

Short-term statistics

Focus on employment

Statistics in focus

INDUSTRY, TRADE AND SERVICES

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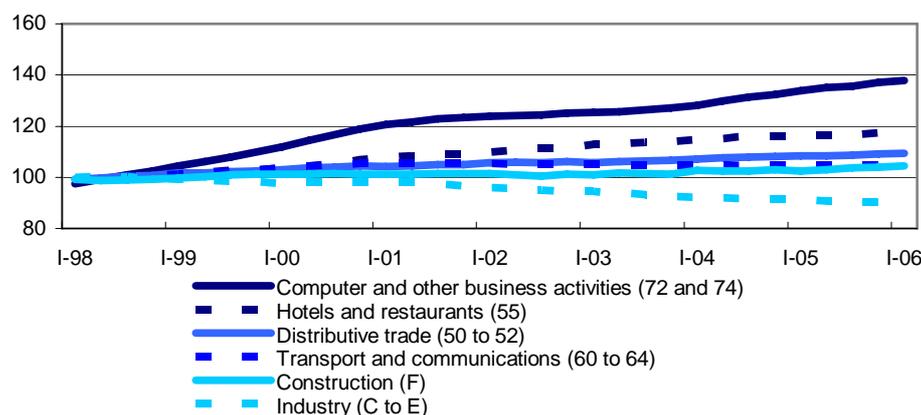
Data on labour input (employment, wages and salaries and hours worked) are covered by the same Regulation that requires data on output and prices for industry, construction and some services. This short publication aims to draw attention to this less well-known labour input data. For reasons of space, only data for EU-25 are used and at a high level of aggregation. Full data by country at the 2-digit level of NACE are available on Eurostat's web site. As one illustration of the type of analysis the data permits we examine the proposal that developments of the index of the number of persons employed reflect more general developments in the economy as a whole. The study shows that there is some evidence to suggest that employment fluctuations in the EU-25 are related in some activities to other STS indicators, such as the index of production or wages and salaries for industrial activities, and the index of turnover for services.

About three-fifths (59 %) of employment in the EU-25's non-financial business economy was concentrated in non-financial services activities in 2003 (based on structural business statistics data), the remaining share in industry and construction. According to STS data, employment change in the EU-25's non-financial business economy (NACE Sections C to I and K) is driven mainly by the services sector.

The figure below shows the development of the employment index for the EU-25's industrial, construction and non-financial services sectors from 1998. While the index of employment fell in industry, it rose in construction and non-financial services activities over the same period. On average, from one quarter to the next, the industrial employment index went down by 0.3 %: declining for mining and quarrying (-1.3 %), manufacturing (-0.3 %), and electricity, gas and water supply (-0.6 %), while the index for the construction sector rose slightly by 0.1 % per quarter on average.

In contrast, in computer and other business activities the employment index averaged 1.1 % growth each quarter (between the first quarters of 1998 and 2006), the most dynamic activity of the non-financial services sector in terms of employment (at the level of analysis shown in Figure 1). For the other activities presented in Figure 1 below, quarterly average growth rates ranged from 0.2 % (transport and communications) to 0.5 % (hotels and restaurants).

Figure 1: industry, construction and services employment indices, seasonally adjusted, EU-25 (1998=100); source: Eurostat STS



Industry (including construction)

Employment and output: do they move in tandem?

The industrial production index is a business cycle indicator that measures changes in the volume of output at close and regular intervals.

Quarterly developments for the EU-25's industrial (including construction) production index and employment index are shown in Figure 2, for the first quarter of 1995 to the same quarter in 2006. The indices developed in opposing directions, with growth in production while employment declined over the last ten years. On average, employment contracted by 0.2 % from one quarter to the next over the period of time observed, while output grew by 0.4 %.

Focusing on the output and employment indices over shorter periods of time several patterns can be highlighted. From the first quarters of 1995 to 1997 industrial employment declined from one quarter to the next, which was also the general trend followed by the industrial production index. Then, from the second quarter of 1997 to the third quarter of 1998 industrial output grew quarter on quarter, with the strongest growth in the second quarter of 1997 (2.6 %). During the same period a rise was also recorded for the employment index, with positive rates of change recorded each quarter except the third quarter of 1997. During this time the two quarters with the strongest employment growth were also periods of relatively strong growth in the index of production. Contrary to what was observed before, five consecutive quarters of growth were recorded by the index of production from the first quarter of 1999 while the index of employment fell. For four quarters starting from the second quarter of 2000 both indices grew. Since the second quarter of 2001, independent of the developments of the production index, the index of employment has fallen each and every quarter to the present, with the exception of the fourth quarter of 2005 when the index remained unchanged. During the same period the quarterly rate of change in the production index changed sign nine times.

What are the trends observed across activities?

The employment index followed the same general downward trend for the main industrial groupings (MIGs) as for industry as a whole. However, some phases in the developments of the production and employment indices for the MIGs can be highlighted, particularly during the first half of the past ten years – see Figure 3. For **capital goods**, during two periods of uninterrupted quarterly growth in the production index (from the last quarter of 1996 to the third quarter of 1998 and from the first quarter of 1999 to the same quarter in 2001) the employment index also grew, with a 2-quarters lag, compared with the index of production, and continued this period of growth until just after the production started to decrease.

Such a systematic pattern could not be seen for **intermediate goods**; nevertheless the employment index grew for five quarters starting in the fourth quarter of 1997, which corresponded to a 5-quarters lag compared with the growth in the index of production. Again, this growth in employment lasted after production began to decline.

For **consumer durables** a different situation was observed with little notable lag between changes in production and employment: for instance during the period from the second quarter of 1998 to the fourth quarter of 2002 the indices of employment and production grew and fell together in nearly every quarter.

Turning to the **consumer non-durables** and **energy** MIGs the steady decline in the employment index appeared to coincide with a steady increase in the production index over the last ten years (1996 to the start of 2006).

In contrast, it can be noted that production and employment indices for **construction** generally evolved in the same direction from the second quarter of 1997 to the end of the series.

Figure 2: employment and production indices, seasonally adjusted, for Sections C-F, EU-25 (1995=100);
source: Eurostat STS

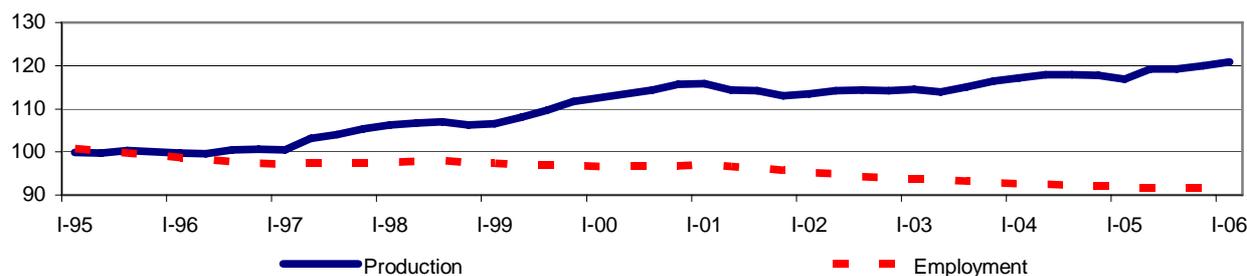
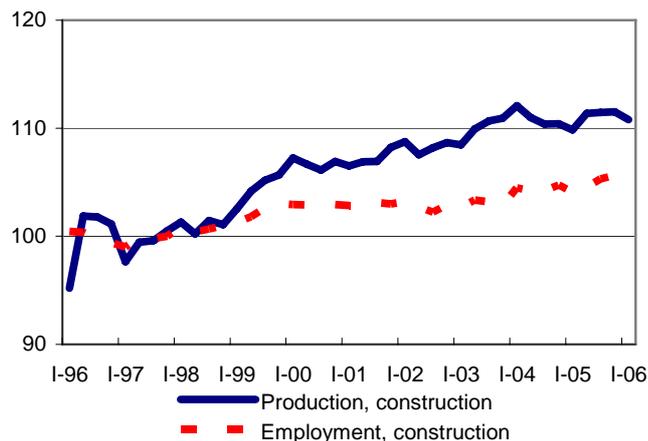
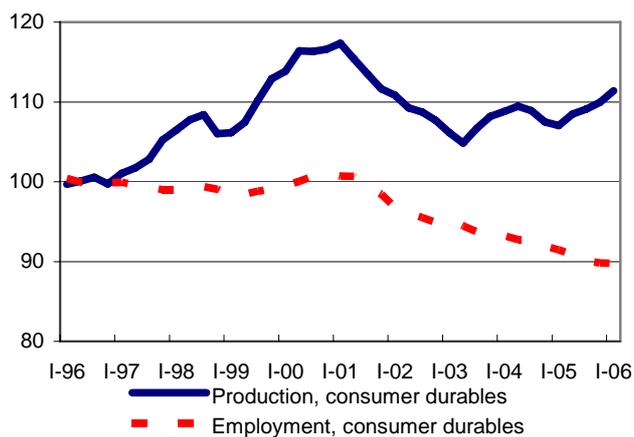
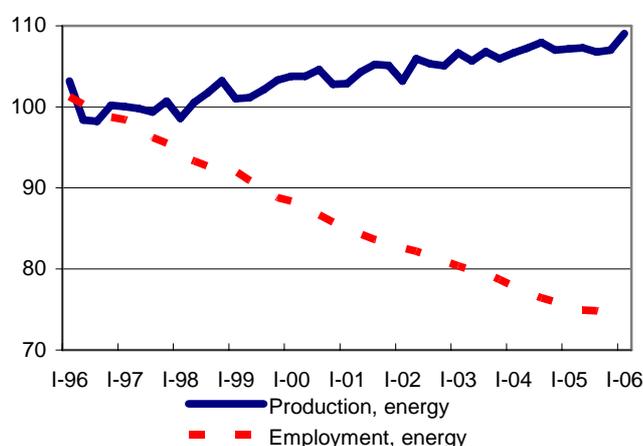
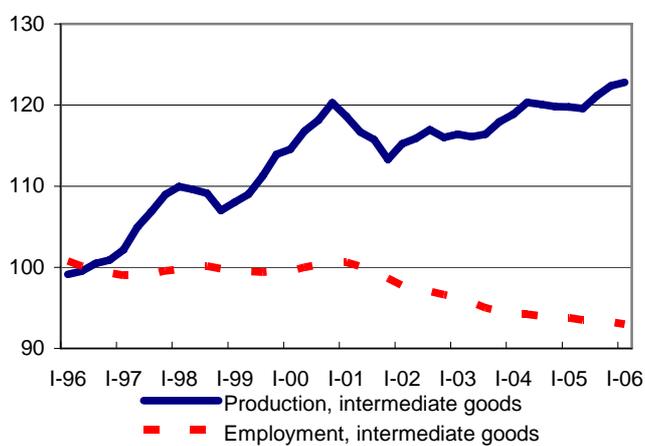
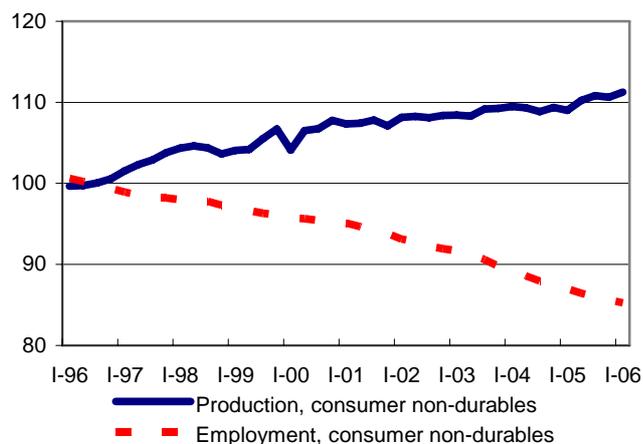
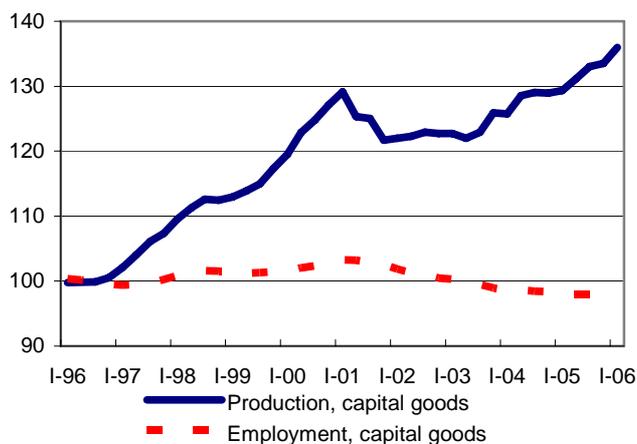


Figure 3: employment and production indices, seasonally adjusted, for the Main Industrial Groupings (MIGs) and construction, EU-25 (1996=100); source: Eurostat STS
 Note: the scales vary between graphs.



Does employment grow in activities where wages and salaries grow relatively fast?

Labour input is one of the main costs: a change in the level of wages and salaries can come from a number of sources: increased output needing more labour, higher wages but no increase in employment, or changes in the composition of the workforce with a shift between more and less highly paid personnel.

Figure 4 shows the development of the indices of employment and wages and salaries for industry (including construction) in the EU-25 from the first quarter of 1996. Unsurprisingly the past ten years were marked by an upward trend for industrial wages and salaries (which is a value index) and this contrasted with a falling index of industrial employment. During this period of time there were only a few brief periods when both indices recorded growth, for example from the second quarter of 2000 to the first quarter of 2001.

Nevertheless, an analysis of these two indices for the MIGs shows that behind the seemingly different development of these two indices, their development did have some common features, disguised by the different nature of the indices. During the ten years observed wages and salaries grew at the fastest pace for capital and intermediate goods, with respective quarterly average growth rates of 0.6 % and 0.4 % while for the other MIGs growth ranged from 0.1 % to 0.3 %: these two MIGs also recorded the slowest decline for the index of employment (by 0.1 % each quarter on average for capital goods and by 0.2 % for intermediate goods), compared to faster decreases for the remaining MIGs (ranging from -0.3 % to -0.8 %). Within construction wages and salaries rose on average by 0.4 %, while employment also expanded by 0.1 % per quarter.

Figure 4: employment and wages and salaries indices, seasonally adjusted, for Sections C-F, EU-25 (1996=100); source: Eurostat STS

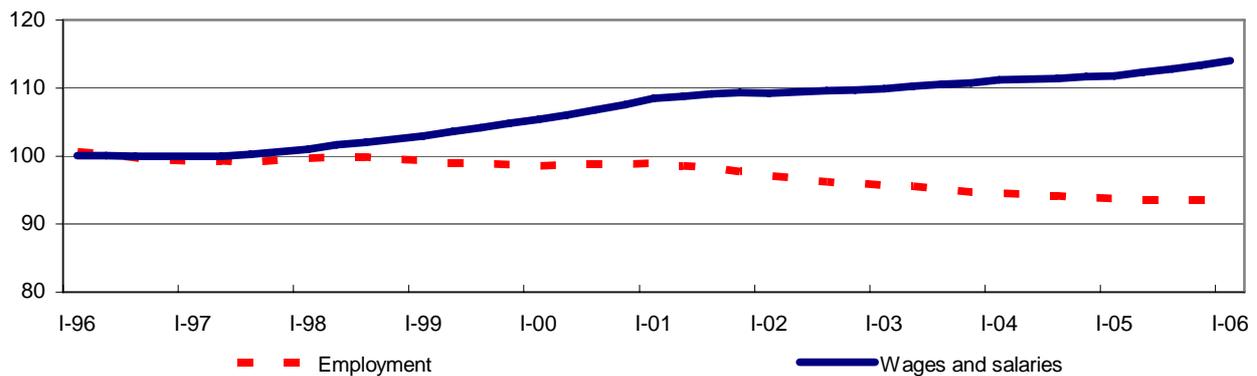


Table 1: employment and wages and salaries indices, seasonally adjusted, EU-25, quarterly average growth rates (%) ranked on rate of change for the index of employment; source: Eurostat STS

	Index of employment	Index of wages and salaries	Time series
Total industry (including construction)	-0.2	0.3	I-96 to I-06
Construction	0.1	0.4	I-96 to IV-05
Capital goods	-0.1	0.6	I-96 to I-06
Intermediate goods	-0.2	0.4	I-96 to I-06
Consumer durables	-0.3	0.1	I-96 to I-06
Consumer non-durables	-0.4	0.3	I-96 to I-06
Energy	-0.8	0.2	I-98 to I-06

The second part of this analysis looks at the evolution of the index of employment compared with the evolution of the index of turnover for six different services. The services covered include: motor trades, wholesale trade, retail trade, hotels and restaurants, transport and communications, computer services and business activities.

When comparing the analysis for industry and non-financial services, it should be noted that the production index is a volume index, whereas the turnover index is a value index, and the latter therefore reflects price changes as well as changes in the level of activity.

Employment and output: do they move in tandem?

As already mentioned, unlike for industry, employment in the EU-25's non-financial services sector has shown an upward trend for the activities presented in Figure 5. Please note that different time series are shown according to the availability of data for both employment and turnover indices for each of the activities studied. Despite the use of a value index for output, both indices evolved in the same direction, and as such the relationship between employment and turnover for services economy was more evident than that for industry.

It can be noted that the index of employment developed at the fastest pace for computer and business activities (quarterly average growth rate of 0.7 %) from 2002 to 2006 (first quarter), and these same activities also recorded the fastest growth for the index of turnover over this period of time (1.5 %). However, high employment growth was not always a sign of high turnover growth. For example, hotels and restaurants, the second most dynamic activity in terms of employment with a quarterly average growth rate of 0.5 % from 1998 to 2006 (first quarter) recorded an average turnover growth rate of 0.8 %, the second lowest of the six activities presented. Equally the reverse situation can be seen, as the second fastest growth rate for turnover was recorded for transport and communications (quarterly average growth rate of 1.4 %) from 2002 to the first quarter of 2006, where on average employment remained stable during the same period.

Focus on services activities: which activities recorded the highest employment growth?

Figure 6 shows quarterly average growth rates for the indices of employment and turnover (or deflated turnover for retail trade) at the level of detail of NACE Divisions for the non-financial services economy. High growth in employment for the computer services (NACE 72) and other business activities (NACE 74) was particularly due to increases in the number of persons employed for other business activities (such as legal activities, accounting, marketing, industrial cleaning, and security services) where the index of employment grew on average by 0.7 % per quarter from the first quarter of 2002 to the first quarter of 2006. The index of turnover rose by 1.6 % on average from 2002 to 2005 (first quarter of 2006, not available).

Water transport (NACE 61), air transport (NACE 62) and post and telecommunications (NACE 64) were the only NACE Divisions of the non-financial services sector studied to show a decline in their index of the number of persons employed between the first quarters of 2002 and 2006. Indeed, during this period of time, quarterly average rates of change in these activities ranged from -0.1 % to -0.6 %, which contrasted with relatively high quarterly average growth rates for the index of turnover, ranging from 1.2 % to 1.7 % in the same activities.

Among the non-financial services NACE Divisions, retail trade (NACE 52) has the longest time series available for both indices (from the first quarter of 1995). Moreover, the volume of sales (a deflated index of turnover) exists for this activity, which removes the effect of price changes. Over the last ten years, a quarterly average growth rate of 0.4 % was recorded for the index of employment for retail trade compared with an average growth of 0.5 % for the volume of sales index.

Motor trade (NACE 50) and wholesale trade (NACE 51) both recorded a relatively slow progression in their index of employment, averaging quarterly growth of 0.2 % and 0.1 % respectively from the first quarter of 1998 to the first quarter of 2006, while the turnover index during the same period grew by 1.0 % on average for wholesale trade and 0.9 % for motor trade.

The remaining NACE Divisions, namely land transport (NACE 60) and auxiliary transport activities (NACE 63), posted relatively modest average quarterly developments between the second quarter of 2002 and the first quarter 2006 for their employment indices, 0.1 % and 0.5 % respectively. However, their quarterly average growth rates for turnover were among the highest of the non-financial services NACE Divisions.

Figure 5: employment and turnover indices for the services sector, seasonally adjusted, EU-25 (different base years and scales between graphs, see the legend of each graph); source: Eurostat STS

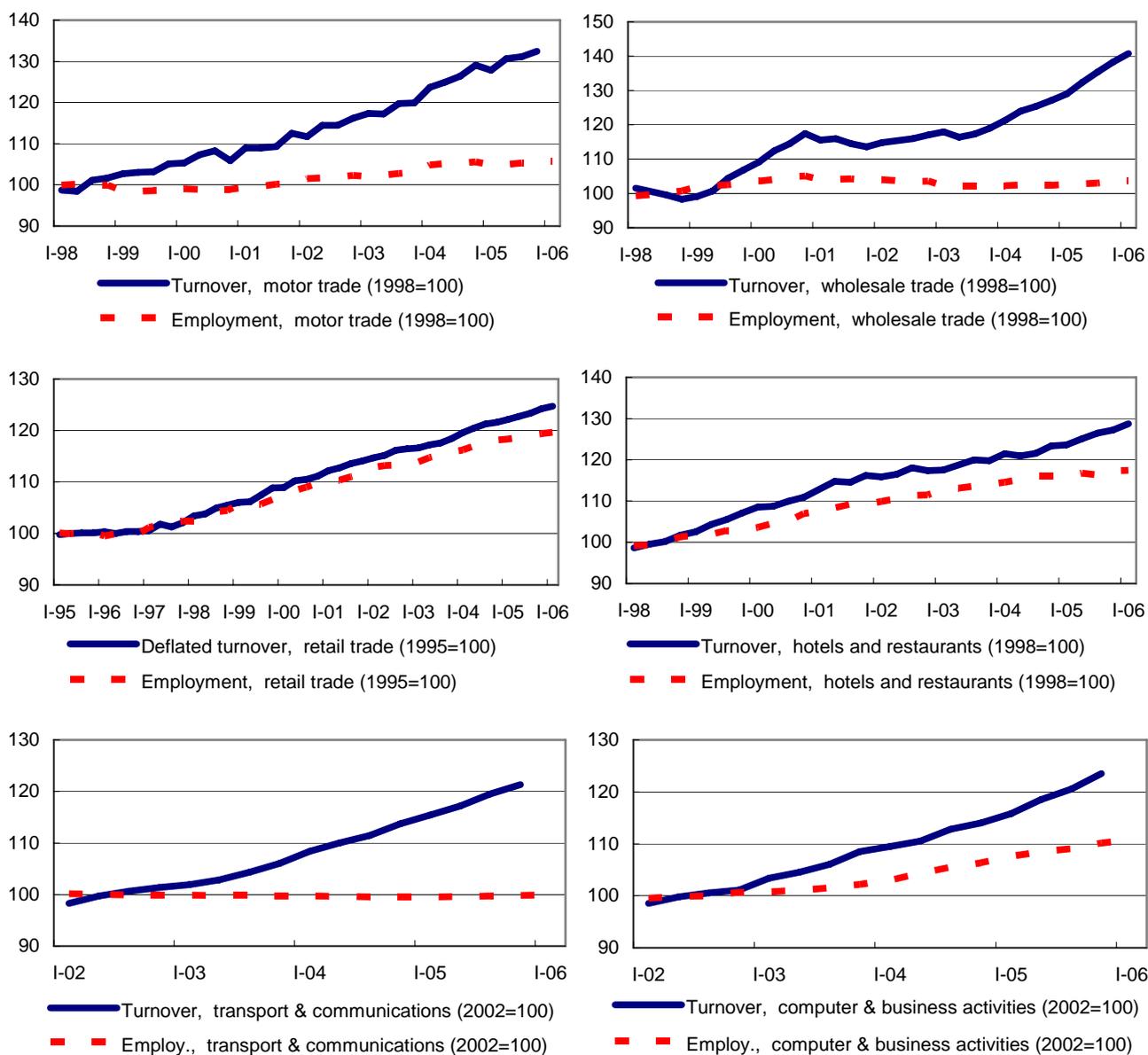
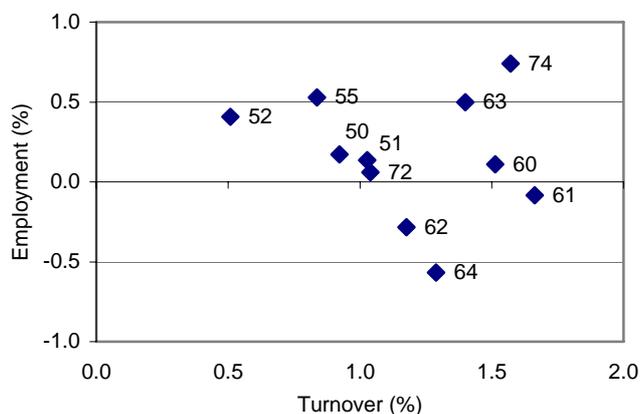


Figure 6: quarterly average growth rates for the index of employment and turnover (volume of sales for retail trade), seasonally adjusted, EU-25; source: Eurostat STS (1)



(1) NACE descriptions:

50 – motor trade;

51 – wholesale trade;

52 – retail trade;

55 – hotels and restaurants;

60 – land transport;

61 – water transport;

62 – air transport;

63 – auxiliary transport activities;

64 – post and telecommunications;

72 – computer services;

74 – other business activities.

NACE 50, 51 and 55: I-98-IV-05 for turnover,

I-98-I-06 for employment;

NACE 52: I-95-I-06;

NACE 60 to 64, 72 and 74: I-02-IV-05 for turnover,

I-02- I-06 for employment.

➤ ESSENTIAL INFORMATION – METHODOLOGICAL NOTES

Short term statistics (STS)

The legal basis for the STS indices is Council Regulation No 1165/98 of 19 May 1998 concerning short-term statistics (STS-R) and Regulation (EC) No 1158/2005 of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) No 1165/98.

The definitions of short-term statistics variables are laid down in Commission Regulation No 588/2001 of 26 March 2001 implementing Council Regulation No 1165/98 of 19 May 1998 concerning short-term statistics as regards the definition of variables.

The classification by the main industrial groupings (MIGs) is laid down in Commission Regulation No 586/2001 of 26 March 2001 on implementing Council Regulation No 1165/98 of 19 May 1998 concerning short-term statistics as regards the definition of Main Industrial Groupings.

Index of the number of persons employed

Employment, in its own right, is an important short-term indicator in monitoring the economy. The number of persons employed is defined as the total number of persons who work in the observation unit (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the unit who belong to it and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams). It includes persons absent for a short period (e.g. sick leave, paid leave or special leave), and also those on strike, but not those absent for an indefinite period. It also includes part-time workers who are regarded as such under the laws of the country concerned and who are on the payroll, as well as seasonal workers, apprentices and home workers on the payroll.

Note that Member States may use an index of (paid) employees to approximate the index of the number of persons employed.

Wages and salaries are defined as the total remuneration, in cash or in kind, payable to all persons counted on the payroll (including homeworkers), in return for work done during the accounting period, regardless of whether it is paid on the basis of working time, output or piecework and whether it is paid regularly. Wages and salaries include the value of any social contributions, income taxes, etc. payable by the employee even if they are actually withheld by the employer and paid directly to social insurance schemes, tax authorities, etc. on behalf of the employee. Wages and salaries do not include social contributions payable by the employer.

The production index is a business cycle indicator showing the output and activity of industry. The index provides a measure of the volume trend in value added at factor cost over a given reference period.

The objective of **the turnover index** is to show the evolution of the market for goods and services. Turnover comprises the totals invoiced by the observation unit during the reference period. This corresponds to market sales of goods or services supplied to third parties. It includes all duties and taxes on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes directly linked to turnover.

The volume measure of the retail trade turnover index is more commonly referred to as the **index of the volume of (retail) sales** and is a short-term indicator for final domestic demand. It is a deflated version of the turnover index.

Seasonal adjustment

Seasonal adjustment is a statistical technique to remove the effects of seasonal influences within a series. Seasonal effects usually reflect the influence of the seasons themselves either directly or through production series related to them, or social conventions. Eurostat calculates the adjustment only if nationally adjusted data are not available.

Dissemination

Eurostat publishes detailed data and time series in the Industry, trade and services theme on the Eurostat Internet site.

Further information

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¹ Official Journal No L 162, of 5 June 1998.

² Official Journal No L 191, of 22 July 2005.

Further information:

Databases: [Website EUROSTAT/Home page/Industry, trade and services/Data](#)

Industry, trade and services



Industry, trade and services - horizontal view



Short-term Business Statistics - Monthly and Quarterly (Industry, Construction, Retail Trade and Other Services)

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