

While Romania and Bulgaria have specialized in traditional sectors, Central Europe has increased its specialization in highly human capital-intensive sectors, thanks mainly to road and rail transport, rubber and plastic products and household appliances. The formerly Communist countries have become an integral part of the European manufacturing system and play a crucial role in the production process. As regards technology-intensive sectors, on the other hand...

How formerly Communist countries are specializing

ENLARGEMENT 3

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The integration of the Central and Eastern European countries (CEEC) into the European Union (the EU) has been speeded up by outsourcing and offshoring operations by companies that use their own or third-party-owned plants located in these countries, supplying them with intermediates and re-exporting finished goods or intermediates at an advanced production stage. Viewed in this light, the integration of these countries could lead to a possible complementarity of the industrial structures of the two groups of countries. We shall try to substantiate this theory in this article with the help of United Nations Statistics Division (UNSD) figures.

Several analyses have noted that, since the beginning of the transition, the endowment of the CEEC has differed from that of other, less advanced countries, with greater availability of human capital. Until the second half of the 1990s, this difference was not reflected in the CEEC specialization model. Between 1996 and 2003 (*Table 1*), on the other hand, Central Europe's specialization in labour-intensive sectors requiring unqualified personnel decreased, while Bulgaria and Romania's specialization in traditional sectors increased. At the same time, Central Europe's specialization in human capital-intensive sectors increased, mainly as a result of road and rail transport, rubber and plastic products and

	Bulgaria		Czech R.		Poland		Romania		Slovakia		Hungary	
	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003
Non-qualified labour intensive sectors	1.3	2.5	1.5	1.2	2.2	2.0	2.7	3.3	1.4	1.2	1.4	0.8
of which textiles and clothing	1.4	4.1	1.1	0.9	1.8	1.0	3.2	4.5	1.2	1.0	2.0	0.9
of which footwear	2.4	4.3	1.7	0.4	1.4	0.7	6.6	11.4	2.0	2.6	0.0	0.0
Human capital-intensive sectors	1.0	0.9	1.3	1.5	1.1	1.4	0.9	0.8	1.5	2.1	0.9	1.3
of which rubber and plastic products	0.6	0.6	1.3	1.7	1.1	2.2	0.5	1.0	3.0	2.2	1.2	1.0
of which household appliances	0.2	1.2	0.7	0.7	0.7	2.1	0.4	1.4	2.3	1.9	0.5	1.2
of which road and rail transport	0.1	0.1	1.1	1.6	0.6	1.0	0.3	0.3	1.1	2.8	0.5	0.5
Technology-intensive sectors	0.7	0.4	0.8	0.9	0.5	0.6	0.5	0.4	0.7	0.5	0.8	1.2
of which non-electric machines	0.6	0.6	1.3	1.4	0.6	0.6	0.6	0.6	0.9	0.8	0.6	0.6
of which office, electronic and TLC machines	0.1	0.1	0.2	0.8	0.1	0.2	0.0	0.2	0.1	0.2	0.5	1.0
of which electric machines	0.6	0.8	1.4	2.0	0.9	1.3	0.5	1.4	0.7	1.2	1.7	2.6

Source: authors' processing of UN COMTRADE data

household appliances. As regards technology-intensive sectors, all the countries except for Bulgaria have specialized in electrical machinery. The Central European countries have reduced their despecialization within the segment, except for Hungary, which shows a comparative advantage.

On the whole, the specialization models of Eastern European countries are becoming increasingly similar while differing increasingly from those of Central Europe, which in turn are more similar to each other than they were in the mid-1990s (Table 2). As regards the relationship with the EU, Poland, the Czech Republic and Slovakia have increased their similarity to Germany while Bulgaria and Romania have become more similar to Italy. The exceptions are Hungary, whose specialization model is increasingly dissimilar to that of the EU countries analysed here, and France, which appears to be largely dissimilar to the CEEC. In 2003

the Eastern European countries were particularly similar to Spain and Italy, while the Central European countries tended to resemble Germany, which has shifted much of its production capacity to these countries.

While the similarity could imply competitive pressures for EU manufacturers, this is not necessarily the case. The existence of inter-industrial trade (IIT) – i.e. the simultaneous import and export of products in the same sectors – could indicate a complementary specialization. This could depend on the fact that countries focus on different segments of the market for finished goods in any given sector. Alternatively, it could be linked to the fact that two countries form part of the same value chain with flows of finished and intermediate goods within the production process. The latter possibility is the one we wish to investigate.

In the 1995-2000 period, IIT between the EU and the Central European countries

2. RANK CORRELATION INDEXES AMONG SPECIALIZATION MODELS, 1996 AND 2003
(100= MAXIMUM SIMILARITY; -100 MAXIMUM DISSIMILARITY)

	Bulgaria		Czech R.		Poland		Romania		Slovakia		Hungary	
	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003
Italy	12	26	39	33	22	25	27	32	31	32	13	4
Germany	-4	-8	22	34	-5	19	-6	-9	18	22	5	3
France	5	-9	15	17	10	13	2	-4	16	11	2	3
Spain	31	28	35	33	36	47	24	29	36	36	-2	-5

Source: authors' processing of UN COMTRADE data

3. GRUBEL-LLOYD (GL) OVERLAP INDEX
(HIGHER FIGURES INDICATE MORE INTER-INDUSTRIAL TRADE)

	Bulgaria		Czech R.		Poland		Romania		Slovakia		Hungary	
	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003
Handmade goods	40.4	49.2	73.2	74.9	47.8	64.9	33.4	40.5	58.1	59.1	48.2	38.5
Non-qualified labour Intensive sectors	40.2	45.3	72.2	70.4	32.5	56.9	22.5	25.5	51.0	58.5	38.5	46.6
of which textiles and clothing	37.8	41.1	79.6	76.8	29.8	53.3	13.8	15.4	44.1	53.0	30.1	44.2
of which footwear	61.3	54.3	81.4	74.6	82.1	92.1	38.9	39.4	59.9	57.5	2.4	8.3
Human capital-intensive sectors	32.8	41.8	75.3	71.1	58.1	71.0	45.3	57.8	60.5	55.5	44.3	27.9
of which rubber and plastic products	60.2	59.7	77.4	75.4	66.0	75.2	70.9	52.4	61.5	76.7	72.4	82.3
of which household appliances	36.8	65.7	39.8	66.4	45.9	87.2	36.1	73.4	80.2	68.2	50.1	96.0
of which road and rail transport	45.1	61.7	88.8	66.8	81.1	79.2	63.0	74.1	59.3	53.6	50.6	28.2
Technology-intensive sectors	47.3	65.3	72.1	80.2	59.5	65.9	43.2	59.1	60.1	67.7	57.9	43.4
of which non-electric machines	48.0	66.7	76.2	81.8	54.2	63.3	49.0	56.1	58.1	68.2	67.0	60.9
of which office, electronic and TLC machines	56.7	36.9	49.2	82.3	47.4	50.7	4.9	64.5	54.3	72.3	42.1	38.0
of which electric machines	72.6	85.3	84.3	84.5	70.8	76.8	69.1	68.4	56.7	69.7	57.2	64.0

Source: authors' processing of UN COMTRADE data



Grazia Neri/AFP

With their entry into the EU, the formerly Communist countries have become an integral part of the European production system. The figures show that their foreign trade is evolving towards specialization in basic production processes

increased (more so in the Czech Republic and less so in Poland), remaining stable at low volumes with Bulgaria and Romania. More recently (*Table 3*), these differences have been reduced. Overlapping, measured by the Grubel Lloyd index, has increased substantially in the case of Bulgaria, Poland and Romania and less so for the Czech Republic and Slovakia (for which, in the mid-1990s, it was already high); Hungary, on the other hand, has become the country with the lowest co-existence of imports and exports. This could be due to the fact that, as a result of increased costs, Hungary is losing importance as an industrial base in many sectors. The index is especially high in technological sectors and others with major economies of scale, such as household appliances and means of transport. This is a significant point, as the CEEC would not plausibly have developed

independent production excellence in these sectors. Hence, overlapping could lead to the phenomenon of production disintegration, signalling a process in which the CEEC would specialize in certain production phases, using imported intermediates and re-exporting finished or partially-finished goods. This would take place either by means of subcontractors who sell to Western companies or via branches of European multinationals. Consistently with this indication, a significant share of CEEC trade is carried out by foreign companies: at the end of the 1990s the figure was 52% for Poland, 47% for the Czech Republic and 86% for Hungary, according to UNCTAD. This "vertical specialization" is found when a country has comparative advantages in only some production phases of a sector. On the contrary, horizontal specialization occurs when the country has comparative advantages in all the production phases of a sector.

Separating trade from the economic destination of goods supports this interpretation. Between 1996 and 2003 intermediate goods were a strong point of

4. COMPARATIVE ADVANTAGES BY PRODUCTION PHASE, 1996 AND 2003
(FIGURES HIGHER THAN 1 INDICATE THE PRESENCE OF COMPARATIVE ADVANTAGES AND INTERNATIONAL SPECIALIZATION)

	Primary goods		Intermediate goods		Capital goods		Consumer goods	
	1996	2003	1996	2003	1996	2003	1996	2003
Bulgaria	0.55	0.76	6.17	5.31	0.83	0.78	1.96	3.34
Czech Republic	0.57	0.31	5.73	5.91	1.67	2.73	1.52	1.25
Hungary	0.74	0.35	5.72	5.46	0.81	2.88	2.24	1.51
Poland	0.83	0.49	4.78	5.65	1.37	1.67	2.51	2.37
Romania	0.60	0.51	4.80	4.64	0.72	0.85	3.35	4.19
Slovakia	0.34	0.22	5.96	5.47	1.46	2.91	1.67	1.59

Source: authors' processing of UN COMTRADE data

5. COMPARATIVE ADVANTAGES SEEN IN THE EXPORTS OF CERTAIN SECTORS, 1996 AND 2003
(FIGURES HIGHER THAN 1 INDICATE THE PRESENCE OF COMPARATIVE ADVANTAGES AND INTERNATIONAL SPECIALIZATION)

	Textile-Clothing		Footwear		Machineries		Household appliances		Motor vehicles	
	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003
INTERMEDIATE GOODS										
Bulgaria	1.10	1.24	8.32	16.67	0.76	0.96	0.29	0.59	0.09	0.09
Czech Republic	1.37	1.29	3.74	1.25	1.86	1.87	1.72	1.07	1.37	2.73
Hungary	0.54	0.53	8.90	2.33	0.96	0.97	1.65	2.50	1.05	1.61
Poland	0.51	0.58	3.48	1.48	0.83	0.95	0.50	1.61	0.40	1.62
Romania	0.56	0.79	25.32	33.75	1.12	1.10	0.06	5.40	0.41	0.86
Slovakia	1.33	0.90	2.27	5.01	1.36	1.38	1.39	0.60	1.74	3.40
FINAL GOODS										
Bulgaria	1.00	3.72	1.51	2.36	0.33	0.19	0.15	1.09	0.06	0.03
Czech Republic	0.57	0.40	1.24	0.25	0.57	0.66	0.43	0.51	0.66	0.81
Hungary	1.50	0.65	1.68	0.83	0.31	0.29	2.02	1.79	0.20	0.41
Poland	1.68	0.87	0.97	0.56	0.27	0.26	0.64	1.89	0.50	0.56
Romania	3.12	4.34	3.76	7.58	0.17	0.13	0.36	0.65	0.12	0.05
Slovakia	0.62	0.65	1.75	2.04	0.34	0.24	2.08	1.80	0.54	1.89

Source: authors' processing of UN COMTRADE data

CEEC exports (Table 4). Subsequently, there has been a strengthening of Central Europe's comparative advantages as regards capital goods and a reduction as regards consumer goods. Bulgaria and Romania, on the other hand, have a factorial endowment that gives them an advantage in labour-intensive production and the assembly phase for consumer goods rather than in the production of capital goods, which require more qualified personnel. There are interesting specificities at the sectorial level, especially as regards traditional sectors such as textiles, clothing and footwear and others such as machinery, household appliances and motor vehicles, which are equally important for Italy (Table 5).

As regards Central Europe there is a

despecialization in finished goods in traditional sectors, with the exception of Slovakia in footwear. However, there continue to be comparative advantages in intermediate footwear goods and – in the Czech Republic – in textiles and clothing, in line with vertical specialization. In fact, in many cases, the comparative advantage in imports of intermediate goods adds to those in exports of intermediate goods (Table 6). In Eastern Europe, on the other hand, horizontal specialization prevails. Bulgaria and Romania continue to have comparative advantages in finished goods, especially as regards footwear – and, to a lesser extent, textiles and clothing – supplemented by advantages in the export of intermediate goods, with the exception of Romania in the clothing and textiles

6. COMPARATIVE ADVANTAGES SEEN IN IMPORTS OF INTERMEDIATE GOODS, 1996 AND 2003
(FIGURES HIGHER THAN 1 INDICATE THE PRESENCE OF COMPARATIVE ADVANTAGES AND INTERNATIONAL SPECIALIZATION)

	Textile-Clothing		Footwear		Machineries		Road transport		Household appliances	
	1996	2003	1996	2003	1996	2003	1996	2003	1996	2003
Bulgaria	238	5.09	8.28	5.56	0.95	0.96	0.24	0.28	0.46	0.73
Czech Republic	1.35	1.63	2.41	0.59	1.69	1.68	0.98	1.76	2.27	1.68
Hungary	2.30	1.46	5.13	2.7	0.91	1.43	0.51	4.19	1.53	2.12
Poland	2.51	2.41	1.24	0.78	0.96	1.26	1.49	1.08	1.56	2.21
Romania	3.82	6.89	9.02	15.96	1.21	0.98	0.53	0.48	1.35	1.57
Slovakia	0.8	2.05	1.21	5.32	1.59	1.51	0.67	3.6	0.78	1.56

Source: authors' processing of UN COMTRADE data

sector. Nevertheless, comparative advantages in the import of intermediate goods correspond to this specialization. In other words, the horizontal specialization of Bulgaria and Romania also leads to process disintegration. In these sectors, complementarity with Western Europe by means of production disintegration is shifting from Central to Eastern Europe. Vertical specialization is stronger in other sectors. If we exclude household appliances, where some processes require less technological input and qualified manpower and more assembly, the CEEC offer comparative advantages in the export and import of intermediate goods. In the machinery sector, only the Czech Republic, Romania and Slovakia have comparative advantages in the export of intermediate goods. Except for Romania, these countries are also import specialists. In the motor vehicles sector, Slovakia is the only country that is considered to be specialized in the production of finished goods. As regards the export of intermediate goods, on the other hand, Central Europe was already specialized in 1996 and has strengthened its specialization with its insertion into the international production networks. Each of these countries, in fact, has an analogous comparative advantage in the import of intermediate goods. The situation is diversified as regards household appliances. There is horizontal specialization in Hungary and Poland, linked substantially and increasingly to the import of intermediates. As regards the Czech Republic and Romania, on the other hand, there is a comparative advantage – diminishing in the former case and increasing in the latter – only in

intermediates. Slovakia, which used to have a horizontal specialization, now has a vertical one, with comparative advantages in finished goods and the import of intermediates. Finally, Bulgaria is an anomaly, with a comparative advantage in finished goods and no comparative advantage in the import of intermediaries. To sum up, the figures reveal an evolution of foreign trade in the CEEC towards specialization in the basic production phases in certain sectors. The competitiveness of Central Europe in the fashion and personal care system is weakening substantially and shifting towards Eastern Europe. It is being substituted by increased comparative advantages in more advanced sectors, prevalently as regards intermediates, with analogous import specializations. In other words, the CEEC have become an integral part of the European manufacturing system; in many cases they are crucial centres of certain production processes and the supply system of many companies rather than actual competitors of EU companies.