

ANEXES

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A. Development approach on CEEC convergence to EU

A.1. Economic structures

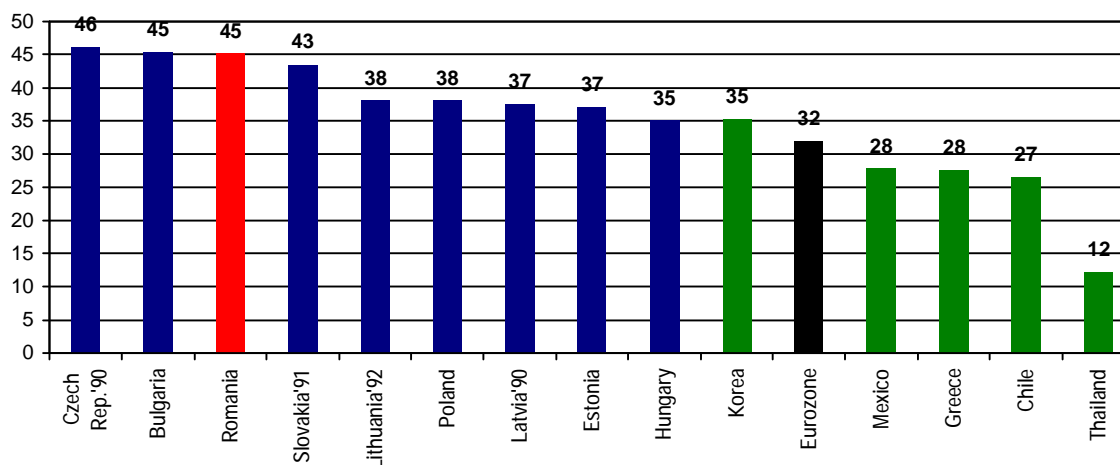


Figure A.1.1.

Employment in industry (% of total employment): over-industrialization relative to comparable emerging markets, 1989

Source: World Bank, World Development Indicators 2004

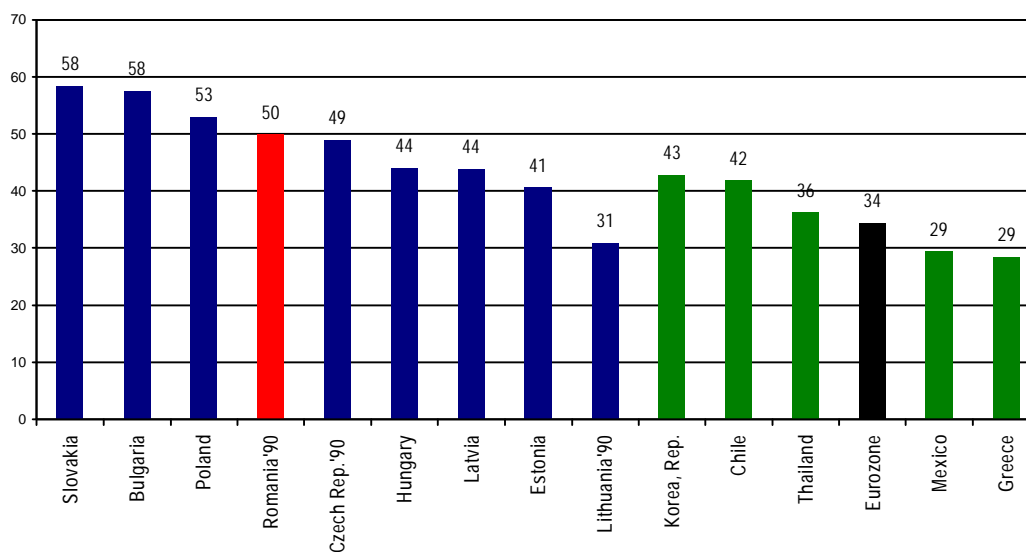


Figure A.1.2.

Value added in industry (% of GDP): over-industrialization relative to comparable emerging markets, 1989

Source: World Bank, World Development Indicators 2004

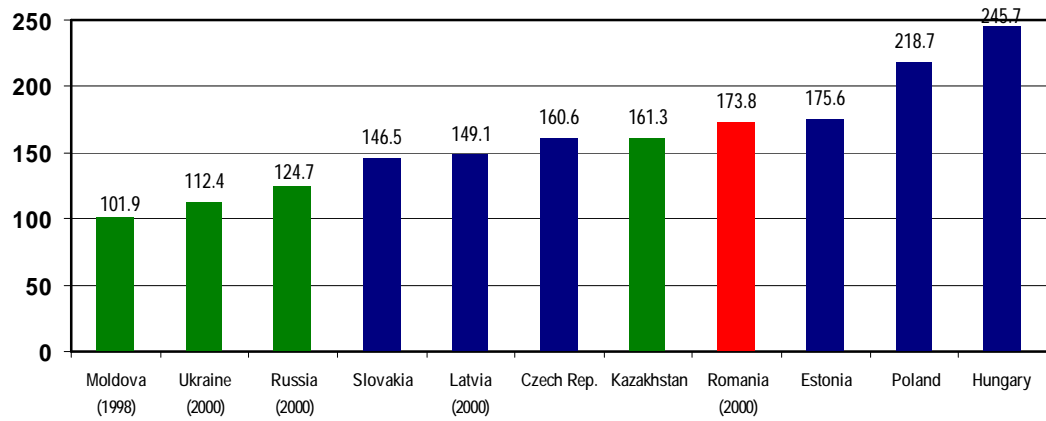


Figure A.1.3.

Change in labour productivity in industry, 1992 - 2001 (1992=100).

Source: EBRD Transition Report 2002

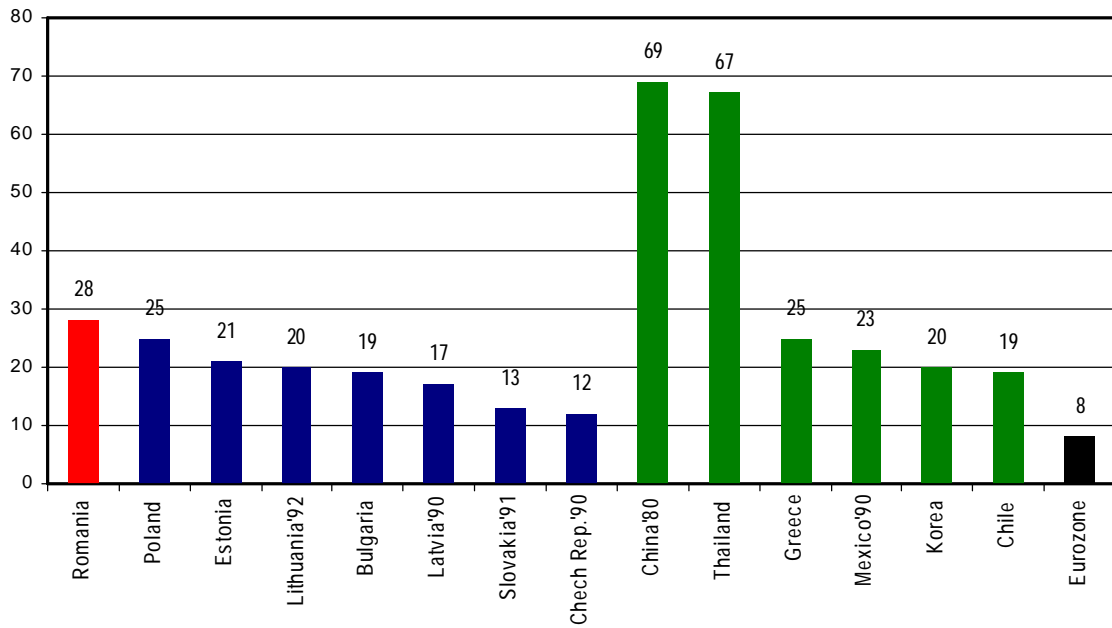


Figure A.1.4.

Employment in agriculture as % of total employment, 1989

Source: World Bank, World Development Indicators 2004

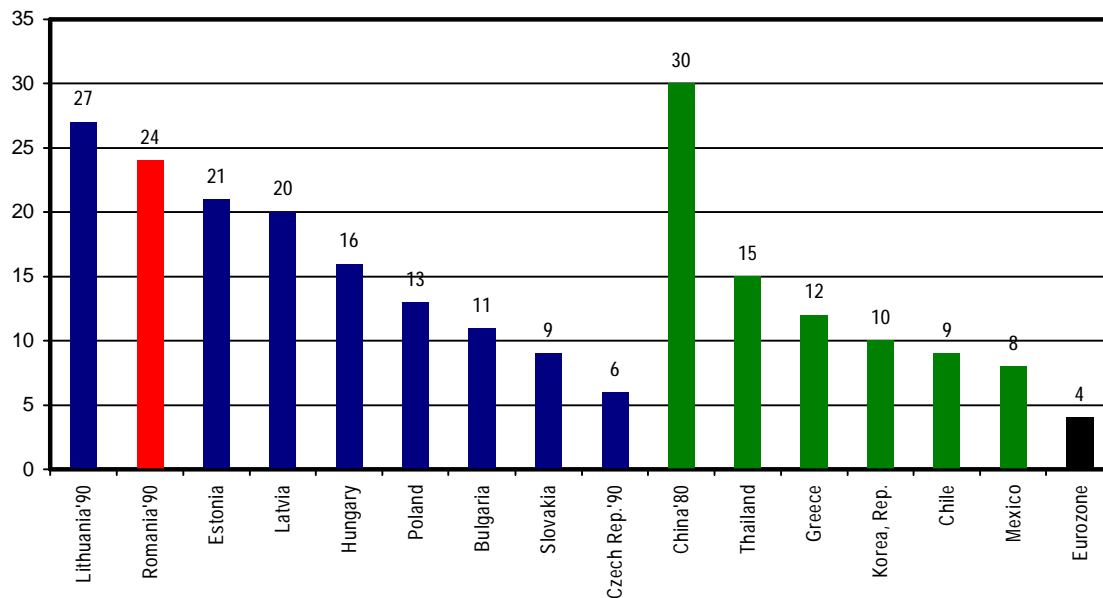


Figure A.1.5.

Value added in agriculture as % of GDP, 1989

Source: World Bank, World Development Indicators 2004

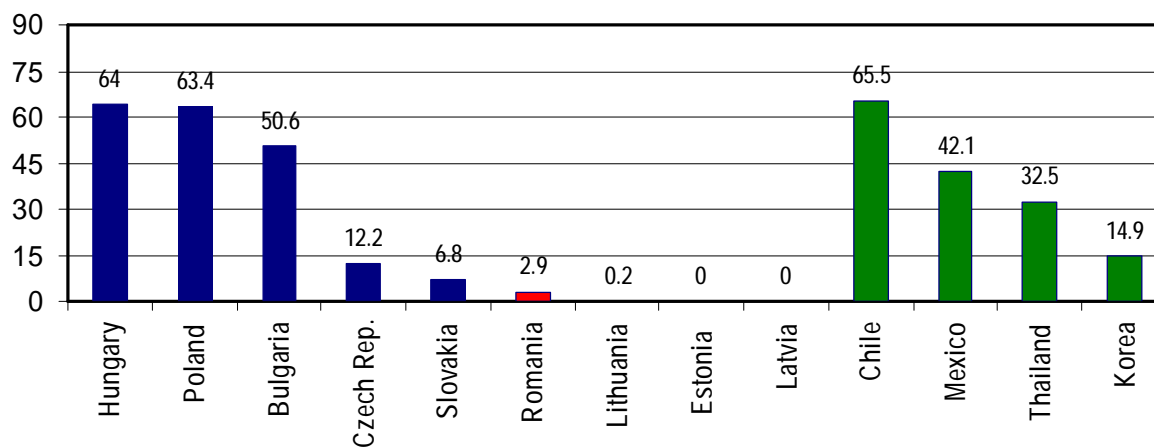


Figure A.1.6.

Foreign debt in the pre-transition year: 1989-1991, and for non-transition countries: 1989 (% of GDP)

Source: Orlowski L., Transition and Growth in Post-Communist Countries, 2001, World Bank, World Development Indicators, 2003

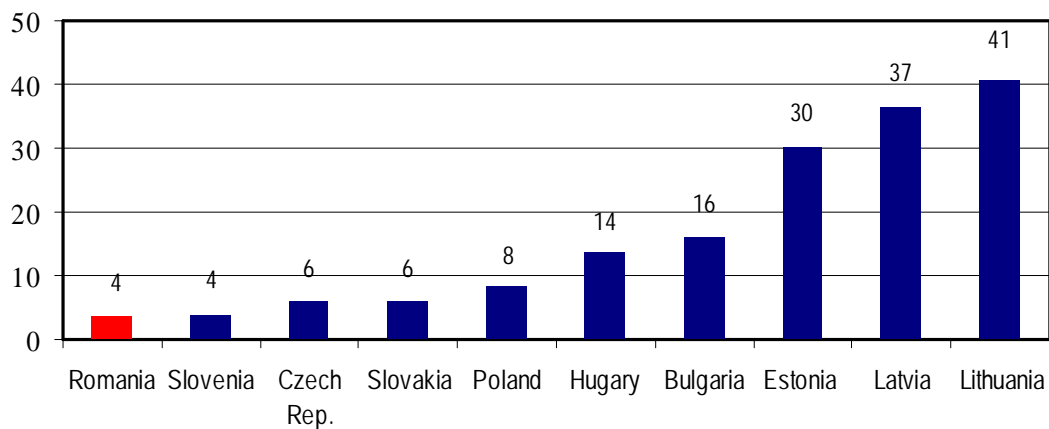


Figure A.1.7.

The scale of trade dependence on COMECON markets, 1990 (% of GDP)

Source: IMF World Economic Outlook, October 2000

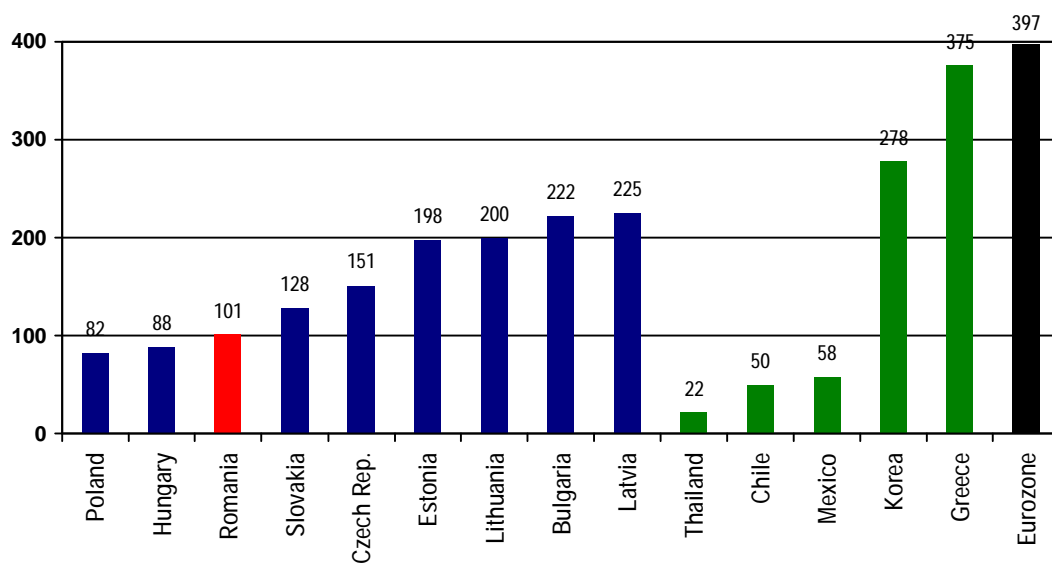


Figure A.1.8.

Degree of infrastructure development: telephone mainlines subscribers per 1000 population, 1989

Source: World Bank, World Development Indicators 2004

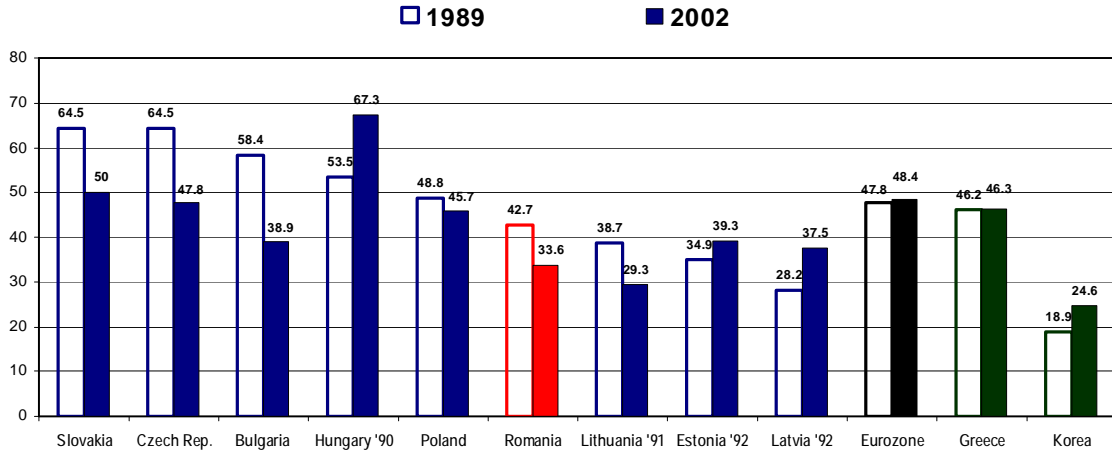
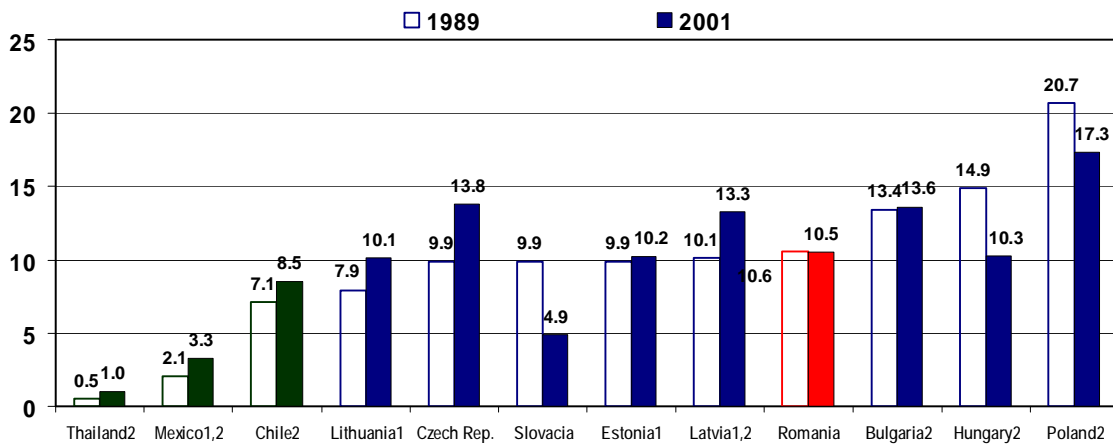


Figure A.1.9.

General government expenditure, 1989 -2002 (% of GDP).

Source: EBRD Transition Report 2003, OECD Economic Outlook 73



1 - refers to 1994; 2 – refers to 2000;

Figure A.1.10.

Public expenditure on social security and welfare, 1989 -2001 (% of GDP).

Source: World Bank, World Development Indicators 2004

A.2. Macroeconomic imbalances

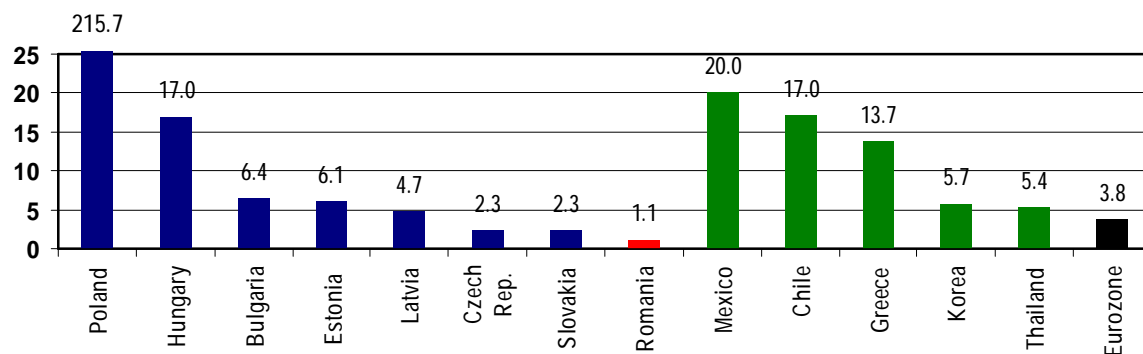


Figure A.2.1.

Inflation, 1989 (% of annual average)

Source: World Bank, World Development Indicators 2004

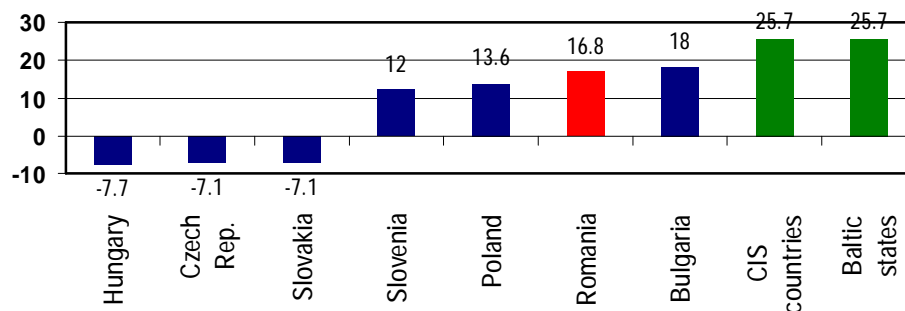


Figure A.2.2.

Repressed inflation, 1987 - 1990 (% of annual average)

Source: World Bank, World Development Indicators 2004

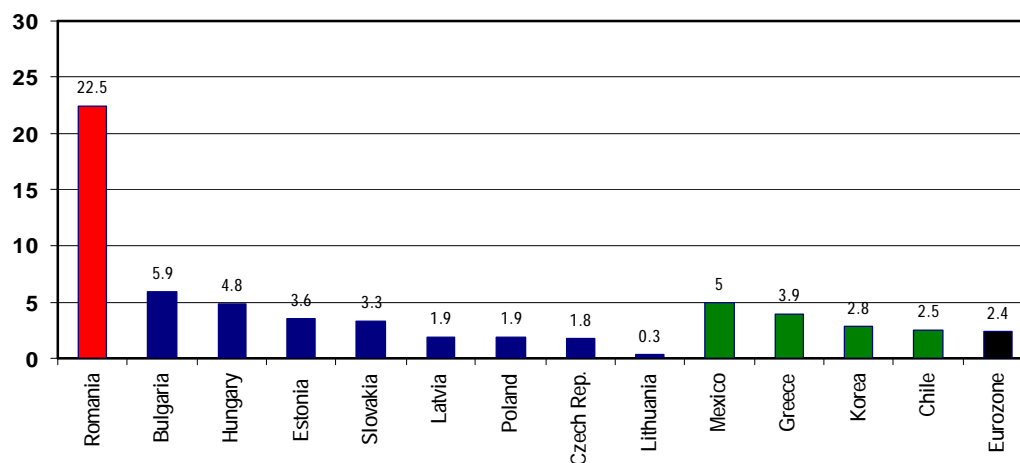


Figure A.2.3.

Inflation, 2002 (annual average, %).

Source: EBRD Transition Report 2002, World Economic Outlook, IMF, April 2003

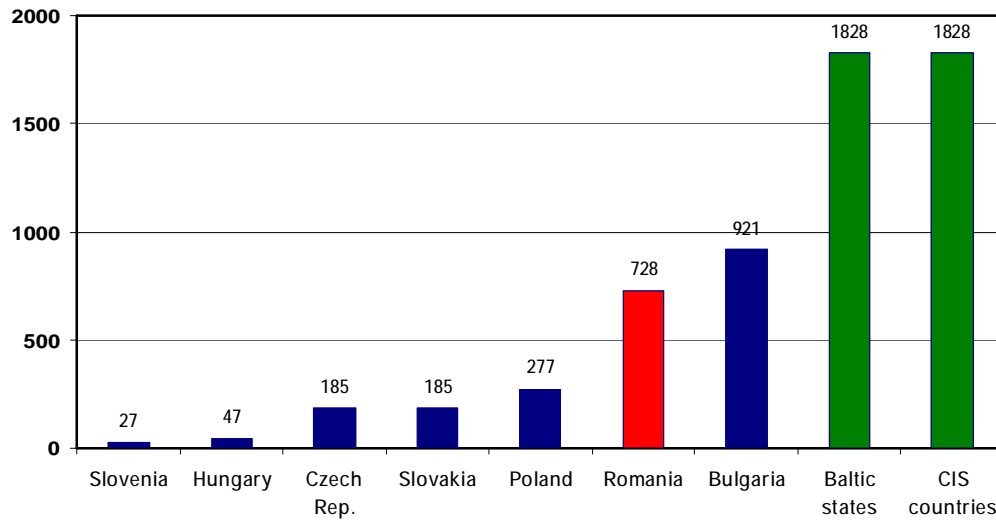


Figure A.2.4.

Black market premium (% the official exchange rate), 1989

Source: De Melo et al., *Circumstance and Choice: The Role of Initial Conditions and Policies in Transition Economies*, World Bank, 1997

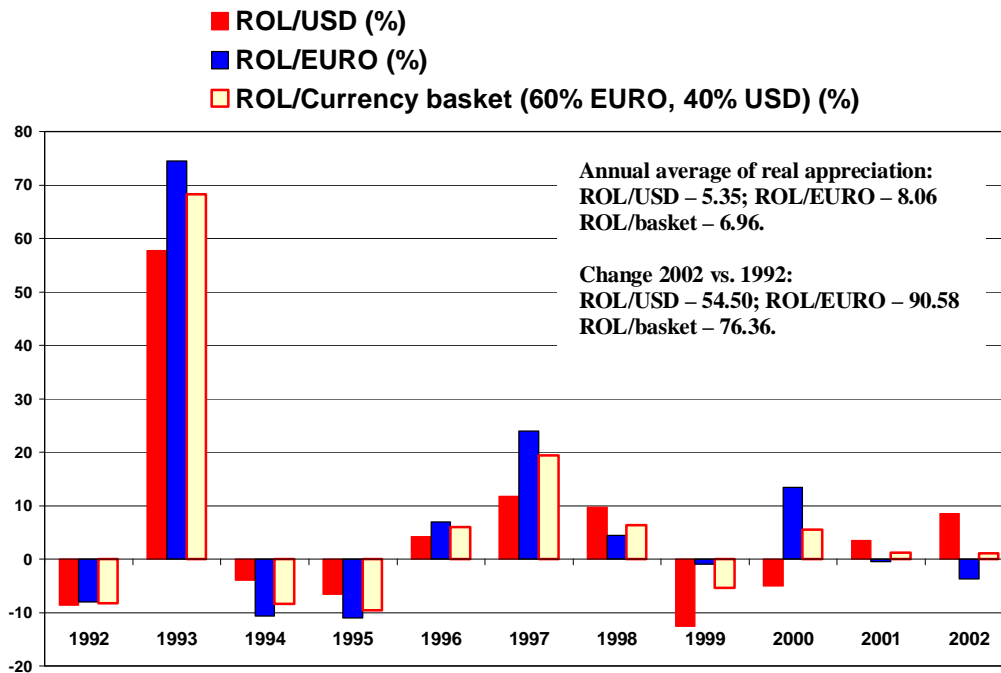


Figure A.2.5.

Annual real exchange rate ap-/depreciation (+) in Romania, 1992 – 2002

Source: National Bank of Romania Statistics, 2004

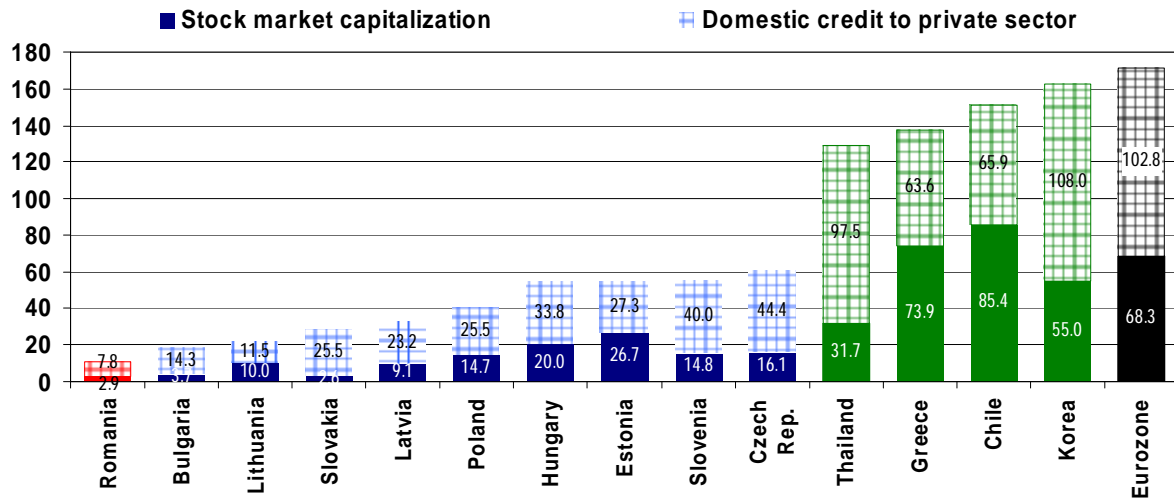


Figure A.2.6.

Bank-dominated financial sectors: domestic credit to private sector, and market capitalization of listed companies, 2001 (% of GDP)

Source: World Bank, World Development Indicators, 2004

A.3. FDI attractiveness

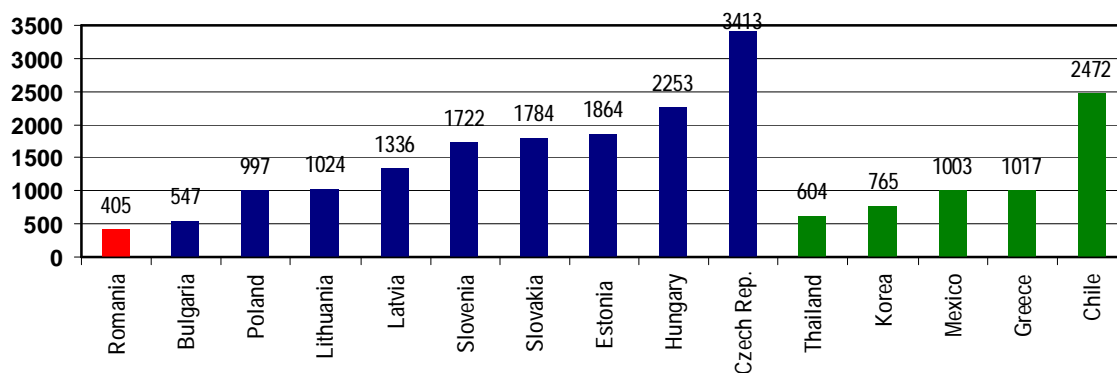


Figure A.3.1.

Cumulative per-capita FDI inflows, 1989-2002 (USD)

Source: EBRD Transition Report Update, May 2003

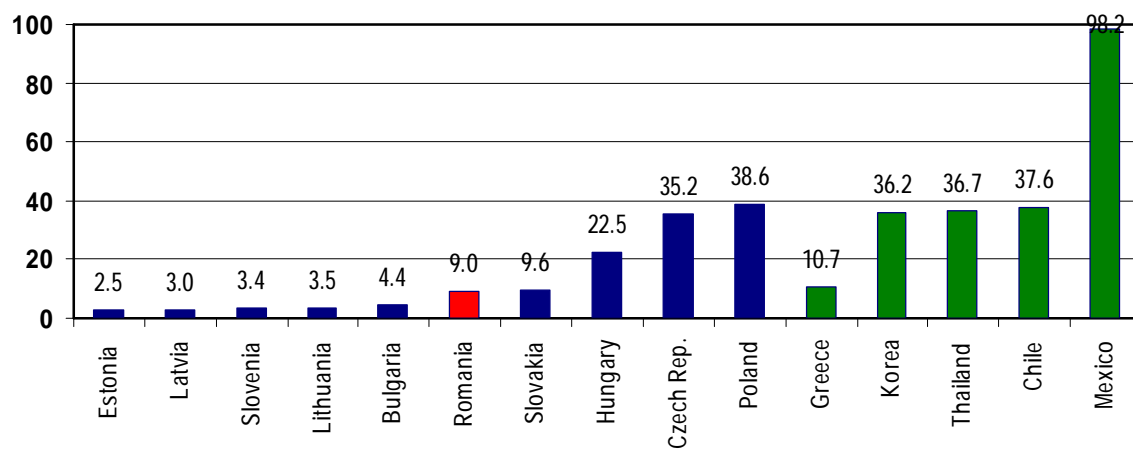


Figure A.3.2.

Cumulative FDI inflows, 1989-2002 (bn. USD)

Source: EBRD Transition Report Update, May 2003

A.4. Economic growth

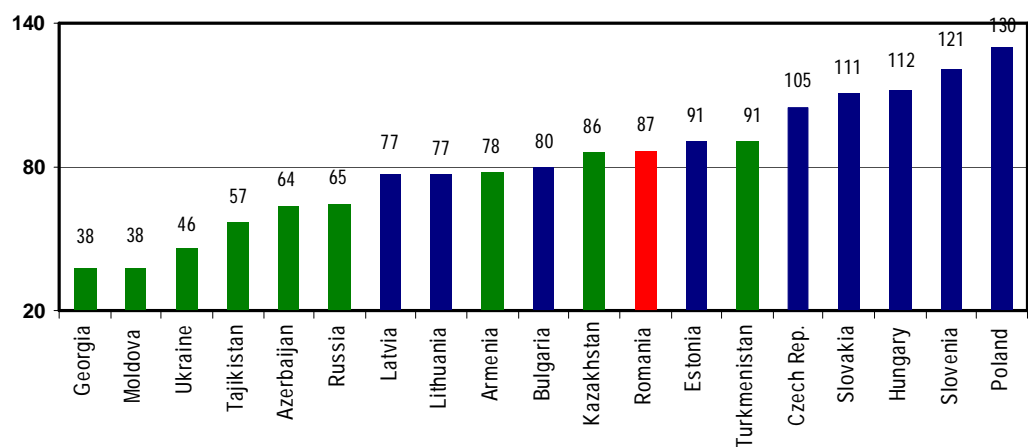


Figure A.4.1.

Economic growth: real GDP, 2002 (1989=100)

Source: EBRD Transition Report Update, May 2003

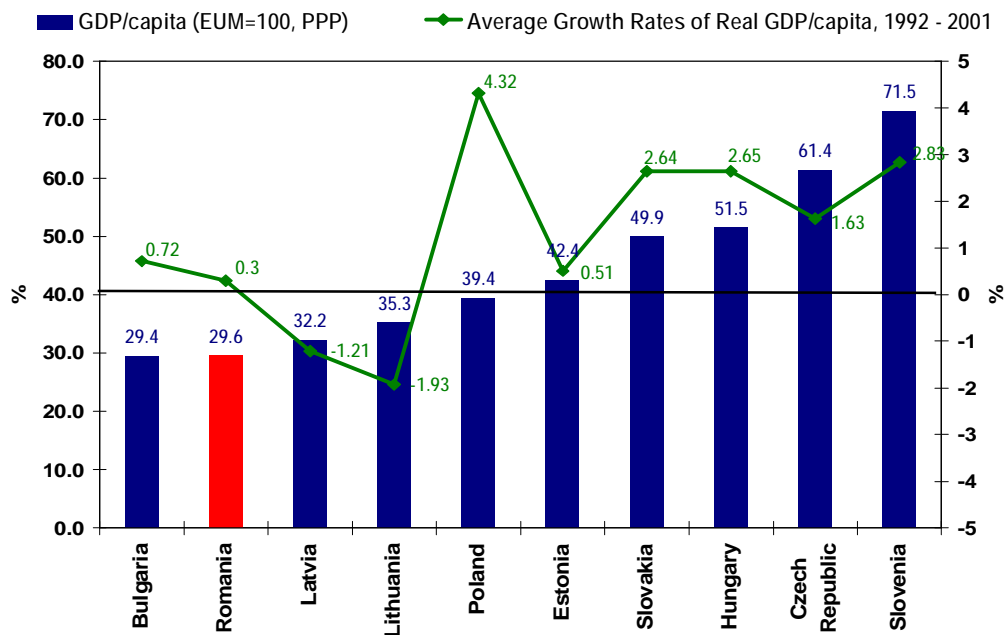


Figure A.4.2.

Convergence of GDP/capita (2001, UEM=100)

Source: European Commission EEAG Report, 2004; Wagner, M. and J. Hlouskova, CEEC Growth Projections: Certain Necessary and Necessarily Uncertain, Bern University, 2004

A.5. Human capital

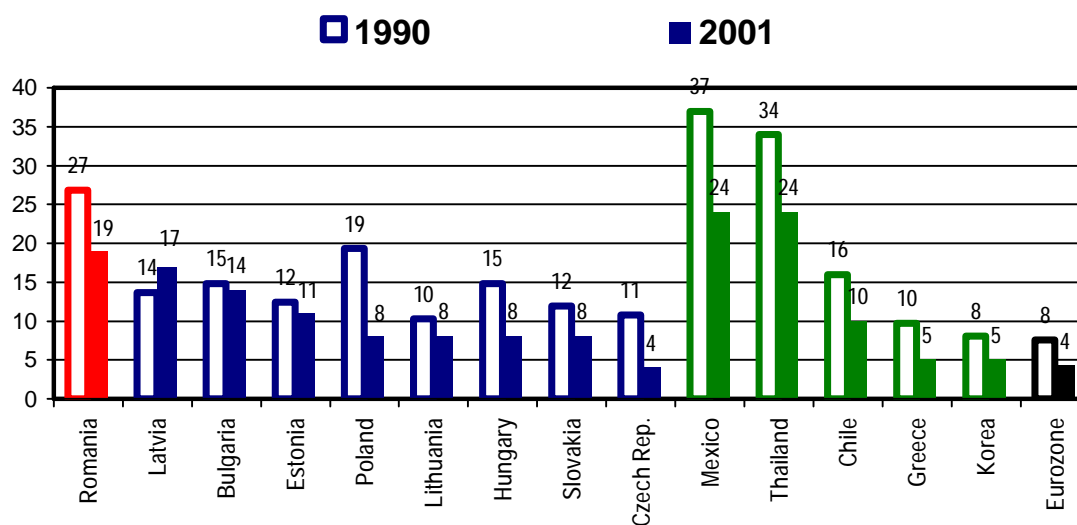


Figure A.5.1.

Infant mortality per 1000 live births, 1990 - 2001

Source: World Bank, World Development Indicators 2004, EBRD Transition Reports

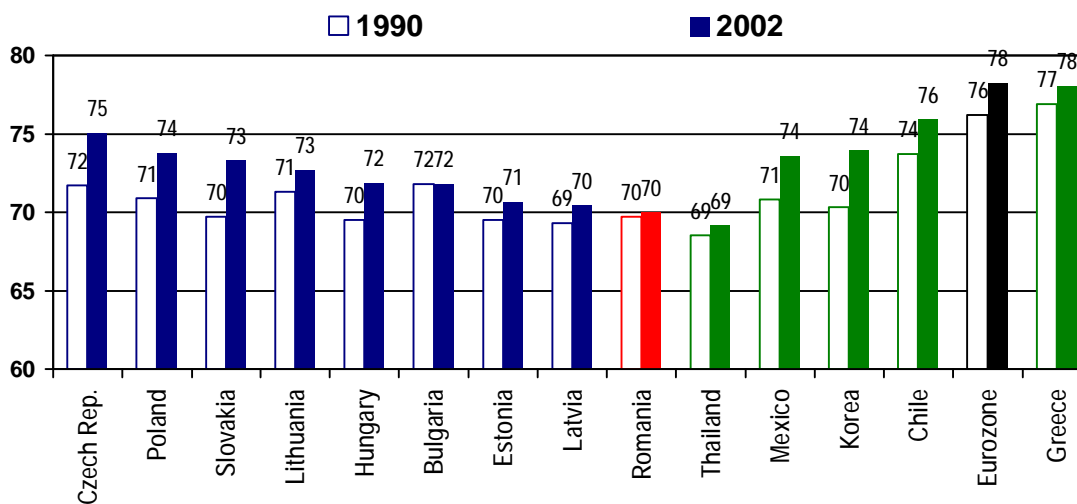


Figure A.5.2.

Life expectancy at birth, 1990 - 2002

Source: World Bank, World Development Indicators 2004, EBRD Transition Reports

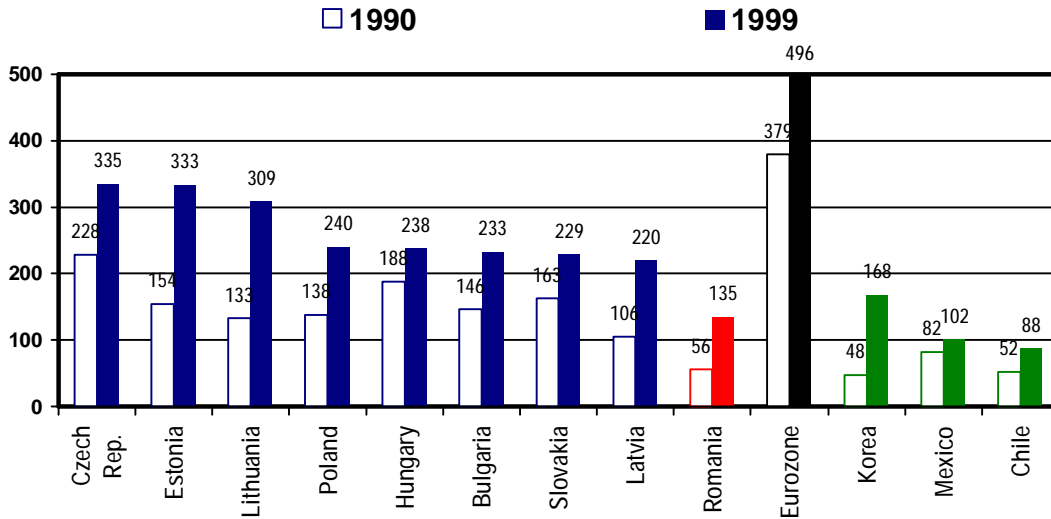


Figure A.5.3.

Living standards: number of passenger cars per 1000 population, 1990 and 1999

Source: World Bank, World Development Indicators 2004

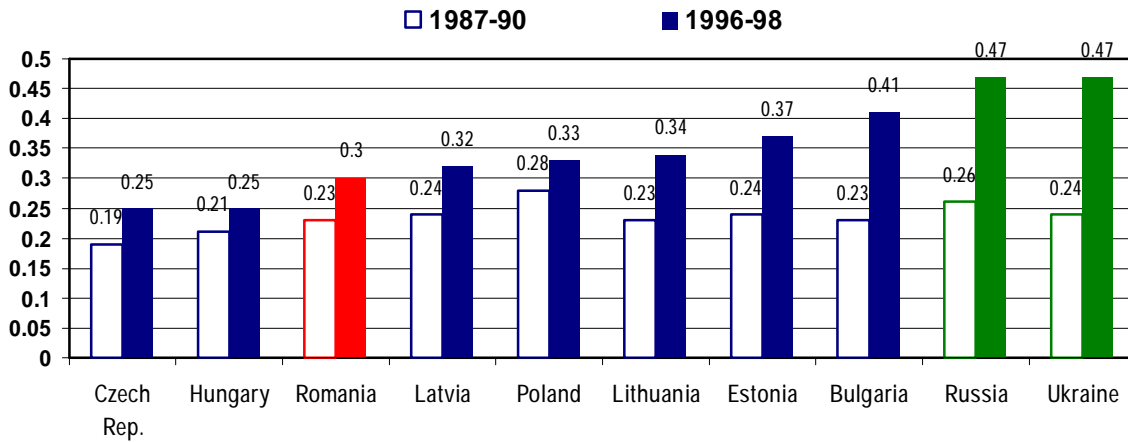


Figure A.5.3.

Income distribution: Gini coefficient of income per capita, 1987-90 and 1996-98

Source: World Bank, Transition: The First Ten Years, 2002

A.6. Socio-political development

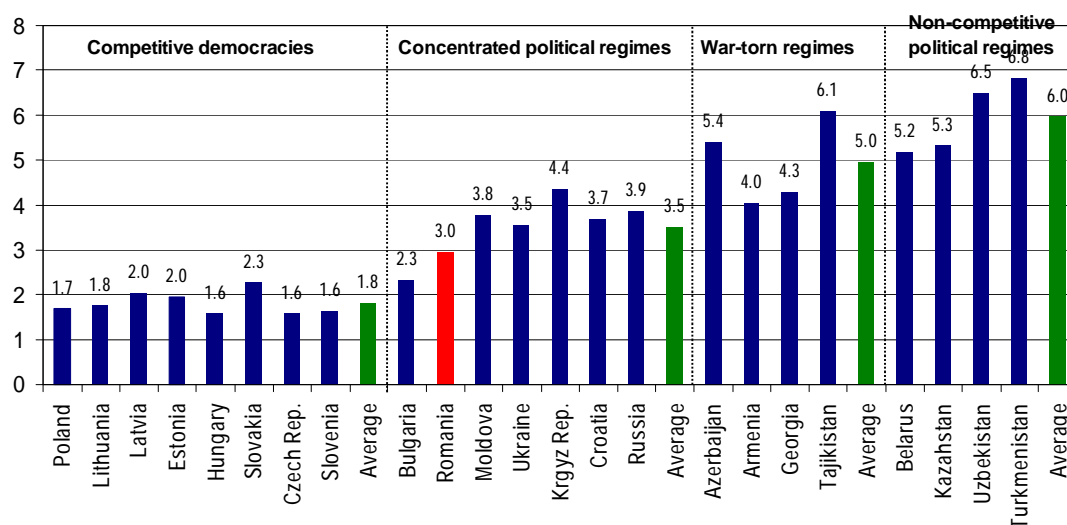


Figure A.6.1.

Political systems in transition economies, 1990 - 1999

Source: Freedom House, www.freedomhouse.com, 2002

A.7. Growth competitiveness

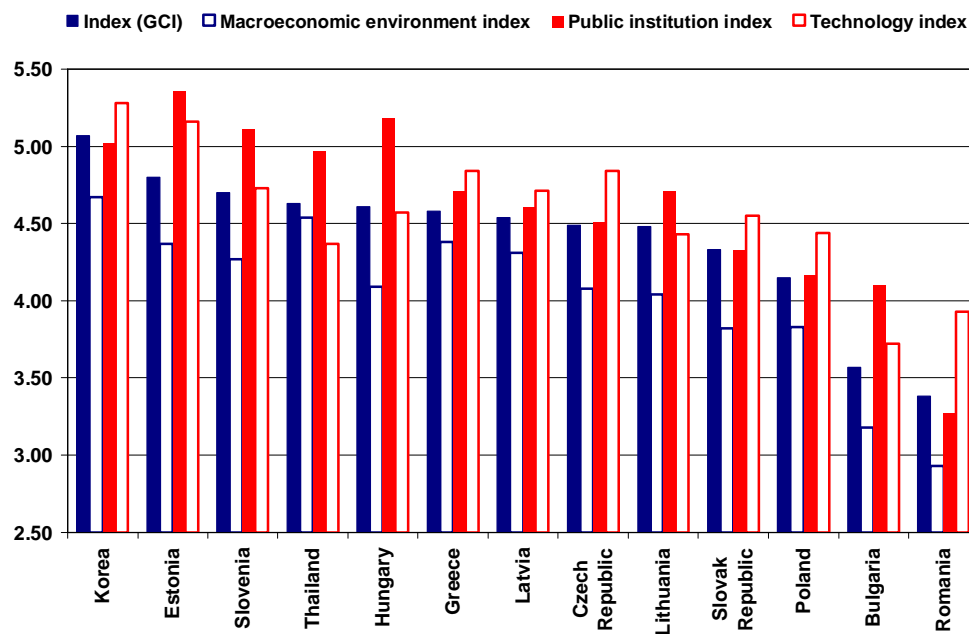


Figure A.7.1.

Growth Competitiveness Index and its components, 2003

Source: Based on the data provided by the estimations of Blanke, J., F. Pauna and X. Sala-i-Martin in *The Growth Competitiveness Index: Analysis Key Underpinnings of Sustained Economic Growth*, World Economic Forum, 2004

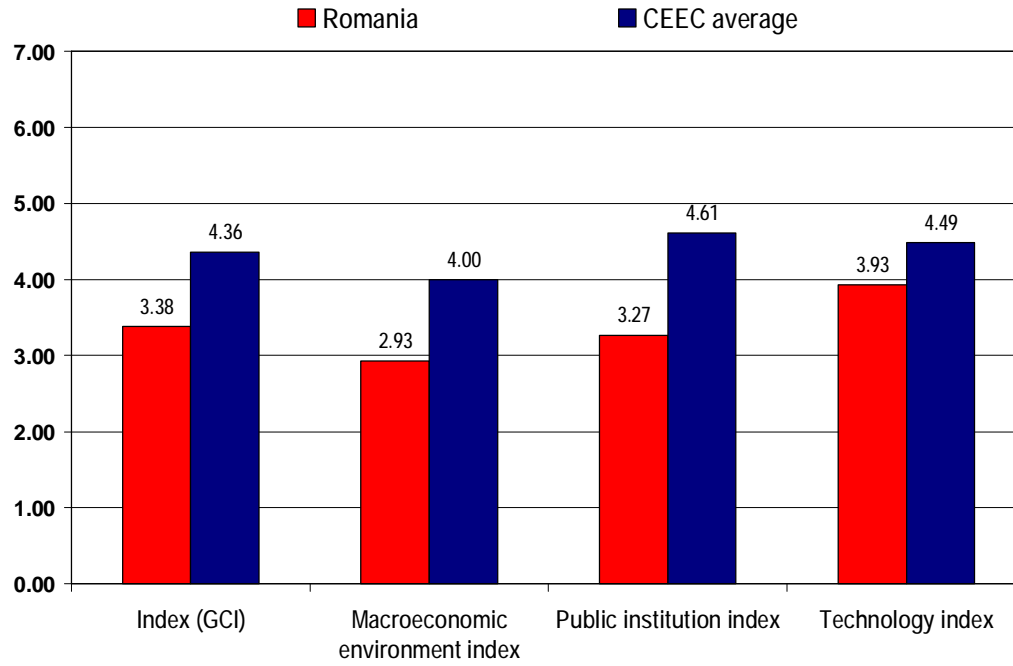


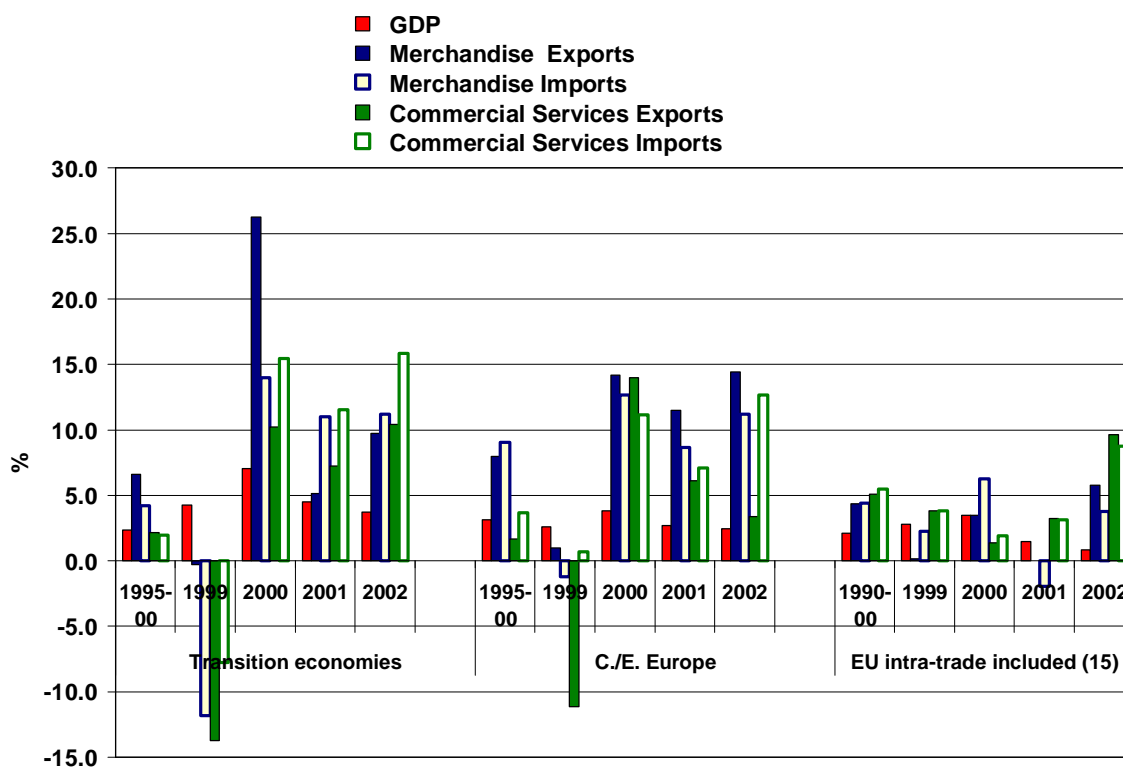
Figure A.7.2.

Growth Competitiveness in Romania relative to CEEC-10 mean, 2003

Source: Authors computations based on the World Economic Forum estimations, 2004

B. Trade approach on CEEC convergence

B.1. Specific aspects of trade performance of CEEC relative to EU



* Transition economies are grouped by WTO in: Central and Eastern Europe (Albania, Bulgaria, Czech Rep., Hungary, Poland, Romania and Slovak Rep.); the Baltic States (Estonia, Latvia and Lithuania); CIS (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Rep., Moldova, Russian Fed., Tajikistan, Ukraine and Uzbekistan).

Figure B.1.1.

GDP and trade developments in transition economies and EU, 1995 – 2002 (annual percentage change)

Source: World Trade Organization, 2004

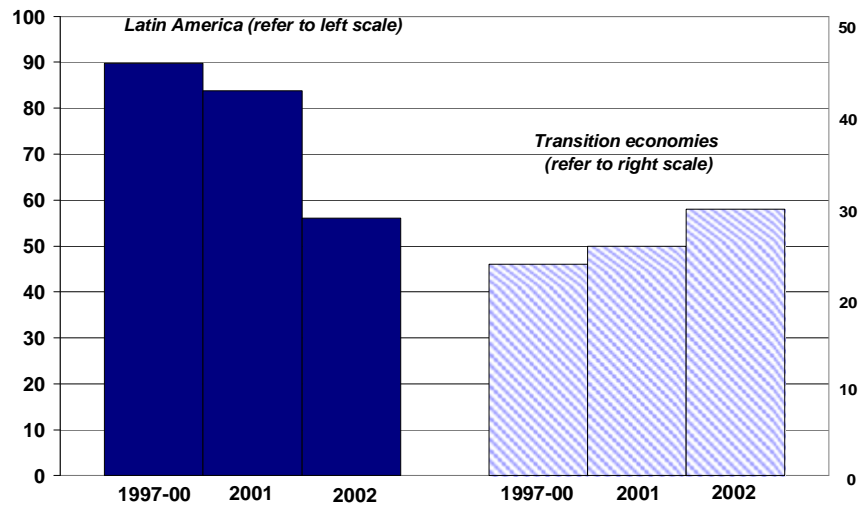


Figure B.1.2.

FDI inflows in Transition Economies vs. Latin America, 2000 – 2002 (billion USD)

Source: World Investment Reports, 2003

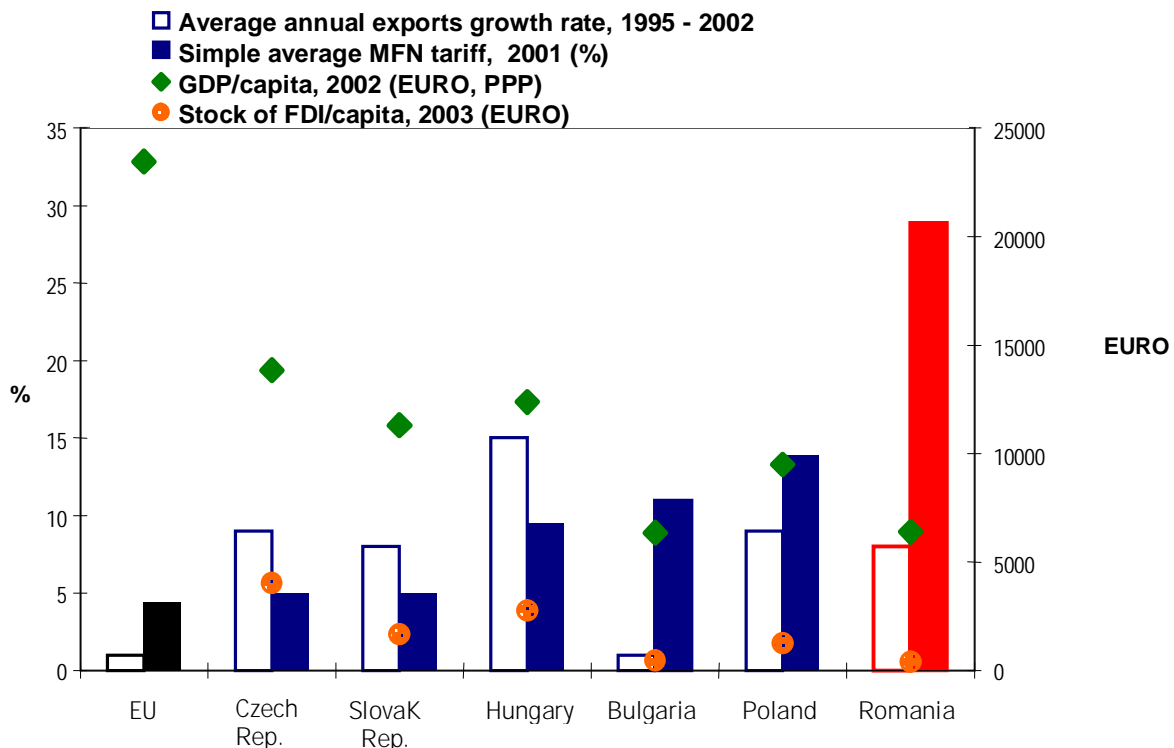
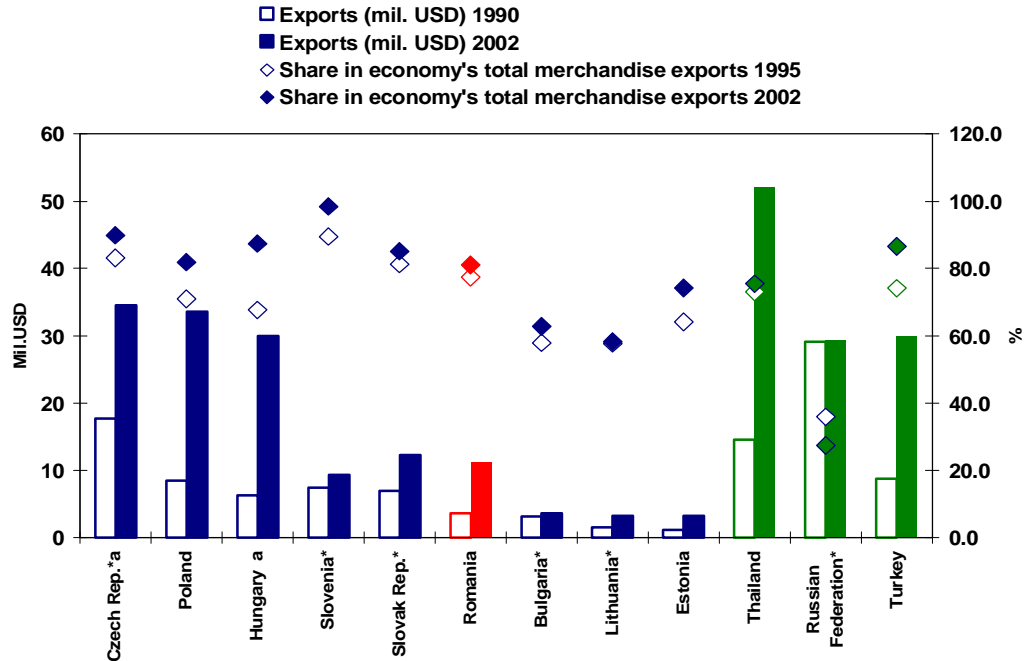


Figure B.1.3.

Comparisons related to average annual exports growth rates (1995 - 2002), simple average MFN tariff (2001), GDP/capita (2002) and stock of FDI/capita (2003) in EU and the accession countries

Source: WTO and WIIW statistics databases, 2004

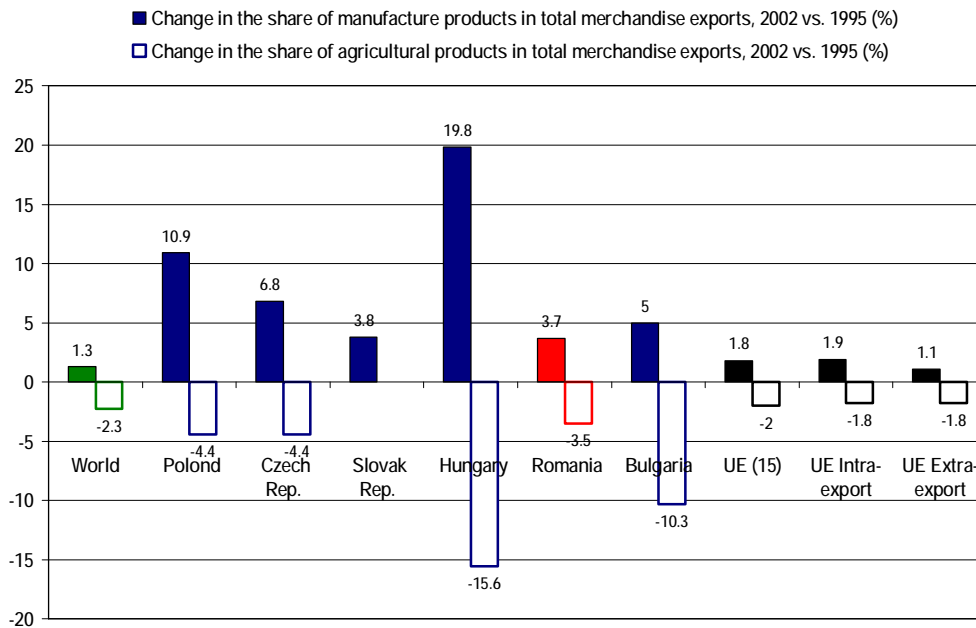


* - refers to exports in 1995 instead of 1990; a - includes significant exports from processing zones.

Figure B.1.4.

Export of manufactures and share in total merchandise exports of CEEC, 1990 – 2002

Source: World Trade Organization statistics, 2004



* For Slovak Rep. we lack data regarding the share of agricultural products in total merchandise exports in 1995.

Figure B.1.5.

Structural changes in the exports of CEECs, EU and world level, 2002 vs. 1995

Source: World Trade Organization statistics, 2004

Tabel B.1.1. Specific aspects of trade performances in the accession countries , 1990 - 2002

MANUFACTURE AND SERVICES FOREIGN TRADE, 1995-2002								
	Mil. USD	USD		%		%		
	Total foreign trade (Exp+Imp)	Trade/capita (Average: (Exp+Imp)/capita)		Exports growth rate	Annual average export growth rate	Imports growth rate	Annual average import growth rate	
	2000 - 2002	2000 - 2002		2002	1995-2002	2002	1995-2002	
Transition economies	336,3	869		10	7	11	6	
Poland	53,3	1379		14	9	12	7	
Czech Rep.	41,3	4031		15	9	13,6	6,4	
Slovak Rep.	16,0	2972		14	8	12	9	
Hungary	39,1	3841		13	15	12	14	
Romania	15,7	1357		17	10	12	11	
Bulgaria	8,31	1024		12	1	9	5	
MANUFACTURES EXPORTS, 1990-2002								
	Value (Mil. USD)					Share of manufacture exports in total merchandise exports (%)		
	1990	1995	2000	2001	2002	1990	1995	2002
World	2391,00	3702,00	4685,00	4514,00	4708,00	70,4	73,8	75,1
Poland	8,47	16,27	25,32	29,09	33,60	59,1	71,0	81,9
Czech Rep.	-	17,73	25,55	29,77	34,51	-	83,1	89,9
Slovak Rep.	-	6,98	9,92	10,58	12,23	-	81,3	85,1
Hungary	6,28	8,70	24,49	26,39	30,02	62,8	67,6	87,4
Romania	3,60	6,12	7,95	9,19	11,24	72,6	77,4	81,1
Bulgaria	...	3,10	2,82	3,15	3,61	...	57,9	62,9
UE (15)	1203,33	1667,64	1901,18	1911,36	2002,74	79,8	80,0	81,8
Intra-export	771,74	1027,52	1154,71	1145,65	1190,28	78,8	77,0	78,9
Extra-export	431,60	640,12	746,47	765,71	812,46	81,6	85,4	86,5
AGRICULTURAL PRODUCTS (food and raw materials), 1990-2002								
	Value (Mil. USD)					Share of agricultural exports in total merchandise exports (%)		
	1990	1995	2000	2001	2002	1990	1995	2002
World	414610	583000	552240	554130	582530	12,2	11,6	9,3
Poland	2268	3036	3050	3392	3670	15,8	13,3	8,9
Czech Rep.	-	2072	1901	1942	2049	-	9,7	5,3
Slovak Rep.	-	-	-	-	-	-	-	-
Hungary	2558	3054	2445	2747	2774	25,6	23,7	8,1
Romania	184	783	829	840	881	3,7	9,9	6,4
Bulgaria	...	1304	605	605	812	...	24,4	14,1
UE (15)	175847	238990	218592	218091	233732	11,7	11,5	9,5
Intra-export	130571	174405	159790	160038	170270	13,3	13,1	11,3
Extra-exports	45276	64585	58900	58053	63462		8,6	6,8

Source: World Trade Organization, 2004

Tabel B.1.2. Specific aspects of trade performance of accession countries on products group: clothing, textiles and automotive products, 1990 - 2002

CLOTHING EXPORTS, 1990-2002								
	Value (Mil. USD)					Share in economy's total merchandise exports (%)		
	1990	1995	2000	2001	2002	1990	2002a	
World	108100	158300	196780	195030	200850	3,2	3,3	
Poland	384	2304	1884	1949	1915	2,7	5,4	
Czech Rep.	-	515	634	652	645	-	2,0	
Slovak Rep.	-	257	516	573	633	-	4,5	
Hungary	375	1032	1221	1342	1296	3,8	4,4	
Romania	363	1360	2328	2774	3251	7,3	24,4	
Bulgaria	...	236	698	793	1066	...	15,5	
Lithuania	...	205	482	523	574	7,6 *	10,3	
Slovenia	...	659	390	377	327	7,9 *	3,4	
UE (15)	40782	48458	47421	47088	50452	2,7	2,1	
Intra-export	29444	33518	32733	31335	23860	3,0	2,2	
Extra-export	11338	14940	14688	15753	16592	2,1	1,8	
*Refers to 1995.								
TEXTILES EXPORTS, 1990-2002								
	Value (Mil. USD)					Share in economy's total merchandise exports (%)		
	1990	1995	2000	2001	2002	1990	1995	2002a
World	104330	151580	154740	146980	1521150	3,1	3,0	2,4
Poland	284	512	769	796	908	2,0	2,2	2,2
Czech Rep.	-	1323	1218	1325	1368	-	6,2	3,6
Slovak Rep.	-	375	319	341	388	-	4,4	2,7
Hungary	249	286	371	408	456	2,5	2,2	1,3
Romania	125	178	196	241	310	2,5	2,3	2,2
Bulgaria	...	173	121	117	125	...	3,2	2,2
Latvia	...	119	105	118	131	...	9,1	5,7
Lithuania	...	163	212	207	227	...	6,0	4,1
Slovenia	...	322	286	330	355	...	3,9	3,7
UE (15)	50795	62198	52923	51575	52052	3,4	3,0	2,1
Intra-export	35672	40218	31246	29419	28937	3,6	3,0	1,9
Extra-export	15123	21980	21677	22156	23115	2,9	2,9	2,5
AUTOMOTIVE PRODUCTS EXPORTS, 1990-2002								
	Value (Mil. USD)					Share in economy's total merchandise exports (%)		
	1990	1995	2000	2001	2002	1990	1995	2002 a
World	318960	456420	576750	569480	620920	9,4	9,1	9,9
Poland	374	996	3973	4228	5192	2,6	4,4	12,7
Czech Rep.	-	1509	4665	5521	6403	-	7,1	16,7
Slovak Rep.	-	344	2394	2273	2805	-	4,0	19,5
Hungary	648	659	4765	5323	5983	6,5	5,1	17,4
Romania	354	153	195	236	338	7,1	1,9	2,4
Bulgaria	-	-	-	-	-	-	-	-
Lithuania	-	91	126	282	564	-	3,4	10,1
Slovenia	-	970	1075	1083	1312	-	11,7	13,9
UE (15)	171579	235523	270116	275787	303297	11,4	11,3	12,4
Intra-export	125828	166324	186735	188227	201724	12,8	12,5	13,4
Extra-export	45751	69199	83381	87560	101573	8,6	9,2	10,8
a The closest year.								

Source: World Trade Organization, 2004

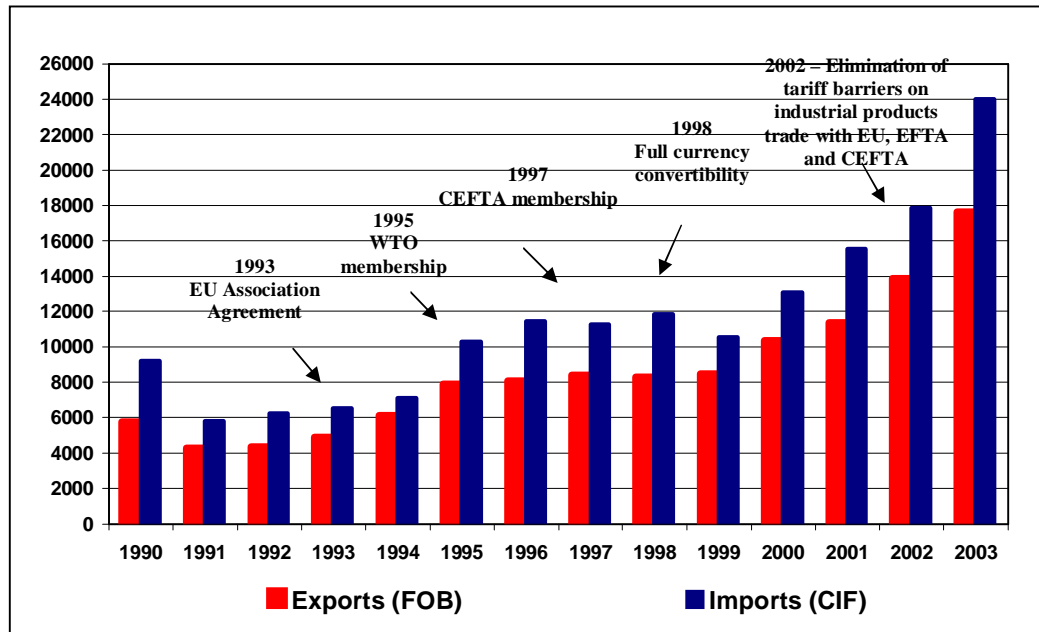


Figure B.1.6.

Romanian nominal total foreign trade evolution (mil. USD), 1993 - 2003

Source: Romanian National Bank statistics, 2003

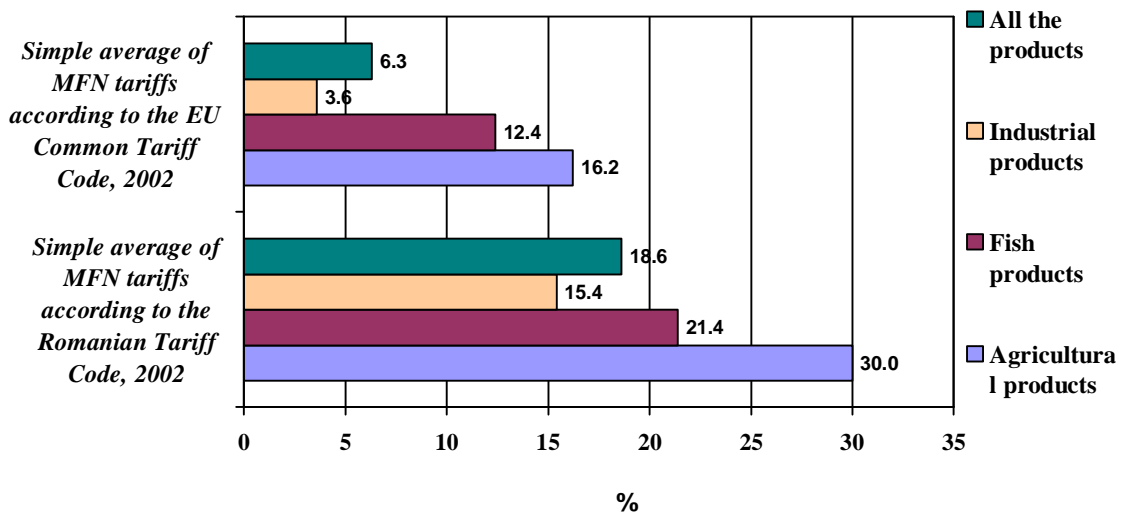


Figure B.1.7.

Trade asymmetries between Romania and EU: simple average MFN tariffs, 2002

Source: European Commission Report on the Romania's Progress to EU Accession, Brussels, 10.11.2003

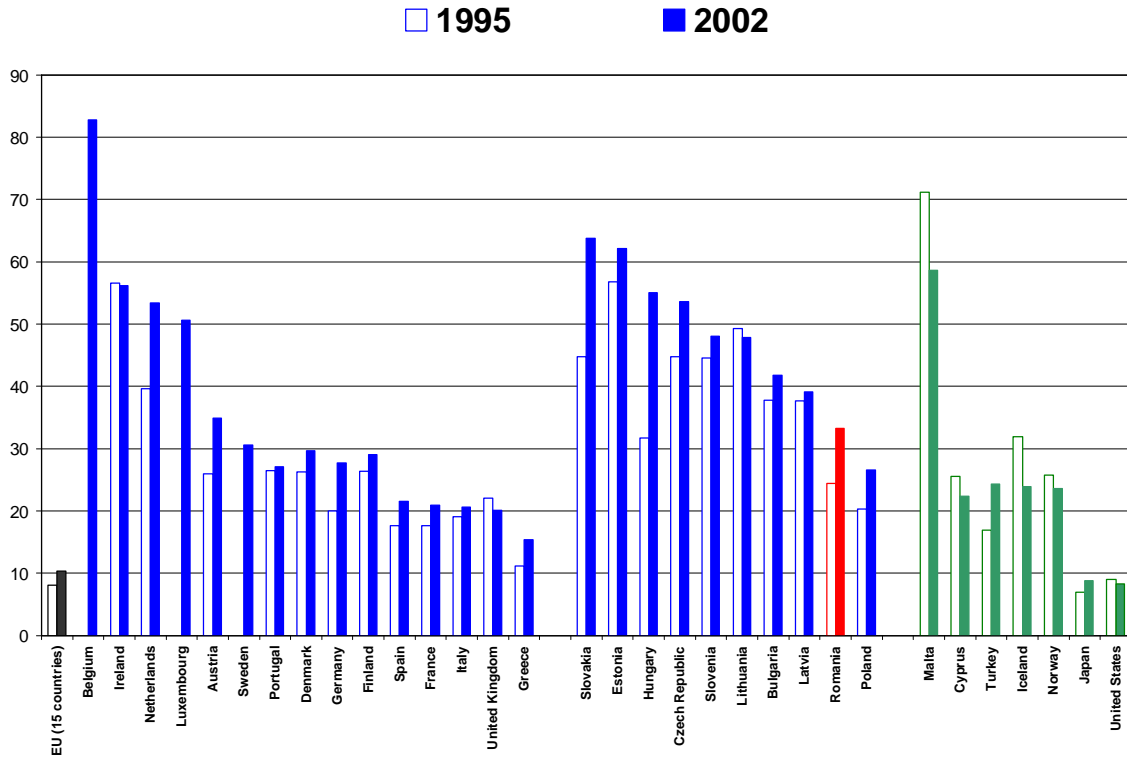


Figure B.1.8.

Trade openness in the CEEC and EU, 2002 vs. 1995 (X+M/GDP, %)

Source: Author's computations based on EUROSTAT statistics, 2004

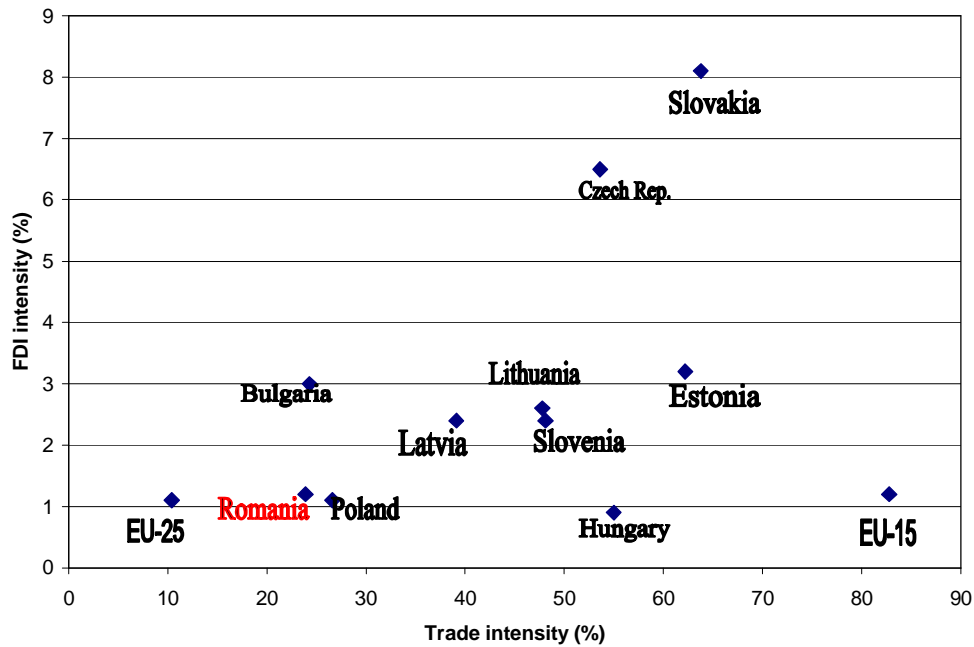


Figure B.1.9.

FDI intensity (FDI flows/GDP) vs. Trade openness in the CEEC and EU (%), 2002

Source: EUROSTAT statistics, 2004



FDI intensity = average of inward and outward Foreign Direct Investments flows divided by gross domestic product
Trade intensity = average of imports and exports of the item goods of the balance of payments divided by GDP.

Figure B.1.10.

Total FDI and trade intensity/openness dynamics in Romania, 1993 - 2002 (%)

Source: EUROSTAT statistics, 2004

B.2. The Business Environment in the CEEC

Tabel B.2.1. The Business Competitiveness Index in the CEEC, 1998 - 2003

Country	BCI RANKING in a sample of 80 countries						COMPANY OPERATIONS AND STRATEGY RANKING						QUALITY OF THE NATIONAL BUSINESS ENVIRONMENT RANKING						2002 GDP per capita rank	2002 GDP per capita (PPP- adjusted)
	2003	2002	2001	2000	1999	1998	2003	2002	2001	2000	1999	1998	2003	2002	2001	2000	1999	1998		
Estonia	28	30	28	—	—	—	36	36	32	—	—	—	27	28	26	—	—	—	33	11,712
Latvia	29	45	41	—	—	—	29	48	35	—	—	—	31	42	42	—	—	—	42	8,965
Slovenia	30	27	32	—	—	—	27	26	28	—	—	—	34	27	35	—	—	—	27	17,748
Czech Republic	35	34	34	34	41	30	33	34	41	41	55	31	38	34	31	34	36	33	29	15,148
Hungary	38	28	27	32	33	31	45	29	33	34	36	39	37	29	25	31	33	31	30	13,129
Lithuania	40	40	50	—	—	—	41	39	47	—	—	—	41	39	47	—	—	—	38	10,015
Slovak Republic	42	42	40	36	48	36	44	43	57	31	51	40	42	40	36	36	47	37	31	12,426
Poland	46	46	42	41	37	41	43	46	55	36	38	38	44	45	40	41	38	40	36	10,187
Romania	67	67	61	—	—	—	72	69	63	—	—	—	64	64	60	—	—	—	49	6,909
Bulgaria	68	68	68	55	54	—	73	72	70	54	52	—	67	63	65	54	54	—	53	6,326

* I changed the ranking and value of 2002 GDP per capita (PPP-adjusted) for Bulgaria and Romania as presented by Porter, as they were not in accordance with the national statistics data, WIIW or European Commission statistics.

Source: Porter, M., Global Competitiveness Report: Building the Microeconomic Foundations of Prosperity: Findings from the Business Competitiveness Index, 2004

B.3. Romanian trade pattern with EU

Tabels B.3.1. Specific aspects of trade performance of accession countries with EU: exports and imports growth and geographical concentration index with EU - 15, 1990 - 2002

Exports of accession countries to EU:

	Exports growth: 1995 vs. 1990		Exports growth: 2002 vs. 1995		Territorial concentration index of exports with EU-15 * in 2002	
	(%)	Rank	(%)	Rank	(%)	Rank
Hungary	180.39	5.	445.07	1.	25.62	2.
Czech Rep.	193.47	4.	392.84	2.	31.08	1.
Slovakia			377.23	3.	24.26	5.
Lithuania			366.13	4.	16.27	9.
Latvia			336.95	5.	17.22	8.
Estonia			322.01	6.	21.77	7.
Romania	217.60	2.	294.36	7.	21.97	6.
Poland	208.83	3.	244.28	8.	25.26	3.
Bulgaria	250.00	1.	220.00	9.	15.82	10
Slovenia			150.99	10.	24.56	4.

Imports of accession countries from EU:

	Imports growth: 1995 vs. 1990		Imports growth: 2002 vs. 1995		Territorial concentration index of imports with EU - 15* in 2002	
	(%)	Rank	(%)	Rank	(%)	Rank
Lithuania			347.39	1.	18.78	7.
Slovakia			345.18	2.	24.54	2.
Latvia			328.41	3.	16.43	10.
Hungary	219.17	3.	309.40	4.	23.34	3.
Romania	231.9	2.	273.43	5.	21.31	4.
Czech Rep.	197.32	4.	264.27	6.	31.86	1.
Bulgaria	113.87	5.	264.15	7.	16.79	9.
Poland	395.61	1.	251.58	8.	20.19	5.
Estonia			229.23	9.	16.86	8.
Slovenia			154.48	10.	19.12	6.

* I estimated the territorial concentrated index relative to the EU-15 country partners using the Hirschmann concentration ratio: $TCI_{exp} = \sum(x_i/X)^2$ and $TCI_{imp} = \sum(m_i/M)^2$, $i = 1, \dots, 15$

where: x_i = share of exports to the EU country i in the total exports to EU;

m_i = share of imports from the EU country i in the total imports from EU.

Source: Author's computations based on EUROSTAT statistics: External and intra-European Union Trade, 2003 and 2004

Exports growth vs. EU trade territorial concentration index

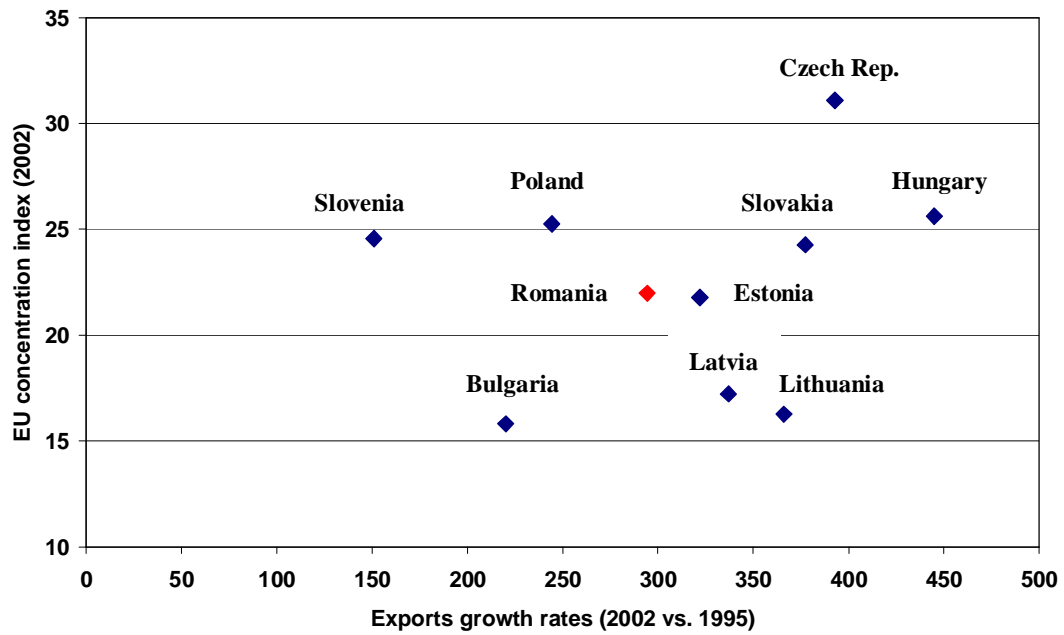


Figure B.3.1.

CEEC's exports growth to EU (1995 - 2002) vs. EU countries concentration index (2002)

Source: Author's computations based on table B.3.1.

Tabel B.3.2. Geographical trade concentration and shares of main country groups in the Romanian foreign trade, 1988 - 2003

	MERCHANDISE EXPORTS						MERCHANDISE IMPORTS					
	Geographical trade concentration of exports (HEXP, %)	EU	EFTA	EUROPEAN TRANSITION ECONOMIES	CEFTA	RUSSIAN FEDERATION	Geographical trade concentration of imports (HIMP, %)	EU	EFTA	EUROPEAN TRANSITION ECONOMIES	CEFTA	RUSSIAN FEDERATION
1988	-	28.49	-	19.17	-	21.74	-	13.77	-	24.66	-	31.58
1989	-	32.91	-	17.41	-	22.64	-	13.85	-	22.08	-	31.48
1990	-	33.88	-	15.67	-	24.62	-	21.78	-	17.89	-	23.12
1991	30.16	36.94	1.70	33.18	5.66	22.71	22.78	28.72	2.32	28.99	6.36	17.84
1992	25.60	35.17	2.39	24.77	3.68	9.50	27.42	41.28	2.13	26.24	5.07	12.75
1993	30.90	41.36	2.59	14.97	3.12	4.51	28.96	45.31	2.48	21.19	3.99	11.72
1994	34.34	48.20	0.91	13.21	4.20	3.37	31.41	48.21	2.31	22.99	3.92	13.84
1995	39.15	54.15	0.98	10.37	3.17	2.00	32.53	50.45	2.26	21.16	4.69	11.96
1996	40.08	56.51	0.82	11.01	3.64	2.03	34.21	52.35	1.87	21.02	4.73	12.52
1997	38.91	56.55	1.28	12.60	4.07	2.97	34.48	52.51	1.47	21.60	5.69	12.02
1998	46.31	64.53	1.22	10.60	4.44	0.98	39.38	57.69	1.34	21.11	8.79	8.97
1999	46.84	65.54	1.16	11.08	7.03	0.55	41.58	60.67	1.37	18.19	9.21	6.67
2000	44.86	63.84	0.98	13.21	8.18	0.86	37.98	56.60	1.40	20.49	9.21	8.58
2001	49.21	67.81	1.12	11.10	7.09	0.73	38.73	57.35	1.29	20.36	9.88	7.61
2002	48.71	67.06	1.35	9.25	6.36	0.29	39.60	58.37	1.15	19.70	9.92	7.20
2003	-	67,70	-	-	7,30	-	-	57,70	-	-	10,70	-

* Hirschmann concentration ration: $HEXP = \sum (x_i/X)^2$; $HIMP = \sum (m_i/M)^2$, where i = country groups (i = 1,...,6; the 5 presented in the table, the rest of the world being the sixth).

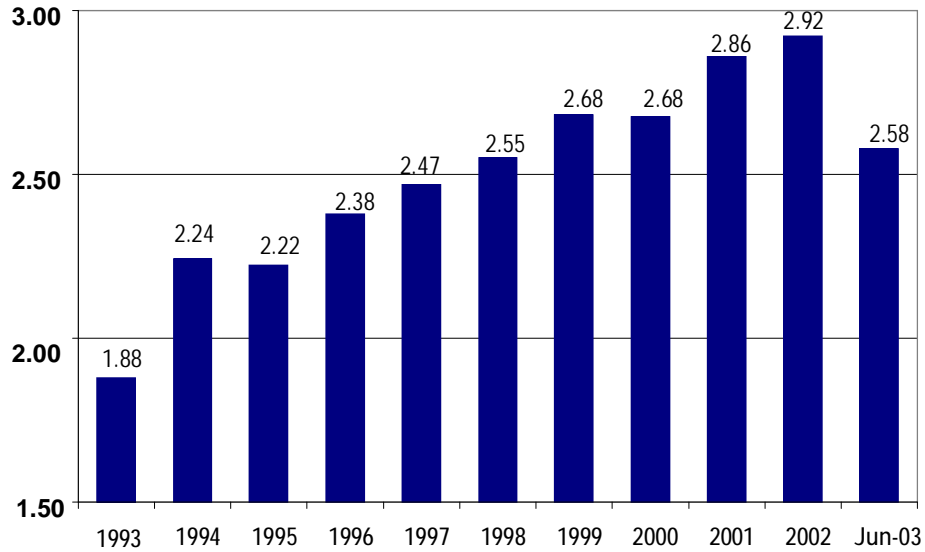
0 < H < 100%, the higher the index, the higher the concentration of trade.

Source: Author's computations based on Romanian National Bank statistics and Ministry of Industry and Foreign Trade database, 2004

Tabel B.3.3. **Indicators related to Romanian foreign trade with EU, 1993 – 2003**

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<i>EU share in the merchandise exports (%)</i>	41.4	48.2	54.2	56.5	56.5	64.5	65.5	63.8	67.8	67.1	67.7
<i>EU share in the merchandise imports (%)</i>	45.3	48.2	50.5	52.3	52.5	57.7	60.7	56.6	57.3	58.4	57.7
<i>Coverage ratio (X / M, %)</i>	68.5	86.5	82.6	76.3	80.5	78.5	88.7	89.6	86.6	89.2	86.1
<i>Trade deficit with EU (mil. USD)</i>	932	462	903	1417	1154	1471	710.5	770	1198.3	1121.5	1922.3
<i>Share of industrial products in the trade deficits (%)</i>	63.1	76.2	80.6	87.4	90.8	85.6	89.2	82.6	87.1	80.2	-
<i>Share of agricultural products in the trade deficits (%)</i>	36.9	23.8	19.4	12.6	9.2	14.4	10.8	17.4	12.9	19.8	-
<i>Trade intensity (share of Romanian exports to EU / share of EU imports in world imports)</i>	1.88	2.24	2.22	2.38	2.47	2.55	2.68	2.68	2.86	2.92	-
<i>Hirschmann specialization index of exports to EU (HEXP= $\sum (x_i/X)^2$)</i>	15.2	16.0	15.9	16.7	18.7	19.0	18.5	18.3	18.2	17.6	-
<i>Hirschmann specialization index of imports from EU (HEXP= $\sum (m_i/M)^2$)</i>	13.5	16.5	14.6	14.8	15.1	14.9	16.5	16.3	14.7	13.9	-

Source: Author's computation based on Romanian National Bank and EUROSTAT statistics, 2003 and 2004

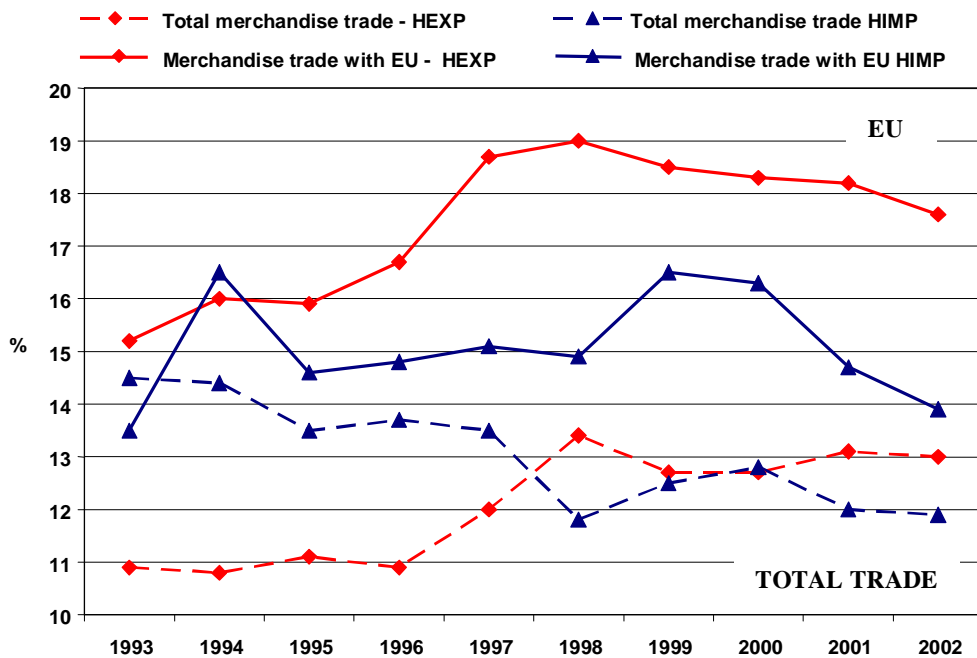


* Trade intensity is estimated as: $TI = (x_{EU} / X_R) / (m_{EU} / M_W)$, that is the share of Romanian exports to EU / share of EU imports in world imports.

Figure B.3.2.

Romanian trade intensity with EU, 1993 - 2003

Source: Author's computations based on EUROSTAT statistics: *External and Intra-European Trade*, 2004

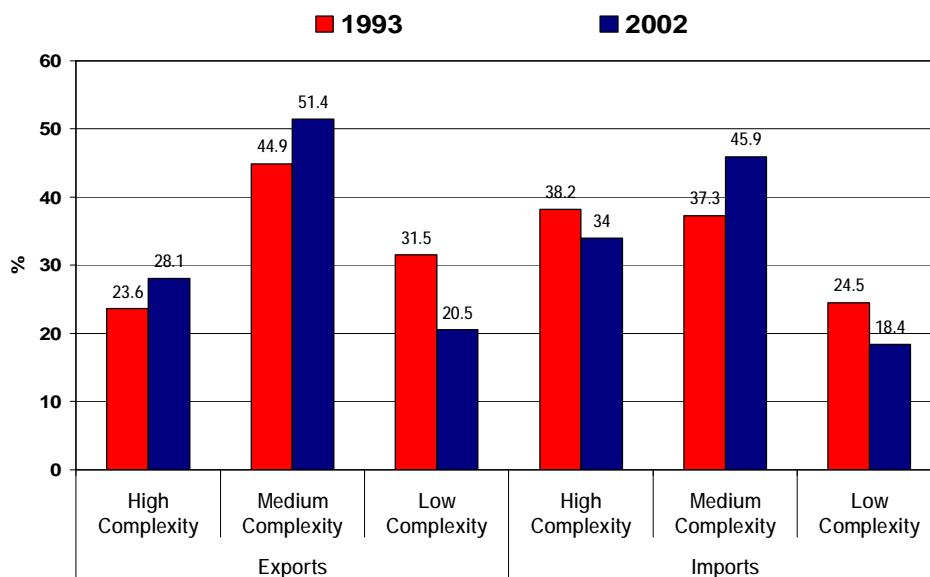


Hirschmann concentration ratio: $HEXP = \sum (x_i / X)^2$ and $HIMP = \sum (m_i / M)^2$, $i = I, \dots, XII$, where: x_i = share of group i of products in the total exports to EU; m_i = share of group i of products in the total imports from EU.

Figure B.3.3.

Romanian trade specialization/concentration with EU, 1993 - 2002

Source: Author's computations based on Romanian National Bank statistics, 2003

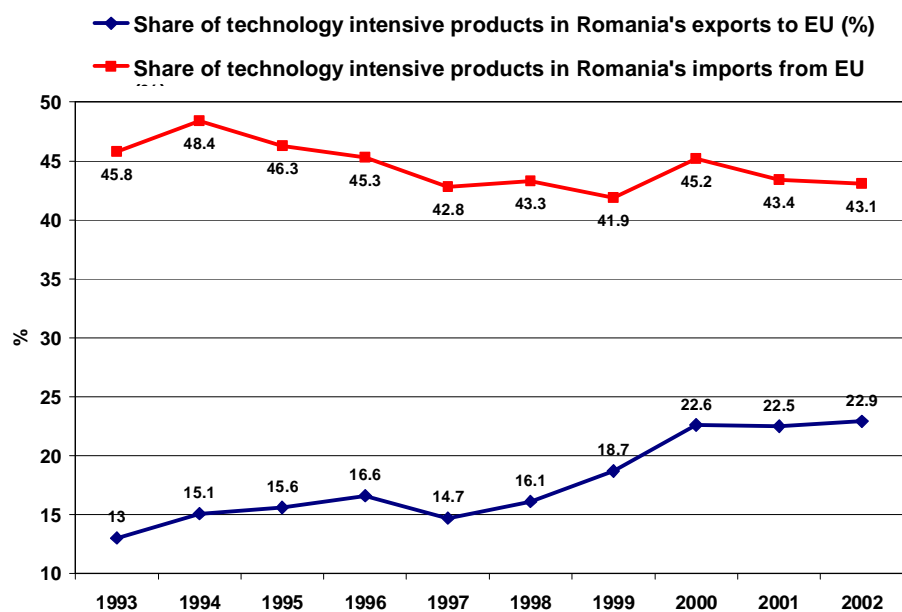


Technology Classification in accordance with the *National Program for Romanian Foreign Trade Development in 2003* developed by the Ministry of Development and Forecasting: high complexity: XVI, XVII, XVIII, XX; medium complexity: IV, VI, VII, X, XI, XII, XX; low complexity: I, II, III, V, VIII, IX, XV, XIII.

Figure B.3.4.

Technological structural changes in the Romanian trade with EU, 2002 vs. 1993

Source: Author's computations based on Romanian National Bank statistics, 2003



Technology Classification in accordance with Krauss, who split the tradable products into four categories: natural resource-intensive, unskilled labor-intensive, human capital intensive, technology intensive. The latter includes: machines and equipment (XVI), means of transportation (XVII), optical, medical instruments (XVIII) and chemical products (VI).

Figure B.3.5.

Share of technology-intensive products in Romania's trade with EU, 1993 - 2002

Source: Author's computations based on Romanian National Bank statistics, 2003

Tabel B.3.4. Structure of Romanian trade with EU: share of products groups, 1993 - 2002

Mil. USD	I. Live animals and animal products	II. Vegetal products	III. Animal or vegetal fats and oil	IV. Food, beverages, tobacco	V. Mineral products	VI. Chemical products	VII. Plastics, rubber and articles thereof	VIII. Raw hides and skins, leather, furskins and articles thereof	IX. Wood and wood products, other than furniture	X. Pulp of wood, paper, paperboard	XI. Textiles and textile articles	XII. Footwear, hradgear, umbrellas and other similar products	XIII. Articles of stone, plastics, glass, cement, ceramics	XV. Base metals and articles	XVI. Machines and equipment	XVII. Vehicles and associated transport equipment	XVIII. Optical, photographic, cinematographic, medical or surgical instruments, clocks and musical instruments and components	XX. Miscellaneous manufactured articles, inc. furniture	XXII. Products not elsewhere	
Exports FOB																				
1993	2.023.0	1.6	1.8	0.7	1.4	10.7	3.7	1.8	1.3	2.1	0.3	31.0	6.4	2.9	10.4	6.5	2.5	0.3	14.3	0.2
1994	2.965.0	1.7	1.5	0.1	1.1	6.6	4.7	2.0	1.3	1.9	0.4	33.1	9.5	2.5	11.5	7.6	2.5	0.3	11.5	0.2
1995	4.283.0	1.3	1.2	0.3	0.9	3.5	4.5	2.7	1.0	1.9	0.7	31.2	9.3	2.4	17.0	7.8	3.0	0.3	10.7	0.3
1996	4.569.0	1.2	1.1	0.0	1.1	4.2	3.9	2.4	0.9	1.9	0.5	33.4	10.3	2.1	14.8	8.7	3.7	0.3	9.3	0.1
1997	4.768.0	1.3	1.2	0.0	0.9	2.1	3.1	2.3	1.0	2.2	0.4	36.0	11.0	2.1	16.5	8.6	2.6	0.4	8.3	0.1
1998	5.358.0	1.0	1.1	0.1	0.6	2.0	2.0	2.1	1.0	2.7	0.3	36.4	11.1	2.0	15.8	10.2	3.5	0.4	7.4	0.3
1999	5.571.4	1.2	1.9	0.1	0.6	1.0	1.5	1.9	1.0	4.0	0.3	36.1	11.8	1.8	12.1	12.1	4.6	0.5	8.0	0.4
2000	6.618.4	1.1	0.9	0.0	0.5	0.9	2.0	2.1	1.2	3.4	0.5	34.3	11.6	1.6	12.4	16.2	3.9	0.5	7.5	0.3
2001	7.720.1	1.2	1.2	0.0	0.7	2.5	1.5	1.9	1.5	2.9	0.7	35.1	12.4	1.5	9.0	16.1	4.4	0.5	6.6	0.4
2002	9.301.1	1.0	1.0	0.0	0.5	5.4	1.3	2.2	1.6	2.9	0.6	34.4	12.1	1.4	7.2	16.1	5.0	0.5	6.5	0.3
Imports CIF																				
1993	2.955.0	0.9	9.4	0.4	4.6	4.5	9.5	3.5	2.7	0.6	1.6	17.2	1.0	1.2	4.8	27.2	6.0	3.1	1.9	0.1
1994	3.427.0	0.9	1.3	0.4	4.3	2.7	9.4	3.8	3.5	0.5	2.2	20.2	1.5	1.3	5.2	32.0	4.0	3.0	2.6	1.1
1995	5.186.0	0.9	0.7	0.4	4.5	3.8	10.0	3.9	3.7	0.8	2.6	19.6	1.7	1.5	5.7	28.8	3.7	3.8	2.6	1.3
1996	5.986.0	0.7	0.9	0.3	3.8	4.3	9.9	4.1	4.0	0.5	2.7	19.3	1.8	1.6	6.5	29.3	3.2	2.9	2.6	1.7
1997	5.922.0	0.5	0.8	0.4	2.8	3.5	9.5	4.2	4.3	0.6	2.7	22.8	2.2	1.5	5.8	27.6	3.2	2.5	2.6	2.4
1998	6.829.0	1.1	0.8	0.5	2.9	2.2	9.5	4.3	4.2	0.4	2.6	23.1	2.3	1.4	5.9	27.0	4.3	2.5	2.4	2.5
1999	6.281.9	0.8	0.9	0.3	2.6	1.5	10.1	4.8	4.6	0.6	2.7	26.6	2.6	1.4	6.1	26.4	2.5	2.9	1.4	1.4
2000	7.388.4	1.0	0.9	0.3	1.9	1.7	9.3	4.9	4.7	0.5	2.4	24.3	2.5	1.4	5.8	28.2	4.9	2.8	1.4	1.2
2001	8.918.4	1.5	0.8	0.2	1.9	2.0	8.8	5.5	5.5	0.5	2.4	23.6	2.5	1.5	6.4	25.2	6.8	2.6	1.3	1.1
2002	10.422.6	1.6	0.6	0.4	1.7	1.2	9.8	6.4	5.6	0.6	2.6	23.1	2.3	1.5	6.9	23.8	7.2	2.3	0.7	1.5

Source: Author's computations based on Romanian National Bank statistics, 2004

Tabel B.3.5. Revealed comparative advantage in the Romanian foreign trade with EU, 1993- 2002

	I. Live animals and animal products	II. Vegetal products	III. Animal or vegetal fats and oil	IV. Food, beverages, tobacco	V. Mineral products	VI. Chemical products	VII. Plastics, rubber and articles thereof	VIII. Raw hides and skins, leather, furskins and articles thereof	IX. Wood and wood products, other than furniture	X. Pulp of wood, paper, paperboard	XI. Textiles and textile articles	XII. Footwear, headgear, umbrellas and other similar products	XIII. Articles of stone, plastics, glass, cement, ceramics	XV. Base metals and articles	XVI. Machines and equipment	XVII. Vehicles and associated transport equipment	XVIII. Optical, photographic, cinematographic, medical or surgical instruments, clocks and musical instruments and components	XX. Miscellaneous manufactured articles, inc. furniture	XXII. Products not elsewhere
<i>IACRI = RCAI/100</i>																			
1993	0.55	-1.67	0.45	-1.20	0.88	-0.96	-0.66	-0.75	1.17	-1.66	0.59	1.81	0.90	0.78	-1.43	-0.86	-2.19	2.04	1.30
1994	0.57	0.14	-1.87	-1.35	0.90	-0.70	-0.65	-0.95	1.30	-1.61	0.49	1.84	0.63	0.80	-1.44	-0.46	-2.30	1.48	-1.86
1995	0.41	0.59	-0.36	-1.58	-0.07	-0.81	-0.38	-1.34	0.88	-1.26	0.47	1.70	0.44	1.09	-1.30	-0.21	-2.53	1.42	-1.62
1996	0.60	0.23	-2.62	-1.25	-0.03	-0.95	-0.53	-1.52	1.28	-1.77	0.55	1.73	0.31	0.83	-1.21	0.13	-2.17	1.30	-2.95
1997	0.94	0.42	-2.27	-1.16	-0.53	-1.12	-0.60	-1.44	1.33	-1.85	0.46	1.59	0.29	1.04	-1.16	2.07	-1.94	1.16	-2.97
1998	-0.08	0.33	-2.09	-1.65	-0.08	-1.56	-0.71	-1.45	1.82	-2.09	0.45	1.56	0.31	0.98	-0.98	-0.21	-1.72	1.11	-2.11
1999	0.46	0.76	-0.87	-1.56	-0.44	-1.91	-0.92	-1.50	1.93	-2.08	0.31	1.51	0.26	0.69	-0.78	0.60	-1.71	1.76	-1.30
2000	0.11	0.00	-3.32	-1.34	-0.66	-1.52	-0.86	-1.32	1.82	-1.64	0.34	1.54	0.13	0.75	-0.56	-0.22	-1.71	1.79	-1.33
2001	-0.26	0.41	-1.73	-1.02	0.19	-1.80	-1.09	-1.27	1.68	-1.27	0.40	1.62	-0.05	0.34	-0.45	-0.44	-1.64	1.73	-1.10
2002	-0.54	0.50	-5.10	-1.29	1.50	-2.00	-1.08	-1.24	1.51	-1.54	0.40	1.66	-0.12	0.04	-0.39	-0.36	-1.50	1.73	-1.40

The revealed comparative advantage index is calculated as follows:

$$RCA_{it} = \ln \left[\frac{x_{it} / m_{it}}{X_t / M_t} \right] * 100$$

where: x_{it} = exports of group of products i in the year t ;
 X_t = total exports in the year t ;
 m_{it} = imports of group of products i in the year t ;
 M_t = total imports in the year t ;

Source: Author's computations based on Romanian National Bank statistics, 2004

Tabel B.3.6. Intra/inter-industry trade estimation with Grubel – Lloyd index in the Romanian foreign trade with EU, 1993- 2002

	Total (balanced two-way trade with goods)	Total (unbalanced)	I. Live animals and animal products	II. Vegetal products	III. Animal or vegetal fats and oil	IV. Food, beverages, tobacco	V. Mineral products	VI. Chemical products	VII. Plastics, rubber and articles thereof	VIII. Raw hides and skins, leather, furskins and articles thereof	IX. Wood and wood products, other than furniture	X. Pulp of wood, paper, paperboard	XI. Textiles and textile articles	XII. Footwear, hradgear, umbrellas and other similar products	XIII. Articles of stone, plastics, glass, cement, ceramics	XV. Base metals and articles	XVI. Machines and equipment	XVII. Vehicles and associated transport equipment	XVIII. Optical, photographic, cinematographic, medical or surgical instruments, clocks and musical instruments, and combs	XX. Miscellaneous manufactured articles, inc. furniture	XXII. Products not elsewhere
IGL																					
1993	0.55	0.81	0.92	0.23	0.96	0.34	0.76	0.42	0.52	0.49	0.62	0.23	0.89	0.39	0.74	0.80	0.28	0.45	0.14	0.32	0.57
1994	0.58	0.93	0.79	1.00	0.24	0.37	0.64	0.60	0.62	0.50	0.48	0.30	0.83	0.31	0.76	0.68	0.34	0.70	0.16	0.42	0.24
1995	0.59	0.90	0.89	0.80	0.73	0.29	0.87	0.54	0.72	0.35	0.67	0.38	0.86	0.36	0.88	0.58	0.37	0.80	0.12	0.45	0.28
1996	0.61	0.87	0.84	0.98	0.11	0.36	0.85	0.46	0.62	0.29	0.53	0.23	0.86	0.38	0.98	0.73	0.37	0.93	0.16	0.53	0.08
1997	0.51	0.89	0.65	0.90	0.15	0.40	0.64	0.42	0.61	0.32	0.49	0.22	0.88	0.40	0.96	0.61	0.40	0.27	0.21	0.56	0.08
1998	0.62	0.88	0.84	0.96	0.18	0.26	0.84	0.28	0.56	0.31	0.34	0.18	0.89	0.42	0.97	0.65	0.46	0.78	0.25	0.59	0.17
1999	0.63	0.94	0.83	0.69	0.54	0.31	0.72	0.23	0.52	0.33	0.28	0.20	0.91	0.40	0.93	0.72	0.58	0.76	0.28	0.33	0.39
2000	0.66	0.95	1.00	0.94	0.06	0.38	0.63	0.33	0.55	0.39	0.31	0.30	0.88	0.39	0.99	0.69	0.68	0.84	0.28	0.32	0.38
2001	0.68	0.93	0.80	0.87	0.27	0.48	0.98	0.25	0.45	0.39	0.35	0.39	0.87	0.37	0.90	0.90	0.71	0.72	0.29	0.34	0.45
2002	0.66	0.94	0.68	0.81	0.01	0.40	0.40	0.21	0.46	0.41	0.40	0.32	0.86	0.35	0.88	0.96	0.75	0.77	0.33	0.33	0.36

The unbalanced and balanced two-way trade Grubel-Lloyd index between Romania and EU are calculated as follows:

$$IGLit = 1 - \frac{|Xi - Mi|}{Xi + Mi}, \quad \text{respectively} \quad IGLit = 1 - \frac{\sum |Xi - Mi|}{\sum (Xi + Mi)}$$

where: X and M are exports of a country and imports by a partner correspondingly of product i.

Source: Author's computations based on Romanian National Bank statistics, 2004

Tabel B.3.7. Intra-industry trade estimation with the Overlap Index in the Romanian foreign trade with EU, 1993-2002

	Total	I. Live animals and animal products	II. Vegetal products	III. Animal or vegetal fats and oil	IV. Food, beverages, tobacco	V. Mineral products	VI. Chemical products	VII. Plastics, rubber and articles thereof	VIII. Raw hides and skins, leather, furskins and articles thereof	IX. Wood and wood products, other than furniture	X. Pulp of wood, paper, paperboard	XI. Textiles and textile articles	XII. Footwear, hradgear, umbrellas and other similar products	XIII. Articles of stone, plastics, glass, cement, ceramics	XV. Base metals and articles	XVI. Machines and equipment	XVII. Vehicles and associated transport equipment	XVIII. Optical, photogra- phic, cinematographic, medical or surgical instruments, clocks and musical instruments and components	XX. Miscellaneous manufactured articles, inc. furniture	XXII. Products not elsewhere
<i>OI</i>																				
1993	0.68	0.84	0.13	0.93	0.21	0.61	0.26	0.35	0.33	0.45	0.13	0.81	0.24	0.59	0.67	0.16	0.29	0.08	0.19	0.40
1994	0.87	0.65	1.00	0.13	0.22	0.47	0.43	0.45	0.34	0.32	0.17	0.71	0.18	0.61	0.52	0.20	0.54	0.09	0.26	0.14
1995	0.83	0.81	0.67	0.58	0.17	0.77	0.37	0.56	0.22	0.50	0.23	0.76	0.22	0.78	0.41	0.23	0.67	0.07	0.29	0.16
1996	0.76	0.72	0.96	0.06	0.22	0.74	0.30	0.45	0.17	0.36	0.13	0.76	0.23	0.96	0.57	0.23	0.87	0.09	0.36	0.04
1997	0.81	0.48	0.82	0.08	0.25	0.48	0.26	0.44	0.19	0.33	0.13	0.79	0.25	0.93	0.44	0.25	0.16	0.12	0.39	0.04
1998	0.78	0.73	0.92	0.10	0.15	0.72	0.16	0.39	0.18	0.21	0.10	0.81	0.27	0.93	0.48	0.30	0.64	0.14	0.42	0.10
1999	0.89	0.71	0.53	0.37	0.19	0.57	0.13	0.35	0.20	0.16	0.11	0.83	0.25	0.87	0.57	0.41	0.62	0.16	0.19	0.24
2000	0.90	1.00	0.90	0.03	0.23	0.46	0.20	0.38	0.24	0.18	0.17	0.79	0.24	0.98	0.53	0.51	0.72	0.16	0.19	0.24
2001	0.87	0.67	0.77	0.15	0.31	0.95	0.14	0.29	0.24	0.22	0.24	0.77	0.23	0.82	0.82	0.55	0.56	0.17	0.20	0.29
2002	0.89	0.52	0.68	0.01	0.25	0.25	0.12	0.30	0.26	0.25	0.19	0.75	0.21	0.79	0.93	0.61	0.62	0.20	0.20	0.22

The overlap index is calculated as follows:

$$OI = \min(Xit; Mit) / \max(Xit; Mit)$$

Source: Author's computations based on Romanian National Bank statistics, 2004

Tabel B.3.8. Types of trade flows between Romania and EU, 2002

Prevalence of two-way flows (%)							Prevalence of one-way flows (%)						
Industries	High Overlap Index (OI)	High Grubel-Lloyd Index (IGL)	Law and positive revealed comparative advantage (IARC)	Law and negative revealed comparative advantage (IARC)	Share in total exports to EU	Share in total imports from EU	Industries	Low Overlap Index (OI)	Low Grubel-Lloyd Index (IGL)	High and positive revealed comparative advantage (IARC)	High and negative revealed comparative advantage (IARC)	Share in total exports to EU	Share in total imports from EU
II.	0.68	0.81	+ 0.50		1.0	0.6	V.	0.25	0.40	+ 1.50		5.4	1.2
XI.	0.75	0.86	+ 0.40		34.4	23.1	IX	0.25	0.40	+ 1.51		2.9	0.6
XV.	0.93	0.96	+ 0.04		7.2	6.9	XII.	0.21	0.35	+ 1.66		12.1	2.3
<i>Total share of trade with a positive RCA</i>					42.6	30.6	XX.	0.20	0.33	+ 1.73		6.5	0.7
					<i>Total share of trade with a positive RCA</i>							26.9	4.8
I.	0.52	0.68		- 0.54	1.0	1.6	III.	0.01	0.01		- 5.10	0.0	0.4
XIII.	0.79	0.88		- 0.12	1.4	1.5	IV.	0.25	0.40		- 1.29	0.5	1.7
XVI.	0.61	0.75		- 0.39	16.1	23.8	VI.	0.12	0.21		- 2.00	1.3	9.8
XVII	0.62	0.77		- 0.36	5.0	7.2	VII.	0.30	0.46		- 1.08	2.2	6.4
<i>Total share of trade with a negative RCA</i>					23.5	34.1	VIII.	0.26	0.41		-1.24	1.6	5.6
												0.6	2.6
												0.5	2.3
												0.3	1.5
					<i>Total share of trade with a negative RCA</i>							6.9	30.5
Total share of prevalence two-way flow trade in total trade					66.1	64.7	Total share of prevalence one-way flow trade in total trade					33.9	35.3

I. Live animals and animal products; II. Vegetal products; III. Animal or vegetal fats and oil; IV. Food, beverages, tobacco; V. Mineral products; VI. Chemical products; VII. Plastics, rubber and articles thereof; VIII. Raw hides and skins, leather, fur skins and articles thereof; IX. Wood and wood products, other than furniture; X. Pulp of wood, paper, paperboard; XI. Textiles and textile articles; XII. Footwear, headgear, umbrellas and other similar products; XIII. Articles of stone, plastics, glass, cement, ceramics; XV. Base metals and articles; XVI. Machines and equipment; XVII. Vehicles and associated transport equipment; XVIII. Optical, photographic, cinematographic, medical or surgical instruments, clocks and musical instruments and components; XX. Miscellaneous manufactured articles, incl. furniture; XXII. Products not elsewhere

Source: Author's computations based on table B.3.5, B.3.6., B.3.7.

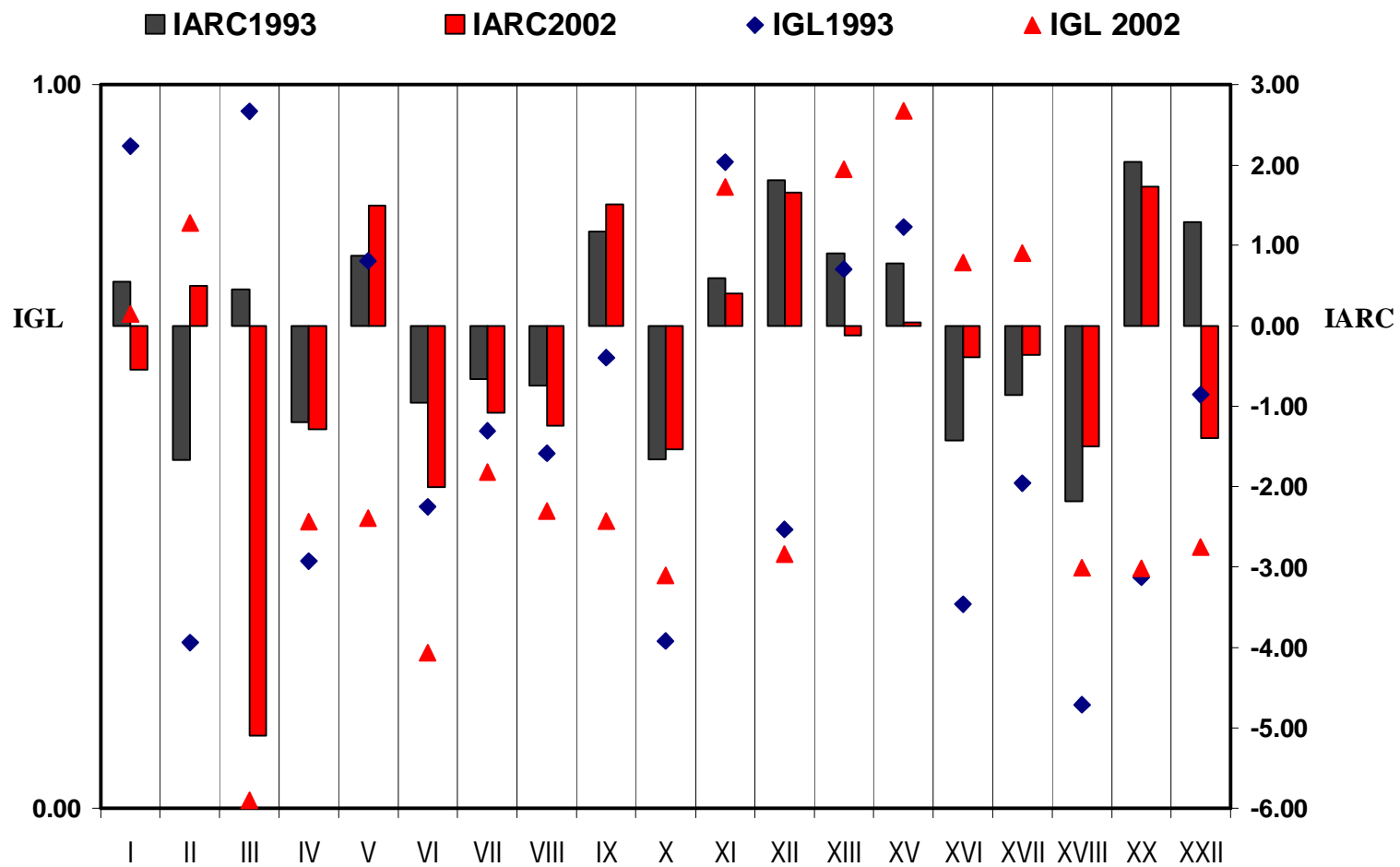


Figure B.3.6.

Romanian trade competitiveness picture relative to EU: Grubel-Lloyd index (IGL) vs. Revealed Comparative Advantage Index (IARC), 2002 vs. 1993

Source: Author's computations based on Romanian National Bank statistics, 2004

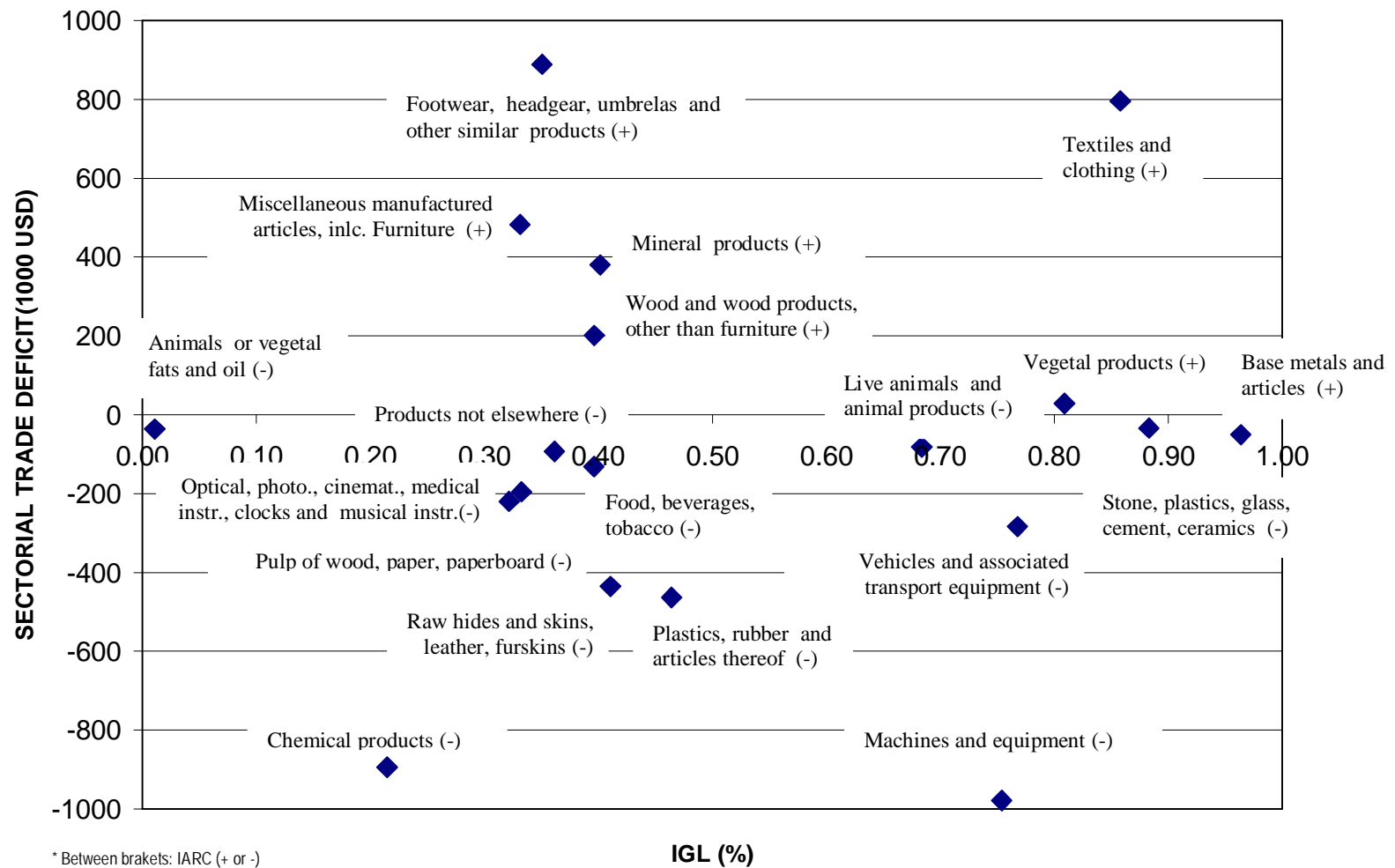


Figure B.3.7.

Romanian intra-industry trade (IGL) relative to sectorial trade surplus/deficit with EU, 2002

Source: Author's computations based on Romanian National Bank statistics, 2004

C. Trade approach vs. development approach

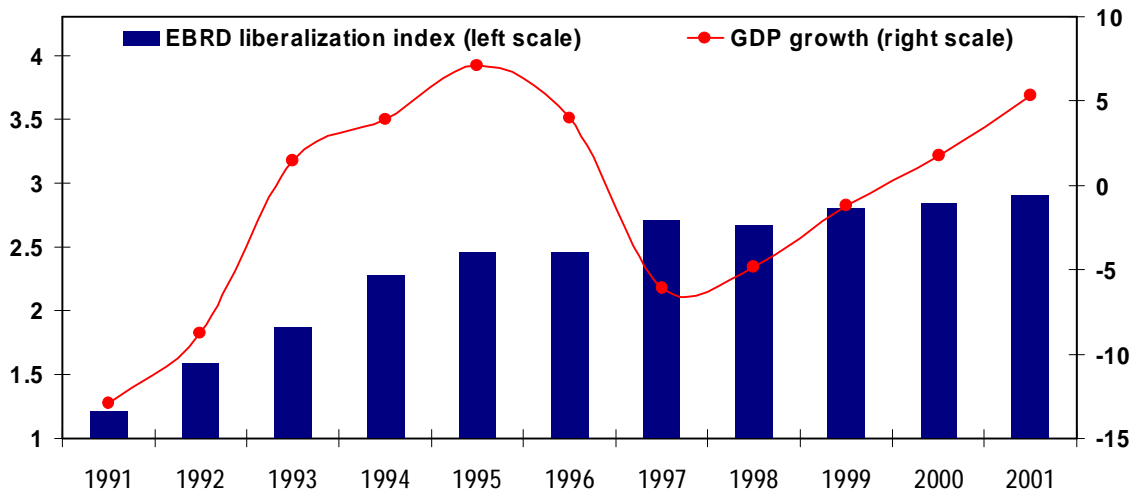


Figure C.1.

EBRD liberalization index and GDP real annual growth in Romania (1989 = 100), 1991 - 2001

Source: EBRD Transition Reports, 2002

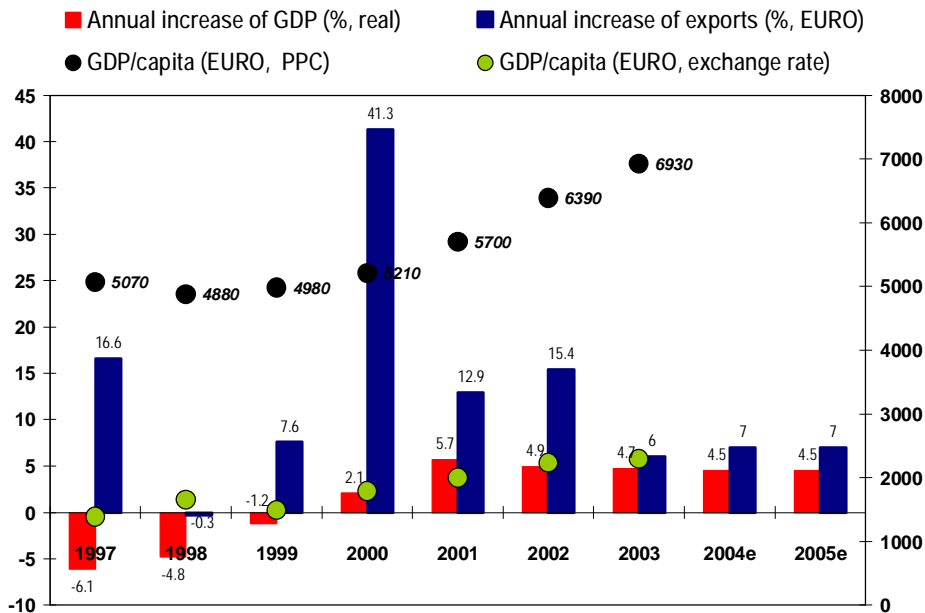
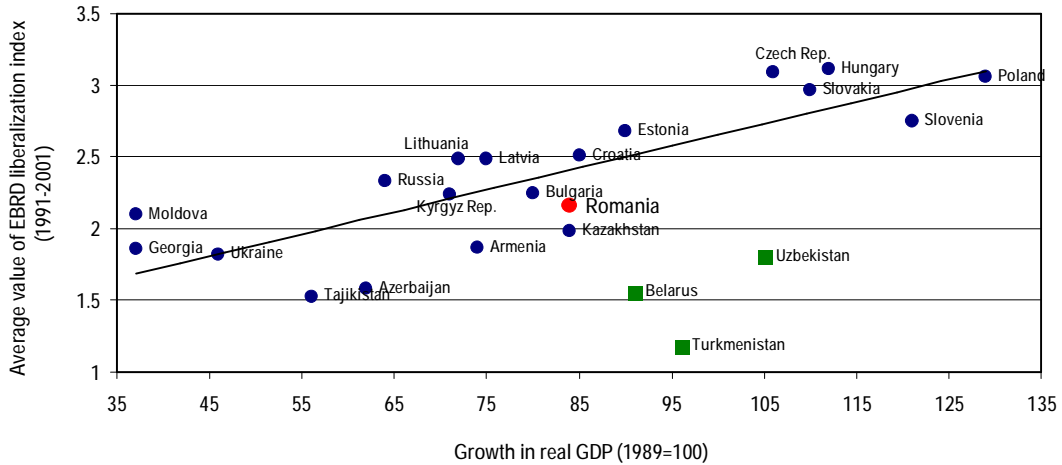


Figure C.2.

Trade vs. GDP dynamics in Romania, 1997 - 2005

Source: WIIW Statistics, 2004



■ Countries excluded from the regression due to the questionable quality of statistical data.

Figure C.3. **Growth in real GDP (1989=100) and average value of EBRD liberalization index (1991 – 2001)**

Source: EBRD Transition Report 2002

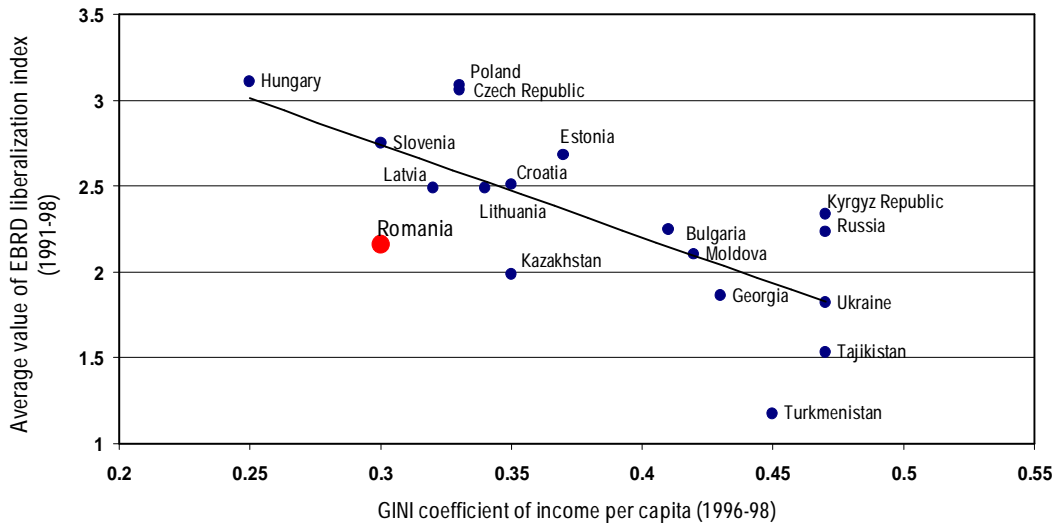


Figure C.4. **Gini coefficient (1996-98) and average value of EBRD liberalization index (1991 – 1998)**

Source: Making Transition Work for Everyone: Poverty and Inequality in Europe and Central Asia, World Bank 2000, EBRD Transition Reports

D. Growth Competitiveness Convergence Index – a new method for the CEEC convergence estimation in 2003

% of EU average	Index (GCI)	Macroeconomic environment index components				Public institutions index			Technology index			
		Total	Macro economic stability subindex	Government waste subindex	Country Credit Rating	Total	Contracts and law subindex	Corruption index	Total	Innovation subindex	Information and Communication Technology subindex	Technology transfer subindex
Estonia	93.75	88.82	102.02	89.73	67.66	93.84	90.62	96.17	105.69	84.86	98.97	107.82
Slovenia	91.80	86.79	94.17	84.70	75.61	89.46	82.96	94.85	96.88	88.13	94.15	90.95
Hungary	90.04	83.13	89.01	87.67	74.54	90.69	84.45	87.63	93.61	69.80	83.45	103.70
Latvia	89.45	89.02	106.50	87.90	58.96	82.46	81.65	79.59	99.14	88.38	84.35	104.32
Czech Republic	88.67	87.60	100.67	58.90	72.70	80.71	71.19	85.50	96.47	64.53	89.87	110.08
Lithuania	87.70	82.93	98.88	66.21	58.50	78.96	72.68	90.75	99.14	78.84	81.67	95.68
Slovak Republic	87.50	82.11	97.53	62.10	56.05	82.46	63.90	85.99	90.74	64.78	85.59	105.56
Poland	84.57	77.64	90.58	61.87	69.34	75.81	67.08	77.95	93.20	80.34	77.75	102.26
Bulgaria	81.05	77.85	82.96	61.87	69.34	73.00	50.63	90.26	90.94	65.03	70.26	77.98
Romania	66.02	59.55	80.04	44.52	40.32	57.25	55.49	58.75	80.50	57.75	66.87	97.33

*The convergence of technology transfer process is relative to the indexes for Spain and Portugal indexes average, the only data available.

Tabel D.1.

CEEC-10 Convergence in terms of Growth Competitiveness to EU, 2003

Source: Author's calculations based on the World Economic Forum Database, 2004

	Index (GCI)	Macroeconomic environment index components				Public institutions index			Technology index			
		Total	Macro economic stability subindex	Government waste subindex	Country Credit Rating	Total	Contracts and law subindex	Corruption index	Total	Innovation subindex	Information and Communication Technology subindex	Technology transfer subindex*
Romanian indices	3.38	2.93	3.57	1.95	2.64	3.27	2.97	3.58	3.93	2.30	3.75	4.73
% of UE average	66.02	59.55	80.04	44.52	40.32	57.25	55.49	58.75	80.50	57.75	66.87	97.33
% of CEEC average	77.54	73.25	84.94	63.11	62.71	70.93	77.00	69.33	87.53	77.78	83.95	97.75
UE – 15 average	5.12	4.92	4.46	4.38	6.55	5.71	5.35	6.09	4.88	3.98	5.61	4.86
Std dv.	0.43	0.35	0.19	0.84	0.34	0.57	0.66	0.56	0.51	0.81	0.46	0.09
σ – conv.	8.40	7.11	4.26	19.18	5.19	9.98	12.34	9.20	10.45	20.35	8.20	1.85
Min.	Italy	Greece	Portugal	Italy	Greece	Italy	Italy	Greece	Italy	Luxemburg	Greece	Spain
Max.	Finland	Finland	Finland	Finland	Luxembourg	Denmark	Finland	Denmark	Finland	Finland	Finland	Portugal
CEEC-10 average	4.36	4.00	4.20	3.09	4.21	4.61	3.86	5.16	4.49	2.96	4.67	4.84
Std. Dv.	0.45	0.46	0.36	0.65	0.68	0.59	0.66	0.63	0.40	0.42	0.53	0.44
σ – conv.	10.32	11.50	8.57	21.04	16.15	12.80	17.10	12.21	8.91	14.19	11.35	9.09
Min	Romania	Romania	Romania	Romania	Romania	Romania	Romania	Romania	Bulgaria	Romania	Romania	Bulgaria
Max	Estonia	Estonia	Latvia	Estonia	Slovenia	Estonia	Estonia	Estonia	Estonia	Latvia	Estonia	Czech Rep.

*In the case of EU the technology transfer index is weighted with 0, as they are core-innovators economies. We use the average of Spain and Portugal indexes, the only available.

Tabel D.2.

Romanian Convergence in terms of Growth Competitiveness to CEEC and EU, 2003

Source: Author's calculations based on the World Economic Forum Database, 2004

	<i>IGC Convergence Indicator 2003</i>		<i>BCI Convergence Indicator 2003</i>	<i>DB Research Convergence Indicator 2003</i>		<i>GDP/capita 2001 (%UEM, PPP)</i>	
	Rank	% of EU-15 mean	Rank	Rank	% of EU-15 mean	Rank	% of EU-15 mean
Estonia	1.	93.75	1.	4.	69.8	5.	42.4
Slovenia	2.	91.8	3.	1.	79.6	1.	71.5
Hungary	3.	90.04	5.	6.	69	3.	51.1
Latvia	4.	89.45	2.	5.	69.3	8.	32.2
Czech Rep.	5.	88.67	4.	2.	70.6	2.	61.4
Lithuania	6.	87.7	6.	8.	66.3	7.	35.3
Slovak Rep	7.	87.5	7.	3.	70.3	4.	49.9
Poland	8.	84.57	8.	7.	67.4	6.	39.4
Bulgaria	9.	81.05	10.	9.	65.8	10.	29.4
Romania	10.	66.02	9.	10	63.5	9.	29.6

Tabel D.3.

Comparison between *GCI*, *BCI*, *DB Research Convergence Indicators* and *GDP/capita convergence*

Source: Author's calculations, 2004

Scenarios for the Catching-up process:

	2001	2010 2)	2020 2)	2030 2)	Years needed to reach EU average level ¹⁾ - optimistic scenario	Years needed to reach EU average level ²⁾ - pessimistic scenario
Slovenia	71.5	76.2	80.6	84.1	32.3	65.8
Czech Republic	61.4	67.8	73.7	78.5	44.3	80.8
Hungary	51.5	59.6	66.9	73	53.3	92.1
Slovakia	49.9	58.2	65.9	72.1	54.6	93.7
Estonia	42.4	52	60.8	67.9	60.1	100.6
Poland	39.4	49.5	58.7	66.3	62.1	103.2
Lithuania	35.3	46.1	55.9	64	64.7	106.4
Latvia	32.2	43.5	53.8	62.3	66.5	108.7
Romania	29.6	41.3	52.0	60.8	68.0	110.6
Bulgaria	29.4	41.2	51.9	60.7	68.1	110.7
UEM	100	100	100	100	-	-

1) – Optimistic scenario: we supposed a 2.5% annual shrink of the difference between each country and EU.

2) – Pessimistic scenario: we supposed a 2% annual shrink of the difference between each country and EU.

Tabel D.4.

Scenarios for the CEEC-10 GDP/capita catching-up to EU

Source: Author's calculations

	Index GCI 2003 (% of EU average)	Years needed to reach EU average level ¹⁾ - optimistic scenario	Years needed to reach EU average level ²⁾ - pessimistic scenario
Estonia	93.75	3.4	21.3
Slovenia	91.8	4.2	39.2
Hungary	90.04	13.8	52.1
Latvia	89.45	16.6	55.9
Czech Republic	88.67	20.2	60.6
Lithuania	87.7	24.2	66.0
Slovak Republic	87.5	25.0	67.1
Poland	84.57	35.4	81.0
Bulgaria	81.05	45.6	94.6
Romania	66.02	74.5	133.3

1) – Optimistic scenario: we supposed a 2% annual shrink of the difference between each country and EU.

2) – Pessimistic scenario: we supposed a 1.5% annual shrink of the difference between each country and EU.

Tabel D.5.

Scenarios for the CEEC-10 growth competitiveness catching-up to EU

Source: Author's calculations