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Which effects had the EU accession perspective and the related foreign direct investment (FDI) on the development of trade of future eastern members of the EU? We tried to analyse this question in detail, mainly based on the OECD foreign trade statistics. We wanted not only to see how the integration into existing co-operation networks showed in statistics and if there was a common pattern of structural change, but also if this would change the competitive situation, contribute to the development of export-linked clusters in the accession states and create spill-over effects on exports into non EU countries.

Other questions were related to the influence of diverging starting conditions: would earlier acceding countries develop significantly better than those acceding at a later stage? Would different economic situations modify the development of exports?

The use of the OECD data, which were chosen for their disaggregation into 4275 three to five digit product groups, limited our effort to a selection of six countries, three of them acceding in 2004 – the Czech Republic, Hungary and Poland –, three others at a later date – Bulgaria, Croatia and Romania. We did a more detailed analysis on the first three countries and then checked for similarities with the last three. Due to missing data we had to choose 1993 as a starting year for trade data. 2001 was the last available year from the OECD.

Initial assumptions

The obsolescence of large parts of the product portfolio and the related capital stock, combined with a need for capital and an aversion against the continuation of central planning made the promotion of FDI the policy of choice for the economic development of central and eastern European countries.

Mainstream literature and policy makers suppose that FDI leads to the necessary transfer of new technology[1], which in turn will lead to increases in produc-

[1] E.g. Borensztein (1995)

tivity[1], spill-over effects[2] on the local cluster and qualifications and growing exports[3]. Given the low domestic purchasing power, exports are an important part in the catching up process. Export growth, though, might be linked to prevailingly efficiency seeking investments[4], whereas the more market oriented investments may tend to have little effect on exports. Pure forms of efficiency or market searching strategies probably do not exist.

The parallel development of the transformation process in central and eastern Europe and the diffusion of networking technologies has led to the discussion of changing developmental pathways of FDI via

- ICT enabled internationalisation and network integration of SMEs[5],
- the fragmentation of the value chain leading to de-verticalisation, a reduction of hierarchical co-ordination and intra organisational competition[6],
- the increasing importance of distributed knowledge[7] and
- the growing necessity to combine critical knowledge with networking and co-ordination capabilities[8].

It was supposed by several authors that this might on the one hand modify networking relationships (from hierarchical to co-operative) and increase local spillover effects.

In a first step we analyse the countries' export development, export structures and their changes. In a second step we try to assess the influence of FDI and framework conditions on exports. In a last step we estimate the influence of export oriented FDI on the development and the competitive position of accession countries.

[1] E.g. Bellak (1998), Borensztein (1995)
[2] E.g. Blomstroem (1991)
[3] E.g. Graham (1999)
[4] Investments aiming at leveraging the production cost advantages of the country.
[5] Coviello, McAuley (1999), Teubal, Avnimelech (2001).
[6] Feenstra (1998), Arndt, Kierzkowski (2001), Hitt (1999), Birkinshaw, Hood (1998)
[7] Smith (2000)
[8] Granstrand (2000), Ritter, Gemünden (2003)

Is there a typical pattern in export development?

Already a first look on changes in the export structure of the one digit SITC groups shows similar trends in the selected countries, the Czech Republic, Hungary and Poland. As table 1 (see next page) shows, a similar pattern of structural can be found in all three countries: increasing shares in world exports in group seven (Machinery and transport equipment) and decreasing shares in all other groups. A comparison of EU and rest of the world (RoW) export structures shows that there was a comparatively minor structural change in exports to non EU countries, whereas the EU related change was quite strong. The absolute sum of all structural alterations for non EU countries lay between 17.8 and 23.3 percentage points, the total structural change for EU exports was 41 percentage points for Poland, 60 for the Czech Republic and 91 for Hungary.

The structural change in exports can be seen as a concentration process on group 7. It was combined with a strong regional concentration on the EU: 69% of Czech, 74% of Hungarian and Polish exports were shipped to EU countries in 2001. Especially strong increases could be found in the Czech and Hungarian exports whereas Polish export was already highly EU centred in 1993 (see table 2).

Table 2 Regional concentration of exports in selected accession countries

	Czech Rep.			Hungary			Poland		
	EU export share		Change	EU export share		Change	EU export share		Change
SITC Commodity groups	1993	2001	in % p.	1993	2001	in % p.	1993	2001	in % p.
0 Food and live animals	37,3	31,1	***-6,1***	57,7	46,8	***-10,9***	65,2	52,6	***-12,6***
1 Beverages and tobacco	29,4	46,8	**17,4**	16,9	41,9	**25,0**	7,8	25,5	**17,7**
2 Crude materials, inedible, except fuels	80,5	77,2	-3,2	61,4	76,0	14,6	69,9	77,1	7,2
3 Mineral fuels, lubricants and related mat.	46,3	57,8	11,5	64,1	60,5	-3,5	75,1	79,7	4,6
4 Animal and vegetable oils, fats and waxes	35,2	21,8	***-13,4***	16,4	9,5	***-6,9***	69,8	20,7	***-49,1***
5 Chemicals and related products, n.e.s.	47,0	45,8	***-1,2***	42,8	39,2	***-3,6***	50,4	45,5	***-4,9***
6 Manufactured goods	50,7	64,2	13,5	63,4	65,6	2,3	69,7	71,6	1,9
7 Machinery and transport equipment	40,8	75,6	**34,9**	48,9	83,9	**35,0**	63,9	80,4	**16,5**
8 Miscellaneous manufactured articles	56,6	75,3	18,7	78,4	74,3	-4,2	86,5	79,8	-6,7
9 Commodities and transactions, n.e.s.	18,6	75,8	57,2	71,2	86,6	15,4	85,4	80,3	-5,1
Total	48,2	68,9	20,7	57,4	74,3	16,8	69,9	73,6	3,7

Source: OECD, Paris

Table 1 **Change in export structures of selected countries**
1993 to2001

	Czech Republic				
	Export structure		Structural change in % points		
SITC Commodity groups	1993	2001	World	RoW	EU
0 Food and live animals	6,52	2,71	-3,80	-1,89	-3,81
1 Beverages and tobacco	1,22	0,69	-0,54	-0,49	-0,28
2 Crude materials, inedible, except fuels	5,85	3,04	-2,81	0,02	-6,36
3 Mineral fuels, lubricants and related materials	6,08	3,00	-3,08	-2,23	-3,32
4 Animal and vegetable oils, fats and waxes	0,25	0,11	-0,13	-0,02	-0,14
5 Chemicals and related products, n.e.s.	9,32	6,43	-2,89	1,67	-4,80
6 Manufactured goods	30,40	24,35	-6,05	-0,87	-9,28
7 Machinery and transport equipment	26,18	47,36	21,18	7,20	29,84
8 Miscellaneous manufactured articles	12,42	12,20	-0,22	-0,71	-1,26
9 Commodities and transactions, n.e.s.	1,76	0,10	-1,66	-2,69	-0,57
Total	100,00	100,00	42,37	17,79	59,67
	Hungary				
	Export structure		Structural change in % points		
	1993	2001	World	RoW	EU
0 Food and live animals	16,80	7,14	-9,66	-1,94	-12,37
1 Beverages and tobacco	2,30	0,36	-1,93	-3,66	-0,47
2 Crude materials, inedible, except fuels	5,70	1,80	-3,91	-3,50	-4,26
3 Mineral fuels, lubricants and related materials	4,06	1,94	-2,12	-0,46	-2,95
4 Animal and vegetable oils, fats and waxes	0,99	0,17	-0,83	-1,36	-0,26
5 Chemicals and related products, n.e.s.	12,15	6,59	-5,56	-0,76	-5,57
6 Manufactured goods	16,20	10,59	-5,60	0,21	-8,51
7 Machinery and transport equipment	24,18	57,56	33,38	7,05	44,42
8 Miscellaneous manufactured articles	17,55	12,83	-4,71	3,94	-11,12
9 Commodities and transactions, n.e.s.	0,07	1,01	0,94	0,48	1,09
Total	100,00	100,00	68,64	23,34	91,01
	Poland				
	Export structure		Structural change in % points		
	1993	2001	World	RoW	EU
0 Food and live animals	9,95	7,39	-2,56	1,74	-4,00
1 Beverages and tobacco	0,96	0,39	-0,58	-1,86	0,03
2 Crude materials, inedible, except fuels	5,57	2,53	-3,04	-3,38	-2,92
3 Mineral fuels, lubricants and related materials	9,74	5,67	-4,07	-3,71	-4,32
4 Animal and vegetable oils, fats and waxes	0,11	0,05	-0,07	0,03	-0,10
5 Chemicals and related products, n.e.s.	6,81	6,30	-0,50	1,78	-1,01
6 Manufactured goods	26,47	23,86	-2,61	-1,05	-3,15
7 Machinery and transport equipment	20,98	36,19	15,21	1,69	20,36
8 Miscellaneous manufactured articles	19,38	17,61	-1,77	4,76	-4,87
9 Commodities and transactions, n.e.s.	0,02	0,01	-0,01	0,00	-0,02
Total	100,00	100,00	30,42	20,00	40,78

The EU export share did not increase in all commodity groups: food and live animals (0) and animal and vegetable oils (4) as well as chemicals (5) show diminished shares, in part due to market oriented direct investment as case studies indicate[1].

The strongest export growth was due to investments in products classified in group 7. These investments were concentrated in the car industry, electronics and electrical equipment which in turn led to a concentration of exports on a few product groups of the roughly 890 in group 7: 36 in the Czech Republic (table 3), 30 in Hungary (table 4) and 21 in Poland (table 5).

A closer inspection of *car industry* related exports shows that they were concentrated – apart from car assemblies – on motors, wiring, accumulators, pumps, radios air conditioning, lighting and signalling equipment, bodies, brakes, gear boxes and other parts (see tables three to five under 713,726, 741, 742,773, 778 and 78).

The *electronics* segment mostly included computers and parts (75), chips (776), TV and recording media (761 to 3), telecom equipment (7641 to 3) and parts (7649). *Electrical equipment* with strong export growth comprised motors (716), relays (7725), boards and panels (7726), conductors (773) and batteries (77811).

All three segments show very high export shares of “parts” or component groups and comparatively few “final product” groups (not accounting for the imported supplies of assembled final products). This is due to the integration of local firms into multinational production networks[2]. It can make the local production in peripheral countries vulnerable to business downturns at the central but also to competitive pressures from other countries. We selected a few examples for these cases, e.g. capacitors or lorries in the Czech Republic, parts for recording apparatus in Hungary or passenger cars in Poland which all led to significant export share losses.

More or less similar patterns – with a few exceptions – can be detected in two of the three other selected countries: Bulgaria and Romania. The overall growth

[1] e.g. Szanyi (1998).
[2] e.g. Szalavetz (2003).

Table 3 Czech Republic	Av. yearly growth	Export Structure 1993	Export Structure 2001	Change in % points
Total trade	15,7			
7 Machinery and transport equipment	**27,2**	**22,13**	**51,97**	**29,84**
71 Power generating machinery and equipment	**27,0**	**1,17**	**2,71**	**1,54**
71391 Parts, for spark-ignit. internal combustion engines	55,8	0,04	0,56	0,52
7162 Motors (>37, 5w) & generators, direct current	54,9	0,02	0,22	0,20
71631 Ac motors (incl. universal (ac/dc) motors, >37, 5w)	23,2	0,40	0,71	0,31
72 Specialised machinery	**16,4**	**3,03**	**3,21**	**0,19**
724 Textile & leather machinery, & parts thereof, n.e.s.	24,7	0,46	0,90	0,45
72471 Laundry-type washing machines, linen capacity >10kg	114,0	0,00	0,05	0,05
72851 Parts for the machines of heading 72841	47,3	0,01	0,08	0,07
72855 Parts, n.e.s., for 72348, 72721 & 72844 through 72849	40,3	0,06	0,33	0,27
74 Other industrial machinery and parts	**27,7**	**2,63**	**6,41**	**3,78**
74143 Refrigerating or freezing display counters, etc.	58,2	0,01	0,17	0,16
74159 Parts for the air conditioning machines of 7415	63,5	0,03	0,65	0,62
74174 Heat exchange units	58,2	0,01	0,12	0,11
7422 Fuel, lubricating or cooling medium pumps	88,7	0,01	1,13	1,11
75 Office machines and automatic data processing	**43,9**	**0,53**	**3,81**	**3,27**
7522 Dig. autom. data proces. machines, cent. proc. uni	60,9	0,08	1,49	1,41
7523 Digital proces. units with: storage, input, output	69,7	0,01	0,39	0,38
7526 Input or output units, whether or not with storage	45,7	0,03	0,23	0,20
759 Parts, accessories for machines of groups 751, 752	51,7	0,11	1,29	1,18
7599 Parts, acces. of the machines of 7511, 7512, 7519, 752	52,9	0,10	1,26	1,16
75997 Parts, accessories of the machines of group 752	62,1	0,06	1,24	1,19
76 Telecommunication and sound recording apparatus	**64,1**	**0,19**	**4,44**	**4,25**
7611 Televis. receivers, colour, whether or not combined	102,2	0,01	2,17	2,16
76415 Telephonic or telegraphic switching apparatus	157,4	0,00	1,02	1,02
76432 Transmission apparatus with reception apparatus	154,1	0,00	0,43	0,43
76493 Parts & accessories of 761, 762, 7643, 7648	51,3	0,03	0,34	0,31
77 Electrical machinery, apparatus and appliances, n.e.s.	**27,4**	**5,04**	**12,01**	**6,97**
7712 Other electric power machinery; parts of group 771	23,3	0,26	0,47	0,21
77254 Relays, voltage < 1000 volts	48,2	0,04	0,33	0,29
77259 Other apparatus for electrical circuits<1000 volts	43,5	0,10	0,67	0,57
77261 Boards, panels for electric distribution<1000 volts	64,1	0,01	0,26	0,25
77282 Other parts for apparatus of 7724, 7725 & 7726	39,2	0,12	0,62	0,51
77313 Ignit. wiring sets & the like used in vehicl., etc.	30,4	0,36	1,05	0,70
77314 Other electric conductors, for a voltage <80 volts	56,1	0,05	0,78	0,73
77315 Other elect. conductors, 80 volts <voltage< 1000 v	38,6	0,09	0,44	0,35
77643 Non-digital monolithiques integrated circuits	70,0	0,01	0,45	0,44
77812 Electric accumulators	83,9	0,03	1,80	1,77
77834 Electrical lighting or signalling equipment, vehic.	73,4	0,03	0,97	0,94
77835 Parts of the equipment of heading 77834	82,3	0,01	0,32	0,32
78 Road vehicles	**27,0**	**7,40**	**17,22**	**9,82**
7812 Motor vehicles for the transport of persons,	25,5	4,50	9,39	4,89
78432 Other parts & accessories of bodies	67,2	0,10	2,66	2,56
78433 Brakes & servo0brakes & parts thereof	54,2	0,13	1,75	1,62
78439 Other parts & accessories of motor vehicles	42,7	0,36	2,38	2,02
77862 Tantalum fixed capacitors	9,8	0,54	0,34	-0,20
77869 Parts of electrical capacitors	-39,5	1,56	0,00	-1,55
78219 Motor vehicles for the transport of goods, n.e.s.	-12,4	0,64	0,05	-0,59

Table 4 Hungary	Av. yearly growth	Export structure 1993	Export structure 2001	Change in % points
Total trade	18,00			
7 Machinery and transport equipment	**34,08**	**20,59**	**65,01**	**44,42**
71 Power generating machinery and equipment	**54,20**	**1,17**	**13,01**	**11,84**
71322 Reciprocating piston engines, cylinder > 1000cm	254,81	0,00	9,52	9,52
71323 Compression0ignition engines or semi0diesel engin.	102,52	0,01	1,21	1,20
71391 Parts, for spark0ignit. internal combustion engines	109,55	0,01	0,90	0,90
74 Other industrial machinery and parts	**19,06**	**2,59**	**2,81**	**0,22**
74489 Other lifting, handling, loading, unloading machinery	53,42	0,02	0,23	0,21
75 Office machines and automatic data processing machines	**76,89**	**0,22**	**8,46**	**8,24**
7526 Input or output units, whether or not with storage	107,52	0,01	2,28	2,26
7527 Storage units, with the rest of a system or not	120, 20	0,01	1,58	1,58
75997 Parts, accessories of the machines of group 752	80,35	0,09	3,92	3,83
76 Telecommunication and sound recording apparatus	**39,06**	**3,45**	**15,13**	**11,68**
7611 Televis. receivers, colour, whether or not combined	73,13	0,06	2,00	1,94
76211 Radio, external source of power, vehicles, combined	163,92	0,00	0,55	0,55
76281 Other radio receivers, combined with sound reprodu.	49,16	0,04	0,36	0,32
763 Sound recorders or reproducers; television record.	67,00	0,12	2,79	2,67
76381 Video recording or reproducing apparatus	167,04	0,00	2,35	2,35
76419 Other telephonic or telegraphic apparatus	149,34	0,00	0,51	0,51
76432 Transmission apparatus with reception apparatus	179,62	0,00	5,30	5,30
76491 Parts & accessories for apparatus of heading 7641	45,24	0,08	0,55	0,47
76493 Parts & accessories of 761, 762, 7643, 7648	37,56	0,45	1,81	1,35
77 Electrical machinery, apparatus and appliances, n.e.s.	**25,07**	**7,73**	**13,06**	**5,32**
77232 Other fixed resistors	94,35	0,00	0,25	0,25
77252 Automatic circuit breakers, voltage < 1000 volts	60,68	0,02	0,27	0,26
77258 Plugs & sockets, voltage < 1000 volts	48,35	0,03	0,24	0,21
77261 Boards, panels for electric distribution<1000 volts	54,49	0,06	0,68	0,62
77313 Ignit. wiring sets & the like used in vehicl., etc.	23,22	0,93	1,37	0,44
77314 Other electric conductors, for a voltage <80 volts	44,06	0,24	1,43	1,19
7762 Other electronic valves and tubes	84,00	0,01	0,28	0,28
7763 Diodes, transistors & similar semi0conductor devic.	41,46	0,06	0,32	0,26
7764 Electronic integrated circuits & microassemblies	72,09	0,02	0,49	0,48
77645 Hybrid integrated circuits	85,10	0,00	0,17	0,17
7781 Batteries & electric accumulators, & parts thereof	62,15	0,02	0,26	0,25
77812 Electric accumulators	64,12	0,01	0,26	0,25
77865 Ceramic dielectric fixed capacitors, multilayer	n.a.	0,00	0,84	0,84
78 Road vehicles	**38,45**	**2,41**	**10,14**	**7,73**
7812 Motor vehicles for the transport of persons,	76,54	0,16	6,19	6,02
78432 Other parts & accessories of bodies	36,99	0,18	0,69	0,51
78434 Gear boxes	77,79	0,01	0,46	0,45
78439 Other parts & accessories of motor vehicles	40,75	0,33	1,62	1,29
76499 Parts & accessories for apparatus of group 763	0,11	2,56	0,58	-1,97

Table 5 Poland	Av. yearly growth	Export Structure 1993	2001	Change in % points
Total trade	11,63			
7 Machinery and transport equipment	**20,97**	**19,18**	**39,55**	**20,36**
71 Power generating machinery and equipment	**41,58**	**0,79**	**6,72**	**5,93**
71323 Compression-ignition engines or semi-diesel engin.	173,41	0,00	5,18	5,18
71392 Parts, for compres.-ignit. combust. pistons engines	47,01	0,03	0,36	0,33
7149 Parts of the engines & motors of 71441 & 7148	46,60	0,01	0,11	0,10
75 Office machines and automatic data processing	**25,67**	**0,08**	**0,24**	**0,16**
7523 Digital proces. units with: storage, input, output	66,21	0,00	0,03	0,02
7527 Storage units, with the rest of a system or not	41,72	0,01	0,06	0,05
76 Telecommunication and sound recording apparatus	**54,37**	**0,24**	**4,35**	**4,11**
7611 Televis. receivers, colour, whether or not combined	169,90	0,00	3,41	3,41
7649 Parts & accessories for apparatus of division 76	30,35	0,12	0,47	0,35
77 Electrical machinery, apparatus and appliances, n.e.s.	**18,95**	**4,23**	**7,49**	**3,26**
77123 Ballasts for discharge lamps or tubes	110,14	0,00	0,28	0,28
77129 Parts of the electric power machinery of group 771	44,67	0,01	0,15	0,13
77313 Ignit. wiring sets & the like used in vehicl., etc.	42,92	0,17	1,61	1,43
77811 Primary cells & primary batteries	81,03	0,00	0,15	0,15
77812 Electric accumulators	62,31	0,01	0,19	0,18
78 Road vehicles	**18,03**	**6,46**	**10,68**	**4,21**
78219 Motor vehicles for the transport of goods, n.e.s.	66,58	0,03	1,25	1,22
78311 Public-transport vehicles (diesel or semi-diesel)	115,93	0,00	0,19	0,19
78432 Other parts & accessories of bodies	54,37	0,07	1,22	1,15
78434 Gear boxes	73,25	0,01	0,28	0,27
78439 Other parts & accessories of motor vehicles	56,05	0,08	1,60	1,52
79 Other transport equipment	**13,67**	**4,66**	**5,49**	**0,83**
7918 Railway or tramway freight & maintenance cars	71,67	0,01	0,52	0,51
7923 Aircraft, with motor, 2000 kg < weight < 15000 kg	93,60	0,00	0,36	0,35
79328 Cruise ships, excursion boats & similar vessels	125,14	0,00	0,65	0,65
79329 Other vessels (warships, lifeboats)	47,07	0,11	1,32	1,21
7812 Motor vehicles for the transport of persons,	10,63	5,22	4,82	-0,41

rate of EU oriented exports in Bulgaria and Romania is comparable to the level of the countries acceding in 2004. In general exports in nearly all groups from 0 to 6 and 8 have grown less than average (total trade), whereas group 7 showed growth rates significantly above average [1]. Also the regional concentration of exports on the EU is clearly visible for Bulgaria and Romania.

[1] The exceptions are: in group 2 Romania, in group 6 Bulgaria and Romania, in 7 and 8 Bulgaria (see table 6).

A more detailed overview in the appendix, including all SITC one and two digit groups, indicates similar product group specialisation in Romanian development. Bulgarian export growth shows a stronger development in subgroups of SITC 6 and 8 in the detailed table. Croatia, though partly showing similar overall development patterns, seems to be a case apart – the war in the region probably is an explanation for this. The share of exports to the EU has decreased slightly, concentration trends, though, on product groups from the segments electronics and cars, but also on machinery are discernible.

Notwithstanding similar developmental patterns distinct differences regarding the intensity of structural change and the overall growth rates of exports remain.

Table 6 Average yearly growth of exports to the EU by commodity groups in selected Eastern European countries

1993 to 2001 (in per cent of 1993)

	Czech Rep.	Hungary	Poland	Bulgaria	Croatia	Romania
Total trade (0-9)	***15,7***	***18***	***11,63***	***11,22***	***0,21***	***16,72***
0 Food and live animals	**-1,2**	1,88	4,84	**-0,06**	**-3,76**	9,20
1 Beverages and tobacco	9,8	3,4	14,45	**-5,30**	**-12,29**	2,97
2 Crude materials, inedible, except fuels	2,9	3,29	2,8	6,36	4,78	16,06
3 Mineral fuels, lubricants and related materials	5,3	4,97	5,2	10,18	**-14,42**	11,72
4 Animal and vegetable oils, fats and waxes	**-3,4**	**-11,33**	**-11,98**	**-12,54**	**-8,70**	**-3,52**
5 Chemicals and related products, n. e. s.	6,4	6,12	8,81	6,03	**-2,60**	9,39
6 Manufactured goods	11,3	9,82	10,06	14,74	1,97	16,73
7 Machinery and transport equipment	27,2	34,08	20,97	11,56	6,78	26,28
8 Miscellaneous manufactured articles	14,5	10,09	8,84	15,34	**-0,75**	15,72
9 Commodities and transactions, n .e .s.	**-6,0**	57,43	2,09	26,13	**-21,39**	34,99

Source: OECD Trade by commodities

The earlier accession date had no visible influence on export development, though there are striking differences in GDP growth between early and late accedents: The countries joining the EU in 2004 all grew more than 100 per cent between 1990 and 2001 whereas the three others – especially Bulgaria and Croatia – showed lower rates. Similar developments show up in import growth (see table 7). On the other hand no clear development trends in unemployment or trade balances are discernible.

Table 7 Development data for selected countries

	Czech Rep.	Hungary	Poland	Bulgaria	Croatia	Romania
GDP, EUR mn, nominal 1990	27359	25960	46328	45390	19493	27585
2001	63822	57853	204657	15190	21811	44848
Difference in per cent of 1990	***133,3***	***122,8***	***341,8***	***-66,5***	***11,9***	***62,6***
Unemployment rate, reg., %, end of period 1990	0,7	2,0	6,3	1,7	.	.
2001	8,9	7,9	17,5	17,3	23,1	8,8
Difference in per cent of 1990	***1119,2***	***295,0***	***177,8***	***918,8***	***n.a.***	***n.a.***
Imports, total, EUR mn 1990	7698	6771	7484	10315	4038	7229
2001	40675	37654	56223	8128	10232	17363
Difference in per cent of 1990	***428,4***	***456,1***	***651,2***	***-21,2***	***153,4***	***140,2***
Trade balance 1990	-599	730	3766	245	-875	-2692
2001	-3424	-3572	-15848	-2414	-5022	-4652

Source: wiiw2003

What could be reasons for similarities and differences in development?

According to case studies with foreign investment enterprises[1] several factors might have influenced the development

- The amount and motivation of FDI
- The size of the market
- Low wage levels and the availability of qualified labour
- An "open" policy towards privatisation and FDI

The foreign investors with the highest shares in DI were mostly multinational companies which wanted to increase their market share. As already cited above, case studies in the mid nineties indicate that investments in the food and pharmaceutical industries were mostly market (and import, not export) oriented. Investments in the car[2], electronics and electrical equipment industries were more efficiency (and export) oriented. These sectors are among those with the highest intra-firm trade shares. Sugimoto[3] shows figures for US multinationals where the intra-firm-trade share of affiliates in the cited sectors ranges from 78% for industrial equipment, 88% for motor vehicles to 90% for computers and office equipment. Similarities between investors and their motivations probably also

[1] E.g. Meyer (1996), Lankes, Venables (1996), Konings, Janssens (1996) relying on larger samples, but also Szanyi (1998) with an overview of Hungarian studies

[2] Except the pre 1990 FDI in Poland

[3] Sugimoto (2001)

explain the similar patterns of export development. Thus Foreign investment enterprises are integrated into multinational networks on strategic decisions.

An overview of *FDI* from 1990 to 2001 in the selected countries shows significantly higher investment in two of the early acceding countries (see table 8). The relatively low per head value for Poland is biased as significant FDI in the car industry was already made before 1990. Differences between export growth and FDI may already indicate a stronger cost orientation in Czech, Hungarian and Romanian investments.

Table 8 Foreign direct investment in m US$

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	cumulated FDI	cum. per head in US$
Czech Rep.			1003,5	653,5	868,5	2562,2	1428,4	1300,4	3717,9	6324,0	4986,3	5641,4	28486,1	2784
Hungary	311	1459	1471	2339	1146	4815	2364	2230	2084	2013	1697	2599	24528,0	2411
Poland		117	290	580	542	1132	2768	3077	5130	6474	8293	6995	35398,0	916
Bulgaria	4,0	55,9	41,5	40,0	105,4	90,4	109,0	504,8	537,3	818,8	1001,5	812,9	4121,6	520
Croatia				120,3	117,0	114,2	510,8	532,9	932,4	1467,2	1088,7	1561,3	6444,7	1452
Romania		40	77	94	341	419	263	1215	2031	1041	1037	1157	7715,0	344

Source: wiiw2003

The selected countries are quite different in *market size*: Poland was the country with the biggest population (38.6 m in 2001), which was nearly four times the population of the Czech Republic and Hungary (about 10 m each). The other selected, not yet acceding countries ranged between 22.4 m inhabitants for Romania and 4.4 m for Croatia (see table 9).

Regarding the wage levels in 1990 the early acceding countries (and Romania) had cost advantages against Bulgaria and Croatia (see table 9). The Czech Republic and Hungary, though, had significantly higher levels than Poland, so qualifications must have been another important criterion to explain their higher export growth.

We estimated *qualification levels* based on two indicators: the share of employment in agriculture as an estimator for flexibility of the work force[1] and the

[1] High values are thought to limit the flexibility in the restructuring of manufacturing

share in selected manufacturing industries which are today's main exporters (Machinery and equipment, Electrical and optical equipment and transport equipment). Unfortunately not all countries show data for 1990: we had to use 1995 data for comparisons of aggregated groups and could use 1990 data only for the selected industries. Croatian figures were only available after 1995.

Table 9 Population and wage data for selected countries

	Czech Rep.	Hungary	Poland	Bulgaria	Croatia	Romania
Population, 1000 persons, average 1990	10362,7	10373,2	38119,0	8718,3	4778,0	23206,7
2001	10224,2	10174,9	38641,0	7913,3	4437,0	22408,4
Difference in per cent of 1990	***-1,3***	***-1,9***	***1,4***	***-9,2***	***-7,1***	***-3,4***
Average gross monthly wage, USD 1990	183	213	108	481	423	151
2001	385	361	500	110	607	147
Difference in per cent of 1990	***110,2***	***69,9***	***360,9***	***-77,2***	***43,6***	***-2,2***

Source: wiiw2003

Regarding *employment in agriculture* we can distinguish two groups: those with employment in agriculture above 20% - Poland, Bulgaria, Romania – and those with values below ten – Czech Republic, Hungary and Croatia. Typically the countries with low employment shares in agriculture have higher shares of public service employment (including education and health and social services): their shares vary from 19.6% to 22.4%, whereas the other countries show 10.6% to 15.7% shares.

The employment in *selected industries* – approximately mirroring the export oriented products of SITC group 7 – showed high values above 30 % for the Czech Republic, Hungary and Bulgaria in 1990. If we combine the two indicators, only the first two countries would range among the best qualified. This may explain the relatively higher efficiency searching FDI in these countries.

An important additional role was certainly played by *governmental policy*. Hungary and the Czech Republic have been more open to privatisation and foreign ownership than other countries from our sample. Another important role played political stability especially for export oriented companies[1], combined with a lack of trade barriers.

Table 10 Employment structures in selected countries

[1] Éltetö, Sass (1997) cited after Szanyi (1998)

		Agriculture, forestry, fishing	Industry total	Selected industries (1) in % of industry total	Construction	Services
Czech Rep.	1995	6,6	32,7	33,2	9,2	51,5
	2000	5,1	30,2	34,3	9,3	55,3
Hungary	1995	8	26,7	32,9	5,9	59,4
	2000	6,5	26,8	32,3	7	59,7
Poland	1995	26	25,5	22,5	5,7	42,7
	2000	26,2	21,5	21,5	5,8	46,5
Bulgaria	1995	24,4	27,5	32,5	5,1	43,1
	2000	26,2	24	20,2	4,3	45,5
Croatia	1998	10,8	24,6	19,3	7,0	57,6
	2000	8,3	23,9	20,0	6,7	61,1
Romania	1995	34,4	28,6	23,6	5	32
	2000	41,4	23,6	14,2	4,1	31,3

(1) Machinery and equ., Electrical and optical equ., transport equ.; first value based on 1990 figures except Croatia (based on 1998 figures).

Source: wiiw 2003

Which were the effects of FDI on transition countries?

The available figures on general development up to 2001 could support the view that higher levels of FDI (per head) as in the Czech Republic and Hungary led to higher trade growth and lower unemployment rates. Romanian developments, though, seem to contradict this statement (high overall export growth (table6), low level of unemployment (table 7) but also the lowest FDI per head (table 8)), but we have to take account of a significantly lower GDP growth which might confirm the prior statement.

Literature discusses several other and inter-linked effects which should profit the FDI countries. We could subsume them under technology and R&D transfer, spill-over effects and networking advantages. Several Hungarian authors [1] have tried to evaluate these effects.

Farkas shows, that non-greenfield FDI only brought limited technological development, which was quite often reduced on organisational innovations. “Foreign buyers usually closed the R&D departments or downgraded them”, though there were some exceptions from the general trend.

[1] e.g. Szanyi (1998), Farkas (2000) and Szalavetz (2003)

Greenfield investment brought a significant transfer of modern technology. But here, too, the general trend in R&D applies. Technology intensive components are sourced from foreign suppliers. Therefore direct spill-over effects through local sourcing and subcontracting were also limited. FDI has often interrupted vertical, sectoral technology chains. "The evolution of vertical relations within the multinationals (networks) is restrained by the fact that domestic suppliers are not able to provide equable and good quality in many cases"[1]. An indirect "multiplier" effect might be very small, too, as there is no possibility for Hungarian firms to use knowledge outside the production and marketing network of multinationals.

Little can be said on local capital accumulation so far. Szanyi[2] assumes that there is widespread use of transfer pricing, but also states that there are no proofs for this assumption.

Szalavetz[3] estimates that the integration of local affiliates into multinational networks not only led to a reduction in autonomy but also to a reduction of formerly existing links to other firms on the supply and distribution side. Notwithstanding the integration into a modern ICT network the network relations to other partners remain hierarchical.

The in general low local sourcing content, combined with a loss of autonomy of foreign investment enterprises and a reduction of their network links tends – according to Szalavetz[4] – to fragilise the national affiliates against other low cost competitors. The sustainability of the development seems to be endangered.

[1] Szalavetz (1999) cited after Farkas (2000).
[2] Szanyi (1998).
[3] Szalavetz (2003).
[4] Szalavetz (2003).