per year on average annually. In the period 2001-2006 the average rate was –1.0 percent per year, while unit labour costs increased by 0.7 percent per year in the 2006-2011 period due to the recession-related collapse in productivity in 2009.

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

In €

	Ø 2001-2006	Ø 2006-2011	Ø 2001-2011	2009	2010	2011
	Year-to-year percentage changes					
Manufacturing of goods						
Austria	– 1.0	+ 0.7	– 0.1	+ 11.5	– 6.1	– 4.0
Belgium	+ 0.0	+ 1.6	+ 0.8	+ 10.9	– 3.6	– 1.4
Denmark	+ 1.2	+ 1.6	+ 1.4	+ 2.7	– 5.5	– 0.3
Germany	– 2.5	+ 2.5	– 0.1	+ 21.0	– 8.3	– 2.1
Greece	+ 5.8	+ 3.2	+ 4.5	– 8.9	+ 3.6	– 5.1
Spain	+ 2.3	+ 0.4	+ 1.4	+ 0.6	– 4.9	– 3.6
France	– 0.2	+ 0.6	+ 0.2	+ 4.6	– 4.0	– 2.9[1]
Ireland	+ 0.1	– 8.2	– 4.2	– 11.4	– 14.1	– 9.8[1]
Italy	+ 2.3	+ 2.8	+ 2.5	+ 10.4	– 6.4	+ 2.8
Luxembourg	+ 3.0	+ 4.1	+ 3.6	+ 27.5	– 5.0	– 3.4
Netherlands	– 0.5	+ 0.1	– 0.2	+ 8.2	– 7.6	– 2.5
Portugal	+ 1.3	+ 0.7	+ 1.0	+ 5.6	– 3.1	– 1.0[1]
Finland	– 3.5	+ 2.1	– 0.7	+ 23.1	– 11.3	+ 0.7
Sweden	– 5.4	+ 1.3	– 2.1	+ 5.5	– 6.2	+ 1.3
UK	– 1.3	– 1.0	– 1.1	+ 0.5	+ 3.9	+ 2.0[1]
Czech Republic	– 0.1	– 0.7	– 0.4	– 6.8	– 5.0	– 1.6
Estonia	+ 4.3	+ 1.7	+ 3.0	+ 9.5	– 15.2	– 8.9
Latvia	+ 2.1	+ 3.2	+ 2.7	– 13.0	– 15.1	+ 3.2
Lithuania	+ 3.1	– 2.0	+ 0.5	– 8.2	– 10.4	– 3.2
Hungary	– 0.1	+ 0.5	+ 0.2	– 5.4	– 6.6	+ 3.2[1]
Poland	– 6.9	– 2.3	– 4.6	– 25.0	+ 2.0	+ 0.5[1]
Slovenia	– 0.9	+ 1.4	+ 0.2	+ 10.0	– 5.5	– 0.8
Slovakia	– 0.7	+ 1.8	+ 0.5	+ 12.9	– 15.2	– 7.6
Japan	– 10.3	+ 4.4	– 3.2	+ 29.9	+ 1.1	+ 5.2[1]
Canada	+ 1.8	+ 1.7	+ 1.7	– 0.5	+ 12.6	+ 0.2[1]
Norway	+ 2.1	+ 2.5	+ 2.3	– 2.3	+ 6.6	+ 4.8
USA	– 9.4	– 2.1	– 5.8	+ 5.9	+ 1.7	– 5.0[1]
EU trading partners[1]	– 1.3	+ 1.5	+ 0.1	+ 11.3	– 6.6	– 1.3
All trading partners[2]	– 2.2	+ 1.3	– 0.5	+ 11.2	– 5.5	– 1.4
Austria						
All trading partners[3] = 100	+ 1.3	– 0.6	+ 0.4	+ 0.2	– 0.6	– 2.6
EU trading partners[2] = 100	+ 0.3	– 0.8	– 0.2	+ 0.2	+ 0.5	– 2.7
Germany = 100	+ 1.6	– 1.7	– 0.1	– 7.9	+ 2.4	– 1.9
Economy as a whole						
Austria	+ 0.6	+ 2.0	+ 1.3	+ 4.8	– 0.3	+ 0.8
EU trading partners[2]	+ 1.0	+ 1.7	+ 1.4	+ 2.9	– 0.0	+ 1.2
All trading partners[3]	+ 0.2	+ 1.6	+ 0.9	+ 3.5	+ 0.7	+ 0.9
Austria						
All trading partners[3] = 100	+ 0.4	+ 0.4	+ 0.4	+ 1.3	– 1.0	– 0.1
EU trading partners[2] = 100	– 0.4	+ 0.2	– 0.1	+ 1.8	– 0.3	– 0.4
Germany = 100	+ 1.0	+ 0.6	+ 0.8	– 0.7	+ 0.9	– 0.6

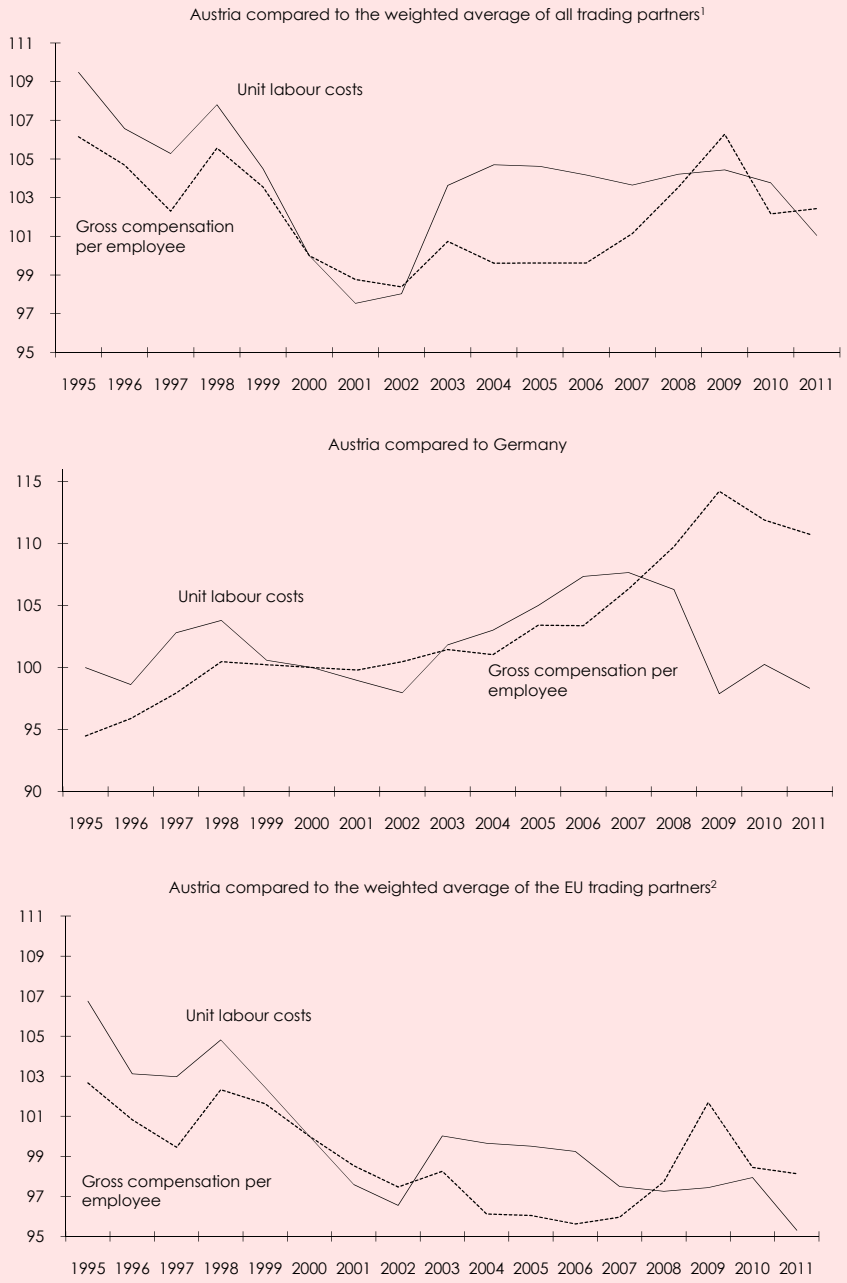
Source: AMECO, Statistics Austria, OECD, WIFO calculations, Unit labour costs: Quotient of gross per-capita wages (employees) and real gross value added or real per-capita GDP (persons engaged) – [1] Extrapolation based on partial annual OECD data. – [2] Without Austria, Malta, Cyprus, Romania, Bulgaria; weighted average of the trading partners based on calculations of the WIFO exchange rate index – [3] 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.

In Germany, the price competitiveness of industry developed similarly, however even more favourably in the 2003-2007 period, and since the outbreak of the financial crisis less favourably than in Austria. Productivity slumped significantly in the years 2008 and 2009, so that unit labour costs increased cumulatively by nearly 30 percent (Austria +17 percent). This strong loss of competitiveness was only partly compensated by a reduction in unit labour costs of 8.3 percent in 2010 and 2.1 percent in 2011. This muted downward tendency can also be attributed to the fact that, after years of moderate unit labour cost development, the wages of German industry increased noticeably in both 2010 and 2011 (Table 1). In total, unit labour costs rose about 8 percentage points more than in Austria since the outbreak of the financial crisis (2007-2011). Through this improvement of Austria's unit labour cost position relative to Germany, Austria also improved its position with respect to the trad-

ing partners: between 2001 and 2011 the rate of change of Austrian unit labour costs was about 0.1 percentage points below that of Germany.

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

In €, 2000 = 100



Source: AMECO, OeNB, 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 a comparison with other EU trading partners, the relative unit labour cost position of Austrian manufacturing improved by an average of 0.2 percentage points per year between 2001 and 2011. The difference can be attributed to the reduced dynamics of labour costs in Austria. In relation to the sum of all trading partners there is, however, no advantage: in Austria unit labour costs rose faster than in the weighted average number of European and non-European trading partners (+0.4 percentage points per year) in the 2001-2011 period. The difference between the countries of comparison within and outside the EU is due to the appreciation of the nominal-

effective exchange rate, in particular to the strengthening of the euro against the dollar. Unit labour costs of the American manufacturing industry calculated in common currency decreased by about 45 percent, in dollar terms by only 15 percent.

At the same time, the calculation of the average rate of change over a period is strongly influenced by the selection of the initial and final year. As an index with the base year 2000 (Figure 2) shows, Austria's unit labour cost position fluctuated greatly in relation to the sum of the trading partners at the end of the 1990s and early 2000s. Between 2003 and 2012, unit labour costs in manufacturing remained relatively unchanged for the trading partners. The significant improvement in the year 2011 (–1.4 percent in the average of the trading partners, –4 percent in Austria) is to be interpreted with caution in light of the precarious data situation for several countries. The development in relation to the EU trading partners shows less variation than in relation to all trading partners. In this case as well, the significant improvement of Austria's unit labour cost position in the second half of the 1990s was followed by an increase in relative unit labour costs. However, this was limited to the year 2003 and was almost completely compensated by 2010 due to the favourable development in the following years, despite an above-average cost increase (in common currency) in the second half of the decade.

Competitiveness also determined by overall unit labour costs

Export competitiveness depends not only on the development of unit labour costs in goods-producing industries, but also on unit labour cost growth in the overall economy: as long as services and non-traded goods are important as inputs, their cost development has a significant influence on the competitiveness of those sectors active in foreign trade. Discrepancies in unit labour cost developments between the production of goods and the overall economy indicate a divergence between wage and productivity developments (*Deutsche Bundesbank,* 1998).

The labour costs of the economy as a whole increased more than labour costs in production in the 2001-2011 period, both in Austria and the trading partners. This was exactly as expected, as the greatest potential for increasing labour productivity through mechanisation and automation can usually be found in the manufacturing of goods. In Austria, labour costs per unit of production increased by 0.8 percent across all sectors in the year 2011 and by 1.3 percent per year on average between 2001 and 2011. In the average of all trading partners, unit labour costs in the economy as a whole increased by 0.9 percent in 2011, which was a slightly greater increase than in Austria; however, in the long term they took a more favourable course than in Austria at +0.9 percent per year. Over the longer 1995-2002 period, Austria's unit labour cost position for the economy as a whole improved significantly relative to the sum of the trading partners. Since 2003, unit labour costs in the domestic economy have grown more quickly than in the sum of the trading partners.

However, there is a pronounced asymmetry between Germany and the other EU countries: the rate of change of the unit labour costs of the Austrian economy as a whole was 0.8 percentage points higher per year than in Germany, and in the 2001-2006 period it was 1 percentage point higher, although it was lower than the average of the EU countries. This is because in this period Germany showed the lowest increase in unit labour costs for the economy as a whole among the EU countries[5] (2001-2011 cumulatively +5 percent). In Austria, the rate of increase over the period 2001-2011 was 13 percent compared to 22 percent in France, 28 percent in Italy and 31 percent in Greece. The divergence between Germany and the other EU countries was particularly marked from the start of the 2000s to the year 2008. Since the financial crisis unit labour costs for the economy as a whole have developed similarly in Germany and the countries of comparison.

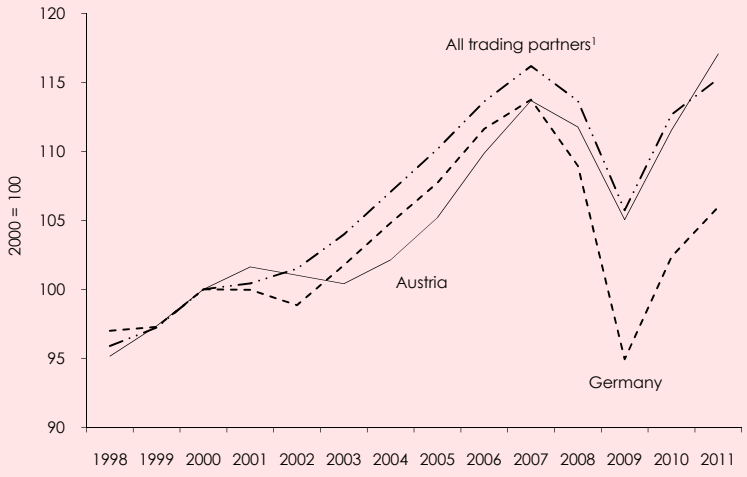
Cost pressures originating from wage developments in other industries and affecting the competitiveness of manufacturing can be assessed by using the relation between unit labour cost developments in the economy as a whole and those in the

[5] One exception is Poland, but this is largely due to exchange rate effects.

manufacturing of goods. As the share of direct labour costs in the production value is relatively small, the development of the relative unit labour cost position can only provide an accurate indication of the cost-determined competitiveness of manufacturing if the structure of the unit labour costs of the economy as a whole remains unchanged (*Deutsche Bundesbank,* 1998). If the relation of unit labour costs between the manufacturing of goods and the economy as a whole develops significantly differently from country to country, this makes the interpretation of an international unit labour cost comparison in the area of tradable goods very difficult.

As Figure 3 shows, the relation between unit labour costs in the economy as a whole and those in manufacturing in Austria and the trading partners developed in a largely parallel way. The 1998-2001 period, in which the unit labour cost relation in Austria and among the trading partners was synchronous was followed by phases in which the unit labour costs of the economy as a whole relative to those in the manufacturing of goods first developed more slowly (2001-2005), and then more rapidly (2005-2008) than in the countries of comparison. In the course of the economic crisis in 2009, the relation between the rates of change of unit labour costs in Austria and the manufacturing of goods briefly reversed, with a similar trend in the unit labour cost relation in Austria and the sum of the trading partners occurring since the outbreak of the financial crisis. In Germany unit labour costs in the manufacturing of goods increased more significantly during the financial crisis than in the other economic sectors. Thus, in recent year the other sectors have had a dampening effect on the cost structure of the manufacturing of goods, which is not recorded in the unit labour costs for this area. From an Austrian point of view, the favourable development of unit labour costs in manufacturing compared to Germany must be put into perspective.

Figure 3: Relation of unit labour costs in the economy as a whole to the manufacturing of goods



Source: AMECO, Statistics Austria, OECD, WIFO calculations. – [1] Without Austria, Malta, Cyprus, Romania, Bulgaria, but including Norway, the USA, Canada and Japan.

Summary and conclusions

The recovery of the economy after the financial crisis led to a reduction in unit labour costs in Austria in the manufacturing of goods in 2010 and 2011. Productivity rose by 8.5 percent in 2010 and 7.2 percent in 2011 after the crisis-related collapse, while gross per-capita earnings rose by only 1.9 percent and 2.9 percent, respectively. As a result, the crisis-related surge in unit labour costs of the years 2008-09 was largely compensated. In particular, the rise in productivity improved Austria's international unit labour cost position. According to the currently available and still incomplete data, Austria's unit labour cost position improved in 2011, both relative to the average of all trading partners (by 2.6 percentage points) and to Germany (by 1.9 percentage points). In 2010, Austria's unit labour costs decreased by 0.6 percentage points in relation to those of the trading partners, while they increased by 2.4 percentage points in relation to Germany.

Although Austrian unit labour costs were higher in 2011 than in 2007, they generally developed more favourably than in the weighted average of all the countries of comparison. This is primarily due to the specific situation in Germany, which has a weight of one-third in the calculation of the real-effective exchange rate. German industry recorded a cumulative increase in unit labour costs of approximately 30 percent from 2007 to 2009, which was only partially offset in 2010 and 2011. The loss of price-related competitiveness of the German export economy could however be slightly overstated through the unit labour cost data for this area, because unit costs in other areas of the German economy increased much less significantly. This resulted in a dampening effect on the cost structure in the manufacturing of goods, which is not visible in unit labour costs in this area.

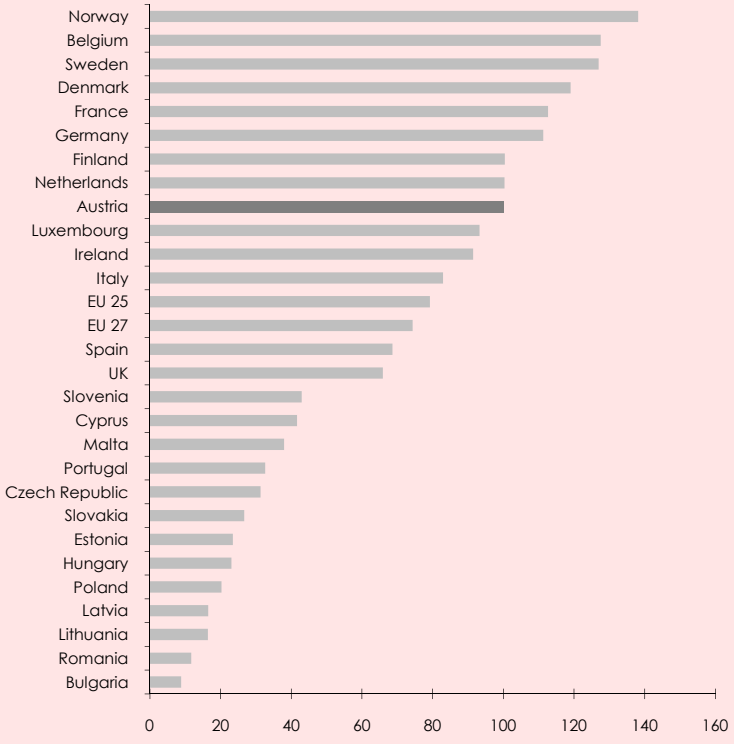
In the long term, unit labour costs in Austrian manufacturing of goods decreased significantly relative to the trading partners in the 1990s, and then increased in the early 2000s. Aside from the development in the year 2011, which must be interpreted with caution due to gaps in data, unit labour costs in manufacturing have remained largely stable relative to the trading partners since 2003.

Appendix: Statistical basis of hourly labour costs in the manufacturing of goods

While only data on labour costs per worker are available for the calculation of current, internationally comparable labour costs in the production of goods, this report can present data for the labour costs per hour worked, at least for the European countries. These data are based on the labour cost survey, which is conducted in the EU countries every four years. The annual development between two surveys is updated based on a labour cost index. The results published here are based on the 2008 Labour Cost Survey published at the end of 2010. The report from the previous year (*Ederer – Hölzl,* 2011) was also based on the 2008 Labour Cost Survey and the annual index values. Minor revisions resulted in some changes, especially in the data for Denmark and Luxembourg.

Figure 4: Labour costs in the manufacturing of goods in 2011 in international comparison

In €, Austria = 100



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

Unlike the labour cost survey, the labour cost index is not calculated based on the same statistical concept in all countries. Thus, cross-country comparability is somewhat limited. For Austria, the index is based on data from the business survey. Table 4 illustrates the labour costs calculated using the labour cost index for the 2008-2011 period. As a result of the economic crisis, determining the hourly labour costs in international comparison in this period is especially difficult: first, the impact of short-time work on the development of labour costs in the Austrian business survey is not completely mapped out – the share of additional costs supported by the public remains unconsidered. At the same time, there is no information about the extent to which short-time work or other labour market policy measures in the wake of the economic crisis are reflected in the labour cost data from other countries.

Table 4: Hourly labour costs in the manufacturing of goods

	2008	2009	2010	2011
			In €	
Bulgaria	2.2	2.5	2.6	2.8
Romania	3.3	3.2	3.5	3.7
Lithuania	5.5	5.2	5.1	5.2
Latvia	5.2	5.2	5.0	5.3
Poland	6.8	5.8	6.4	6.5
Hungary	7.5	6.9	7.0	7.4
Estonia	7.2	7.2	7.2	7.5
Slovakia	7.3	8.0	8.0	8.5
Czech Republic	8.7	8.7	9.3	10.0
Portugal	9.9	10.2	10.5	10.4
Malta	11.3	11.9	11.7	12.1
Cyprus	12.4	12.7	13.0	13.3
Slovenia	12.3	13.0	13.4	13.7
Greece	15.8	16.3	16.6	
UK	21.5	19.6	21.0	21.0
Spain	20.3	21.4	21.6	21.9
EU 27	22.0	22.7	23.0	23.7
EU 25	23.5	24.2	24.5	25.3
Italy	24.0	25.7	25.8	26.4
Ireland	28.1	30.1	29.9	29.2
Luxembourg	28.3	29.3	29.2	29.7
Austria	30.0	31.5	31.2	31.9
Netherlands	30.3	31.0	31.4	32.0
Finland	30.1	31.8	31.4	32.0
Germany	33.4	34.0	34.0	35.5
France	33.2	33.3	34.6	35.9
Denmark	35.1	36.0	36.9	38.0
Sweden	34.5	32.8	37.2	40.5
Belgium	36.7	38.2	39.5	40.7
Norway	36.9	36.5	41.4	44.0

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

References

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

Cerra, V., Soikkeli, J., Saxena, S., "How Competitive is Irish Manufacturing?", The Economic and Social Review, 2003, 34(2), pp. 173-193.

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

Ederer, St., "Imbalances in the Euro Area", Austrian Economic Quarterly, 2010, 15(3), pp. 277-290, http://www.wifo.ac.at/wwa/pubid/40570.

Ederer, St., Hölzl, W., "Austria's Unit Labour Cost Position Improved in 2010 Due to the Recovering Economy", Austrian Economic Quarterly, 2011, 16(4), pp. 206-217, http://www.wifo.ac.at/wwa/pubid/43038.

Guger, A., "Lohnstückkostenposition der Industrie 1992 verschlechtert", WIFO-Monatsberichte, 1993, 66(7), S. 387-392, http://www.wifo.ac.at/wwa/pubid/1256.

Hölzl, W., Leoni, T., "Austria's International Unit Labour Cost Position Heavily Influenced by Economic Crisis in 2009", Austrian Economic Quarterly, 2010, 15(4), pp. 336-348, http://www.wifo.ac.at/wwa/pubid/40919.

Köhler-Töglhofer, W., Magerl, Ch., Mooslechner, P., "Tendenziell verbesserte Wettbewerbsfähigkeit der österreichischen Volkswirtschaft in der Wirtschafts- und Währungsunion: Neuberechnung des Indikators der Wettbewerbsfähigkeit der österreichischen Wirtschaft", OeNB, Geldpolitik & Wirtschaft, 2006, (4), pp. 1-28.

Lewney, R., Hay, G., Claussen, J., Vieweg G., "The cost competitiveness of European industry in the globalisation era – Empirical evidence on the basis of relative unit labour costs (ULC) at sectoral level", European Commission, Industrial Policy and Economic Reform Papers, 2012, (15).

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

Scheiblecker, M., et al., "Österreichs Wirtschaft im Jahr 2010: Deutliche Erholung des Außenhandels", WIFO-Monatsberichte, 2011, 84(4), pp. 253-316, http://www.wifo.ac.at/wwa/pubid/41606.

Unit Labour Costs in Goods Production Declined in 2011 – Summary

In 2010 and 2011, the recovery following the economic crisis led to shrinking unit labour costs for goods production in Austria. After a crisis-driven contraction, productivity rose by 8.5 percent in 2010 and by 7.2 percent in 2011, while per-capita compensation grew by just 1.9 percent and 2.9 percent, respectively. Consequently, the explosive rise of unit labour costs that occurred in 2008 (+5.4 percent) and 2009 (+11.5 percent) was almost compensated: unit labour costs declined by 4 percent in 2011, following a reduction by 6.1 percent in 2010.

While labour costs grew at about the same rate as the weighted averages of Austria's main trading partners, productivity of the Austrian industry increased at an above-average pace. According to current data (which are, however, preliminary and therefore need to be interpreted with due caution), Austria's unit labour cost position improved in 2011 both relative to the average of all trading partners (by 2.6 percentage points) and vis-à-vis Germany (by 1.9 percentage points).

Austria also did well in an international comparison when considering the situation since the financial market and economic crises broke in 2008. In Germany, however, unit labour cost development in the total economy had a dampening effect on the cost structure in goods production which is not reflected in the unit labour costs for this sector. It is thus necessary from an Austrian point of view to account for this when assessing the development of unit labour costs vis-à-vis Germany during this period.

In a long-term comparison, Austria has gone through a series of stages: a very good development of the unit labour cost position during the second half of the 1990s was followed by a rise in the relative unit labour costs at the start of the new decade. Between 2003 and 2010, unit labour costs in goods production remained mostly stable vis-à-vis the country's trading partners.