EVOLUTION OF THE INDUSTRIAL SECTOR IN TRANSITION ECONOMIES:  
A STATISTICAL OVERVIEW  

Note by the secretariat

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“After Fifteen Years of Market Reforms in Transition Economies:  
New Challenges and Perspectives for the Industrial Sector”,  
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Notes:  
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* The UNECE transition economies refer to the formerly centrally planned economies of Central and Eastern Europe and the Commonwealth of Independent States (CIS). Central and Eastern Europe refers to the economies of Albania, Bulgaria, Hungary, Estonia, Latvia, Lithuania, Poland, Romania and the Czech Republic, Slovakia, and the successor States of the former Socialist Federal Republic of Yugoslavia: Bosnia and Herzegovina, Croatia, Slovenia, the former Yugoslav Republic of Macedonia, and Yugoslavia and Montenegro. The CIS countries include Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Russian Federation, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

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Executive Summary

This note highlights the dynamics of the industrial sector in major groups of transition economies during the period of transition to a market economy and explores major structural changes within that sector from 1989 to 2003. The data are taken from the UNECE statistical database.

Over the period 1989 – 2003, the dynamics of industry in transition countries generally followed the overall economic trend. At the same time, in these economies taken as a group, industrial growth after the post-transition recession re-started later and was slower than growth of GDP. The recovery in industry has been particularly sluggish in the CIS and South Eastern Europe. By the end of 2003, only the five new members of the European Union had seen the volumes of industrial production outgrow the 1989 level. In the other country subgroups, namely the CIS and South Eastern Europe, the sectoral recession had not been overcome by that date.

The transitional recession and restructuring influenced industry more than other economic sectors. Over 1989 – 2003, industry in transition countries lost over a third of its employees, and these losses represented a lion’s share of overall job losses during transition. At the beginning of the current decade, throughout the region employment in industry did not exceed 65 per cent of the pre-transition level.

During the 1990s and the beginning of the 2000s, most transition economies saw the share of industry in national output decrease. With few exceptions, the industrial sector lost between 10 and 30 percentage points in its weight in the total value-added. In the CIS this loss was notably higher than in Central and Eastern Europe, as was the share of industry in total employment, although its fall was generally less pronounced than that of industrial output.

Simultaneously, the European transition economies witnessed an upsurge in the economic weight of services. The share of services in the majority of countries for which data are available has approached its counterpart in developed market economies (at the beginning of the 2000s in the 15 “older” Member States of the EU, the share of services in the total value-added (GDP at basic prices) exceeded 70 per cent).

Whereas in Central and Eastern Europe the share of mining remained stable or decreased, in the CIS it grew almost in all countries covered by the statistics. The upsurge in the weight of the mining sector was particularly steep in economies enjoying large mineral (especially petrochemical) deposits: Azerbaijan, Kazakhstan, and to a lesser extent, the Russian Federation. In early 2000, the share of mining in the output of the industrial sector was considerably higher in the former CIS countries than in those of Central and Eastern Europe.

There was no universal trend either in the dynamics of the share of manufacturing. In Central and Eastern Europe, the weight of this subsector increased in one group of economies (Estonia, Hungary, Lithuania, Slovakia) and decreased in the other (Croatia, Czech Republic, Latvia, Romania). In contrast, the share of manufacturing dropped in all countries of the CIS for which data are available. At the beginning of the 2000s, the weight of manufacturing in industry in the CIS was generally lower than in Central and Eastern Europe.

The industrial sector includes the following International Standard Industrial Classification (ISIC) Rev. 3 tabulation categories: C (Mining and quarrying), D (Manufacturing) and E (Electricity, Gas and Water Supply).
Within manufacturing, the share of chemicals either decreased or remained stable in several Eastern European and CIS economies (e.g. the Czech Republic, Hungary, the Russian Federation and Kazakhstan). In the other group of CIS countries and Romania, the weight of the chemical branch saw a moderate increase. At the end of the reporting period, the share of chemicals in the industrial sector in the majority of Central and Eastern European economies was higher than that of the CIS countries.

Since the data for the two country subgroups (Central and Eastern Europe, CIS) are not always comparable, it is difficult to identify a prevailing trend in the share of engineering in the region as a whole. At the same time, in the CIS countries a decrease in its weight was universal. At the end of the period under review, the share of machinery and equipment in industry of more advanced Central and Eastern European countries (19 – 24 per cent and higher) was matched by that share only in a few CIS countries (Belarus and Russian Federation), while in the other economies of that sub-region the weight of engineering was generally lower.

1. **INDUSTRY GROWTH RATES**

1. During 1987 – 2003, the dynamics of the industrial sector in 27 transition economies of the region generally followed that of GDP as a whole (see figure 1). On a year-to-year basis, industrial growth rates became negative in 1989, reaching a record low in 1992 (-17 per cent).

![Figure 1](image_url)

**Gross industrial output and GDP growth rates: 27 UNECE transition economies (annual percentage change)**

2. In industry, the fall in output was greater than that of GDP. As compared with the 1989 level, in 1995 – 1996 the index of gross industrial output fell by 47 per cent, while the respective decrease in GDP did not exceed 35 per cent (see figure 2).
3. After 1996, the growth rates of both GDP and industry again became positive, the recovery suffered a slump in 1998. For all transition countries, the post-recession growth rates were higher for GDP than for industry. In 2003, GDP attained almost 85 per cent of the 1989 level, while the respective percentage for industry made up less than 74.

4. If we compare the industrial growth rates and indices for 15 transition economies of Eastern Europe and 12 CIS member States (see figures 3 and 4), one notes that in Eastern Europe both the fall and the recovery of the industrial sector occurred earlier than in the CIS.

5. In Eastern Europe, the growth rates of gross industrial output became negative in 1989 and recovered in 1993. In the CIS region the transitional slump started in 1990-1991, with the growth rates recovering to positive values only after 1996. The fall in industrial output in the CIS not only happened later but also was also considerably steeper than in Eastern Europe.

6. Compared with the 1989 level, the fall in industrial output in the CIS reached 53 per cent in 1996 and stayed at this level until 1998; in 1993, it reached 46 per cent in Eastern Europe. In 2003, the recovery was far from being completed in both subgroups.

7. However, by 2003, in Eastern Europe gross industrial output had reached almost 82 per cent of the 1989 level, whereas in the CIS it had not exceeded 70 per cent.
Figure 3
Gross industrial output growth rates: 15 countries of Central and Eastern Europe and 12 countries of CIS (annual percentage change)

Figure 4
Gross industrial output indices: 15 countries of Central and Eastern Europe and 12 countries of CIS (1989=100)
8. Within the Central and Eastern European subregion, the dispersion of results is just as wide. For example, the five leading Central European countries (Czech Republic, Hungary, Poland, Slovakia and Slovenia) had already recovered from the transitional slump in industry in 2000, and in 2003 the level of output exceeded that of 1989 by 20 per cent. At the same time, in seven countries of South-East Europe (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Montenegro, and the former Yugoslav Republic of Macedonia) the index of industrial production fell by 60 per cent in 1993 and stagnated at this level until 2000, when an upturn began. In 2003, these countries still had not regained even half of the output level of 1989.

II. EMPLOYMENT IN INDUSTRY

9. During 1989 – 2003, overall employment in the 27 transition economies of the UNECE region declined by about 14 per cent, and in 2002 – 2003 stabilized at 86 - 87 per cent of the 1989 level. Over the same period, employment in industry fell much more steeply. By the end of 2003, the industrial sector had lost more than 40 per cent of its workforce and no signs of recovery were evident (figure 5).

10. Split by region, the data show that in Eastern Europe industrial employment followed the curve of the overall employment index. After a period of relative stabilization in 1995-1997, it continued to decline. In 2003, the number of employees in industry was less than 60 per cent of the 1989 level, as compared with 80 per cent in the economy as a whole.

11. Over the same period, in the CIS countries the fall in overall employment was smaller, cumulatively reaching 13 – 14 per cent from 1989 to 1999, and in early 2000 the number of employed tended to increase. At the same time, in the CIS the cumulative drop in industrial employment was similar to that of Eastern Europe – exceeding 40 per cent (figure 6). However, in the early 2000s, the total number of employees in industry in the CIS continued to decrease slowly.
12. In absolute terms, during the period 1989 – 2003, in the 27 transition countries the job losses in industry amounted to around 23.8 million. This figure is equivalent to about 86 per cent of the total job losses in the workforce in those countries.

Shifts in employment structure

13. In Eastern Europe over the same period, the fall in industrial employment (8.1 million) amounted to two thirds of total job losses. In the CIS region, the loss of employment in industry (15.7 million) was 2.5 times higher than the overall reduction in employment (6.3 million), implying employment gains in other sectors at the expense of industry, and important shifts in the output and employment structure.

Figure 6
Employment in industry: 15 countries of Central and Eastern Europe and 12 countries of CIS (Indices, 1989=100)

III. SHARE OF INDUSTRY

14. From the 1990s through the early 2000s, the weight of industry in the economy of Central and Eastern European countries (represented by its share in total value-added at current prices) tended to decline. The decline was steepest in Latvia, Lithuania and Slovakia, where the share of the industrial sector dropped by more than 20 percentage points. In the other countries of that subregion for which data are available, the weight of industry in total value-added decreased by around 7 – 10 percentage points. Towards the end of 2003, the share of the industrial sector in the economy amounted to between 25 and 30 per cent in Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia, the former Yugoslav Republic of Macedonia, and Lithuania. In Croatia, Estonia and Latvia that share was between 17 and 22 per cent.
Expansion of the service sector

15. It should be noted that during the same period the decreasing weight of the industrial sector was accompanied by an expansion of services. The service sector’s share in total value-added gained around 10 – 15 percentage points in Bulgaria, Croatia, Estonia, Poland, Romania, and Slovenia, while in Latvia, Lithuania and Slovakia this growth was much steeper, amounting to 25–30 percentage points over 12 years. As a result, by the end of 2003 the weight of services in the total value added was as high as 60 per cent in Bulgaria, Croatia, the Czech Republic, Lithuania and Slovenia, even exceeding 65 per cent in Estonia, Hungary, Latvia, Poland and Slovakia.

16. The CIS also experienced an upsurge in the weight of services. In Belarus, Georgia, Kazakhstan, the Republic of Moldova, the Russian Federation and Ukraine, the share of the service sector rose to at least 20 percentage points, while in Armenia, Kyrgyzstan and Tajikistan accounted for 7 or 8 percentage points. By the end of the period under review, the share of services had reached 55 – 60 per cent in Belarus, Georgia, Kazakhstan, the Republic of Moldova, the Russian Federation and Ukraine. In other CIS countries for which data are available, this share was between 33 and 40 per cent.

The share of industry

17. During the same period, in the CIS countries the share of industry in the economy evolved less consistently, in the majority of the countries declining by about 10 percentage points. At the same time, in Tajikistan the share of industry tended to remain stable, and in Kazakhstan it increased by 10 percentage points. In 2003, the weight of the industrial sector in the total value-added amounted to 40 per cent in Azerbaijan, about 30 per cent in Belarus, Kazakhstan, Russia and Ukraine, and about 20 per cent in Armenia, Georgia, Kyrgyzstan, the Republic of Moldova, and Uzbekistan.

Falling industrial employment

18. In terms of employment, the share of industry decreased by about 9 percentage points and in 2003 amounted to some 20 per cent of total employment in transition countries. In Central and Eastern Europe it dropped from 33 to 24 per cent of the total, and in the CIS it fell from 28 to 19 per cent. When we look at individual countries, the reduction in the percentage of industrial employment was smaller than average in Croatia, Estonia, Hungary and the former Yugoslav Republic of Macedonia in Eastern Europe, and in Belarus, Georgia and Uzbekistan in the CIS. In contrast, the largest drop in the share of industrial employment occurred in Bulgaria and Lithuania in Eastern Europe and in Armenia, Kyrgyzstan and Ukraine in the CIS.

IV. INTRA-INDUSTRY STRUCTURE

19. It is difficult to observe and interpret changes in the structure of sub-sectors and branches within industry because of large discrepancies in the coverage, measures of output and statistical nomenclatures used in different periods by different groups of countries. Therefore, the conclusions of this section must be interpreted with caution.

20. During the period from 1989 to 2003, in Eastern and Central Europe, one can observe no universal trend in the shares of mining and manufacturing in industrial output. The weight of mining decreased somewhat in the Czech Republic, Hungary, Poland, Romania and Slovakia (by 1 to 3

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2 The role of the service sector in transition economies was explored in more detail in the UNECE document ECE/TRADE/285 (“Services in Transition Economies. Round Table held on 13 June 2001 at the Palais des Nations, Geneva, Switzerland”).
percentage points), but remained stable in Bulgaria, Estonia, Latvia and Lithuania. Overall, at the
beginning of the current decade, in countries of Central and Eastern Europe the share of mining stood at 2
– 5 per cent of the industrial sector output.

21. The share of **manufacturing** dropped the most in Latvia and Romania (by 11 – 13 percentage
points) and in Bulgaria (by 7 percentage points), and also decreased by a smaller percentage in the Czech
Republic and Croatia. While in Polish industry the weight of manufacturing remained largely unchanged,
in Lithuania, Estonia, and Hungary it grew by 3 – 5 percentage points, and by 13 percentage points in
Slovakia. Towards the end of 2003, in the countries of Central and Eastern Europe the share of
manufacturing in the output of the industrial sector stood at 80 – 90 per cent of the total.

22. Within manufacturing, the shares of chemicals\(^3\) and engineering\(^4\), which can be taken as a proxy
for higher value-added and R&D-intensive industries, evolved differently in different countries.

23. From 1989 to 2003, in Central and Eastern Europe only Romania saw an increase in the share of
**chemicals** (by about 6 percentage points). In the majority of countries for which data are available the
share decreased: in Hungary it dropped by 7 percentage points, and in Slovakia, Latvia, the Czech
Republic, Croatia by 2 – 4 percentage points. In Poland, Estonia, Lithuania and Bulgaria the share of
chemicals remained virtually unchanged. Overall, in early 2000 the share of chemicals was the highest in
Bulgaria, Lithuania and Romania (18 – 24 per cent of industrial output), while for the other Central and
Eastern European countries it made up between 8 and 15 per cent of the total.

24. In the same subregion, the share of **engineering** evolved more erratically. It dropped in Latvia
and Romania (by 9 – 11 percentage points), and Lithuania and Croatia (by 2 – 3 percentage points). At
the same time, it remained at the initial level in Bulgaria and Poland, and increased in Estonia (by 3
percentage points), the Czech Republic and Slovakia (by 9 – 10 percentage points), and Hungary (by 30
percentage points). At the end of 2003, Hungary had the highest share of engineering in industrial output
(44 per cent), while in the Czech Republic, Poland, Slovakia and Slovenia this indicator varied between
19 and 24 per cent. In the other countries of the subregion, the weight of engineering was lower –
between 9 and 12 per cent.

25. Examination of the industrial structure in the CIS countries is complicated by the transition of the
statistical accounting from the Soviet to the internationally agreed classification of industries. This
reduces the length of the time series available for these countries.

26. Looking at the data with the required caution, therefore, one notes that during the period under
review in the CIS subregion the share of **mining** and **extraction of fuels**, in particular, seems to have
been growing. The upsurge in the weight of the mining sector was particularly strong in Azerbaijan and
Kazakhstan, where it grew by 40 and an estimated 35 percentage points, respectively. In the Russian
Federation and Belarus, in which only the extraction of fuels could be taken into account, the growth
amounted to about 11 - 12 percentage points. In the other former Soviet republics, for which data are
available (Kyrgyzstan, Republic of Moldova and Ukraine), the growth in the mining sector was smaller,
amounting to an estimated 1 – 4 percentage points). At the beginning of the 2000s, the share of mining
was as high as 47 – 48 per cent in Azerbaijan and Kazakhstan, 23 per cent in Kyrgyzstan, 20 per cent in
the Russian Federation (extraction of fuels only), 16 per cent in Belarus (extraction of fuels only), 12 per
cent in Ukraine and 1 – 5 per cent in Armenia, Georgia and the Republic of Moldova.

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\(^3\) Chemical industry includes the ISIC Rev. 3 divisions 23 (manufacture of coke, refined petroleum products and nuclear fuels),
24 (manufacture of chemicals and chemical products) and 25 (manufacture of rubber and plastic products).

\(^4\) Engineering includes the ISIC Rev. 3 divisions 29 (manufacture of machinery and equipment n.e.c.), 30 (manufacture of
office, accounting and computing machinery), 31 (manufacture of electrical machinery and apparatus n.e.c.), 32 (manufacture of
radio, television and communication equipment and apparatus), 33 (manufacture of medical, precision and optical instruments,
watchs and clocks), 34 (manufacture of motor vehicles, trailers and semi-trailers) and 35 (manufacture of other transport
equipment).
27. In contrast to the evolution of mining, the share of manufacturing dropped to varying extents in all the CIS countries for which the data are available. At the beginning of the new century, its share in industrial output was as high as 43 – 45 per cent in Azerbaijan and Kazakhstan, 62 – 67 per cent in Armenia, Georgia and Kyrgyzstan, 74 per cent in Ukraine and 83 per cent in the Republic of Moldova.

28. During 1989 – 2003, throughout the CIS the share of chemicals remained relatively stable. It grew moderately (by 1 – 3 percentage points) in Azerbaijan, the Republic of Moldova, Kyrgyzstan, Belarus and Ukraine (estimate) and decreased by an estimated 1 – 5 percentage points in Armenia, Georgia, the Russian Federation and Kazakhstan. By 2003, the chemical sector made up about 16 per cent of industrial production in Azerbaijan, 12 per cent in Belarus and Ukraine, 5 - 6 per cent in Georgia, Kazakhstan and the Russian Federation, and 2 - 3 per cent in Armenia and Kyrgyzstan.

29. Over the same period, the share of engineering in the CIS countries fell. With due regard to inconsistent nomenclatures, one estimates that the weight of machinery and equipment manufacture in total industrial output dropped by 9 – 12 percentage points in Belarus, Kazakhstan, the Republic of Moldova, and the Russian Federation. In Ukraine this decrease was probably even steeper. In the early 2000s, the share of the engineering sub-sector in industry stood at 20 – 22 per cent in Belarus and the Russian Federation, 10 - 13 per cent in Georgia and Ukraine and at about 2 – 4 per cent in Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan and the Republic of Moldova.
TABLE 1

(Indices, 1989=100)

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Source: UNECE Common Database, derived from national and Interstate Statistical Committee of the CIS statistics.

Note: For the countries of the former Soviet Union, Soviet data for 1980-1990 were chain-linked to national or CIS data from 1990. Country indices were aggregated with previous year PPP-based value added weights on the basis of data obtained from the European Comparison Programme for 1996.
### TABLE 2

(Integers, 1989=100)

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**Memorandum items:**

- **Baltic states**  
- **Central Europe**  
- **South-east Europe**  
- **CIS without Russian Federation**  
- **Caucasian CIS countries**  
- **Central Asian CIS countries**  
- **Three European CIS countries**  

**Source:** UNECE Common Database, derived from national and Interstate Statistical Committee of the CIS statistics.

* a Up to 1993, excluding Albania; up to 1990, excluding Bosnia and Herzegovina.
* b End of year, up to 1995; since 1996, annual average, labour force survey data.
* c Excluding Transdniestria since 1993.

** *** **