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## The process of reindustrialisation and changes in competitiveness of selected countries

### **Introduction**

The world economy and international commerce of today have been influenced by many factors occurring over the last couple of decades. The growth of IT technologies has made the Internet ubiquitous, which in turn has caused the development of e-commerce and many modern services. The appearance of a global financial market available 24/7 has fostered the unprecedented mobility of capital at an international level. The dynamics of flows in the world economy and the ever denser network of connections between its parties, the intensifying global competition, constant technological rivalry, and pressure from shareholders for maximizing financial outcomes, are only a few of the factors that have contributed to the proliferation of local economic crises that increasingly often attain an inter-regional scale. Given the context of the 2007–2009 global downturn – the most severe since the Great Depression – many has claimed that the main source of that crisis has been the detachment of the financial sector from the real economy, with a possible suggested antidote in reindustrialization.

The purpose of this paper then is to analyze the changing role of manufacturing sector in the economies of selected countries, with a particular emphasis on the effect of foreign direct investments (FDI) on the process. Keeping in mind the suggestions for reindustrialization, it has been claimed that such changes are related to trends in international specialization and to the comparative advantages of selected countries. Given the range of the problems tackled, this paper is empirical in character. The results are based on published statistical data for 1995–2014

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from international institutions such as UNCTAD, World Bank, OECD, or WTO. Research utilized trend analysis and several indices for the level of competitiveness of countries. For comparative purposes, analysis was also applied to the biggest economies of the Golden Triad, BRICS countries, several Southeast Asian countries, and Poland.

### **1. Changes in the degree of industrialization of the selected countries**

The plea for reindustrialization, which nowadays is often raised in the context of the debate on preventing economic crises or mitigating their economic, political and social effects, is not new. The topic of reindustrialization – understood as a transition from traditional industry (capital, resource, energy and labour intensive) to the branches of industry that rely on advanced technologies and highly qualified personnel – has been discussed in literature over the past few decades.<sup>1</sup> It is also worth stressing that the discussion on the necessity of undertaking reindustrialization began in the highly developed countries at a time of their ongoing deindustrialization in the second half of the 20<sup>th</sup> century.

As seen in Figure 1, the share of the manufacturing sector in global GDP decreased by 9 percentage points over the last four decades, while the share of the service sector rose by 12 percentage points. Deindustrialization was particularly rapid in highly developed countries (where the share of the manufacturing sector in GDP fell by 11,5 percentage points). In developing countries, meanwhile, the share of the manufacturing sector in GDP rose from nearly 15% in 1970 to over 20% in 2013.

There are two visible trends in the highly developed countries of the Golden Triad during the years 1995–2013 (see Figure 2). In the USA, United Kingdom and France the share of the manufacturing sector in

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<sup>1</sup> See for example *Reindustrialization or New Industrialization: Minutes of a Symposium*, Manufacturing Studies Board Assembly of Engineering, National Research Council, Washington 1981, p. 29 et seqq.; R. Rothwell, W. Ziegfeld, *Reindustrialization and Technology*, Longman, London 1985, p. 1 et seqq.; R.D. Norton, *Reindustrialization and Economic Development Strategy*, “Economic Development Quarterly” 1989, Vol. 3, No. 3, pp. 188–202.

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GDP dropped significantly, while in Japan and Germany it remained almost constant, except for 2009, when that share fell in both countries, probably and partly due to the global downturn (for example in the automotive industry).

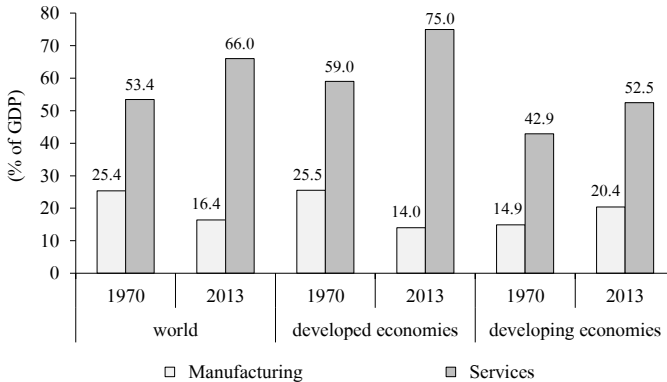


Figure 1. Manufacturing (excluding mining and construction) and service shares in GDP in 1970–2013

Source: UNCTAD, <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=95> (accessed 29.07.2015).

In the BRICS countries, the share of manufacturing in GDP fell by 5 percentage points on average. One exception to this was China, where the share in GDP was a record high (over 30%), and dropped only slightly in 2013. This may have been caused either by internal factors (such as the overheating of the Chinese economy), or external ones, such as too slow an increase in demand for Chinese goods in the highly developed countries (that were just leaving the crisis behind).

The comparison of the share of the manufacturing sector in GDP in Poland and in some of the Asian Tiger countries (see Figure 2) demonstrates the advantage held by the latter. While the index dropped strongly in Poland during the first stage of the systemic transformation (1995–2002), it rose in the countries of Southeast Asia, reaching 30% in each of them. The high share of manufacturing in GDP was maintained in

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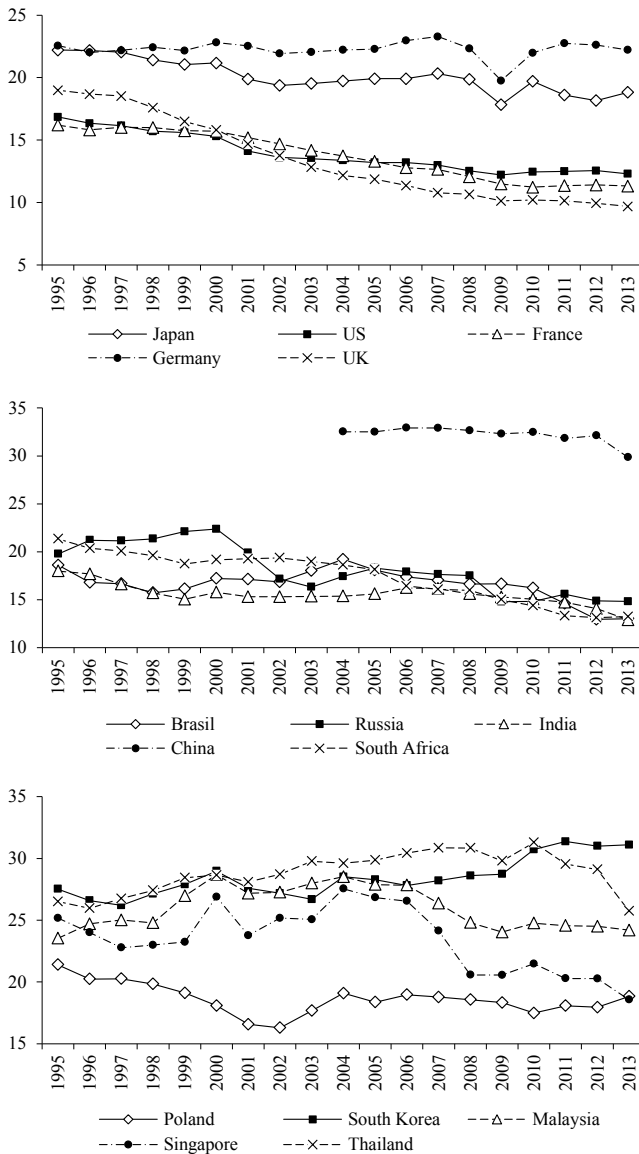


Figure 2. Manufacturing share in GDP of selected economies in 1995–2013  
 Source: as in Figure 1.

South Korea and Thailand over the following decade, while in Poland it increased to 20% thanks to the accession to the UE, which resulted in an opening of the EU markets for Polish goods, and at the same time an inflow of foreign direct investments.

### **2. The scale of foreign direct investment inflow**

Foreign direct investment (FDI) inflows are undoubtedly a factor that favour changes in the respective shares of sectors in the GDP of a given economy, although the scale of this effect is not easy to ascertain. Observing the values of foreign direct investment inward stock in the countries under analysis, one can state that in 2013 the biggest beneficiaries were the highly developed countries, i.e. the USA, the UK, and France (see Figure 3). China came fourth, slightly ahead of Germany. Inward foreign direct investment stock for Poland was similar to India, but only a half of that in Russia.<sup>2</sup>

Considering the FDI inflow as a percentage of GDP, in 1995–2013 the largest FDI occurred in Singapore, the European Union, Thailand, and Malaysia, with the smallest in Japan, China, India, and South Korea (see Table 1). The largest growth was observed in Russia (approximately 20-fold increase), India (approx. 8-fold increase), and Brazil (5-fold increase), and in remaining countries under scrutiny – in Poland and Japan. It is worth stressing that in the case of the developing countries with a large share of manufacturing in GDP (such as China and South Korea), the foreign direct investment inflow was the smallest of the group under analysis (10.3% and 13.7%, respectively). This might suggest that the effect could be the result of domestic rather than foreign investments. Poland has a relatively small share of manufacturing in GDP and a considerable inflow of foreign direct investments – the inward FDI stock rose

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<sup>2</sup> Considering the inward FDI stock *per capita*, Singapore becomes the unanimous leader (almost \$155,000), followed by the highly developed countries: UK, France, USA and Germany (\$25,300, \$16,300, \$15,200, and \$10,300, respectively). Poland with its almost \$6,600 is ahead of both of most of the developing countries under analysis and Japan (based on UNCTAD database, <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=89>, accessed 7/30/2015).

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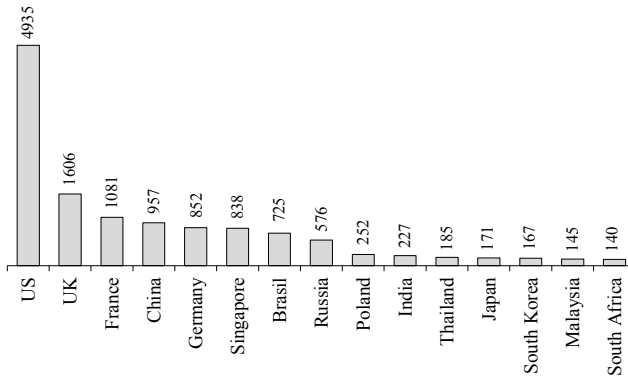


Figure 3. Inward foreign direct investment stock in selected economies in 2013 (US\$ bln)

Source: as in Figure 1.

Table 1

Inward foreign direct investment stock in selected economies in 1995–2013 (% of GDP)

Specification	1995	2000	2005	2010	2013	Growth 1995 = 100
1	2	3	4	5	6	7
Japan	0.6	1.1	2.2	3.9	3.5	583
United States	13.0	26.9	21.4	22.7	29.2	225
European Union (EU-28)	12.8	27.6	34.5	44.7	49.5	387
France	14.8	29.4	41.5	38.5	39.5	267
Germany	6.6	14.4	17.2	21.7	23.5	356
United Kingdom	16.9	31.0	36.7	49.5	63.4	375
Poland	5.6	20.0	29.9	45.9	48.8	871
Brazil	6.2	19.0	20.6	31.8	32.2	519
Russia	1.4	12.4	23.6	32.2	26.8	1914
India	1.5	3.5	5.2	12.1	11.8	787
China	13.4	16.2	11.9	9.9	10.3	77
South Africa	9.9	32.7	39.1	49.4	39.7	401
South Korea	3.4	8.2	12.4	13.2	13.7	403
Malaysia	29.9	54.1	31.0	41.1	46.6	156
Singapore	75.4	117.2	189.0	268.7	294.2	390

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1	2	3	4	5	6	7
Thailand	10.5	24.7	33.3	42.2	45.4	432
Developed economies	10.7	22.4	25.1	31.7	36.3	339
Developing economies	14.3	25.0	25.9	31.3	30.9	216
World	11.3	22.9	25.3	31.7	34.2	303

Source: as in Figure 1.

from 6% of GDP in 1995 to almost 50% of GDP in 2013. This means that part of such investments was channelled to non-manufacturing sectors, such as the service sector (as the high place by Poland in the statistics of the locations of service centres or business process outsourcing (BPO)<sup>3</sup> suggests).

### 3. Reindustrialization and the competitive position

Given the pleas for reindustrialization, one should consider whether and to what degree the competitive position of the developed and developing countries changed as a result of the phenomena occurring in the world economy in the last decades. Table 2 shows chosen indices of international trade for high-tech goods.<sup>4</sup> Analysis of the international specialization index (TC) shows that Germany (of the developed countries), and China and the Asian Tigers (of the developing ones) have increased their competitive advantage in this field. It is worth stressing that the competitive advantage of Japan, the USA, and the UK decreased during that period. Although the international specialization index of Poland in high-tech

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<sup>3</sup> More information on this topic can be found in *Sektor nowoczesnych usług biznesowych w Polsce 2015*, Association of Business Service Leaders in Poland (ABSL) report, Warszawa 2015.

<sup>4</sup> In the framework of the present work it is assumed that the high-tech goods include the following categories of goods (SITC 3): 54 (drugs and pharmaceuticals), 752 (computer equipment), 764 (communication equipment), 776 (electronic elements), 792 (aviation and space equipment), 87 + 881 + 884 (scientific and optical devices), 891 (arms and ammunition). Such an understanding follows the definitions met in the recent literature of the topic (see Z. Wysokińska, *Konkurencyjność w międzynarodowym i globalnym handlu technologiami*, Wydawnictwo Naukowe PWN, Warszawa–Łódź 2001, pp. 83–92, 179; *World Development Indicators 2015*, World Bank, Washington 2015, pp. 104–105).

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Table 2

International specialization index (TC) and revealed comparative advantage (RCA) index for high-tech products in selected economies in 1995–2013

Specification	1995	2000	2005	2010	2013
	TC				
Japan	2.21	1.58	1.25	1.07	0.76
United States	1.08	1.00	0.89	0.68	0.62
EU-28	n/a	0.89	1.03	0.93	1.14
France	1.29	1.24	1.19	1.15	1.20
Germany	1.11	1.11	1.15	1.13	1.35
United Kingdom	1.16	0.93	1.00	0.83	0.78
Poland	0.26	0.17	0.28	0.47	0.62
Brazil	0.15	0.55	0.60	0.30	0.24
Russia	n/a	0.53	0.18	0.07	0.12
India	0.44	0.50	0.29	0.47	0.73
China	0.69	0.77	0.94	1.16	1.17
South Africa	n/a	0.18	0.17	0.21	0.20
Singapore	1.26	1.34	1.33	1.39	1.38
Malaysia	0.89	1.07	1.25	1.09	1.12
South Korea	1.26	1.25	1.68	1.95	1.86
Thailand	0.81	0.86	1.11	1.24	0.87
RCA					
Japan	1.62	1.26	1.08	0.93	0.91
United States	1.72	1.62	1.56	1.15	1.04
EU-28	n/a	0.36	0.42	0.40	0.44
France	1.03	1.04	1.08	1.42	1.52
Germany	0.81	0.86	0.98	1.01	1.06
United Kingdom	1.54	1.25	1.22	1.03	0.83
Poland	0.24	0.20	0.22	0.46	0.50
Brazil	0.16	0.64	0.42	0.27	0.23
Russia	n/a	0.11	0.06	0.04	0.07
India	0.26	0.22	0.24	0.38	0.53
China	0.56	0.85	1.53	1.72	1.80
South Africa	n/a	0.16	0.18	0.17	0.17
Singapore	3.02	2.73	2.53	2.35	2.35
Malaysia	2.17	2.01	2.18	1.78	1.76
South Korea	1.76	1.59	1.83	1.76	1.62
Thailand	1.13	0.94	1.17	1.09	0.92

Source: author's calculations based on UN Comtrade Database, <http://comtrade.un.org> (accessed 20.07.2015) and World Bank data, <http://data.worldbank.org> (accessed 21.07.2015).



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products improved during the last decade, it still remains at a very low level (in 2013 the index value was even identical to that of the USA).

Those remarks are further confirmed by data pertaining to the revealed comparative advantage (RCA) index. While the Southeast Asian countries held the leading comparative advantage in the domain of the high-tech products, their RCA index showed a decreasing trend. That index shows that China greatly improved its competitive advantage – the RCA grew from 0.56 to 1.8. Of the developed countries, only France kept the RCA significantly above 1, while the index for the USA and Germany rose only slightly above this level. It should be noted, though, that the value of the RCA index of the USA was constantly dropping, while it increased in Germany. In the USA this can be attributed to moving of the production of the high-tech goods abroad (which was the result of the ongoing deindustrialisation). Germany, meanwhile, had an economic policy that aimed to foster the role of industry, to increase gross R&D expenses, and to improve the competitiveness and innovativeness of domestic business entities.

As was the case with the TC index, the value of the RCA index for Poland more than doubled, reaching the level of 0.5 in 2013. This means, however, that despite accession to the European Union and removing various administrative limitations on foreign trade, Poland does not hold a comparative advantage in high-tech goods. This only confirms widespread opinion that FDI in Poland are aimed at branches with low value added and a low (at most medium) technical level, thus bringing no major contribution to the technical advancement of local factories (both originally Polish and branches of foreign companies), which in fact consist of assembly plants of ready-made goods that take advantage of cheap labour and various privileges (such as the tax reliefs of special economic zones).

Complementing those considerations, Table 3 includes the values of the TC and RCA indices for advanced (knowledge-intensive) business services, such as computer/IT, financial, consulting or patent/copyright payments. In 2000–2013 the examined countries of the EU increased their competitive advantage, while the TC index for Poland was still

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Table 3

International specialization index (TC) and revealed comparative advantage (RCA) index for knowledge-intensive business services in selected economies in 2000–2013

Specification	2000	2005	2010	2013
	TC			
Japan	0.75	1.05	1.03	0.94
United States	1.78	1.72	1.58	1.69
EU-28	n/a	1.17	1.26	1.32
France	1.24	1.14	1.23	1.35
Germany	0.70	0.93	1.18	1.17
United Kingdom	2.28	2.28	2.35	2.52
Poland	0.54	0.61	0.93	0.93
Brazil	0.75	0.62	0.61	0.59
Russia	0.52	0.67	0.62	0.62
India	0.71	1.99	1.89	2.35
China	0.85	0.84	0.97	1.02
South Africa	0.91	0.63	0.54	0.57
Singapore	0.93	1.20	0.77	0.87
Malaysia	0.75	0.67	0.71	0.78
South Korea	0.62	0.62	0.56	0.81
Thailand	0.50	0.66	0.47	0.50
RCA				
Japan	1.15	1.03	1.07	1.06
United States	1.11	1.17	1.18	1.13
EU-28	1.02	1.07	1.11	1.11
France	0.83	0.81	1.00	1.03
Germany	1.06	1.02	1.10	1.16
United Kingdom	1.53	1.47	1.46	1.39
Poland	0.45	0.48	0.79	0.72
Brazil	1.39	1.06	1.22	1.25
Russia	0.59	0.66	0.77	0.78
India	0.75	1.60	1.41	1.43
China	0.76	0.78	0.82	0.98
South Africa	0.49	0.38	0.40	0.37
Singapore	0.95	1.14	0.77	0.83
Malaysia	0.97	0.64	0.48	0.61
South Korea	0.70	0.61	0.57	0.71
Thailand	0.49	0.58	0.44	0.31

Source: author's calculations based on World Trade Organization data, <http://stat.wto.org> (accessed 25.07.2015) and UNCTAD database, <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=17629> (accessed 25.07.2015).

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slightly below the threshold. Despite a slight downward trend, the TC index of the USA was above 1, and in Japan it fluctuated near 1.

Considering the other countries, the largest increase in the international specialization index occurred in India, where it almost tripled (probably thanks to the continued specialization in computer services). The TC indices for the other BRICS countries (except China) and the Southeast Asian countries were below 1. This strengthens the claim that those economies are specialized more in manufacturing than in business services.

Similar trends can be observed in the case of revealed comparative advantage (RCA) index. The highly developed countries (United Kingdom, the USA, and Germany in the group under scrutiny) and India hold a relative advantage in business service exports. Poland's RCA index is still below the threshold, despite the definite upward trend, and remains one of the lowest out of all the countries analysed (lower values were observed only in Thailand, South Africa and Malaysia).

Those considerations suggest that in the realm of high-technology goods, the highly developed countries are losing their comparative advantage to the developing countries. The data presented in Table 4 confirm this claim (the peak levels of the RCA index for 2014 are grayed). One can notice the developed countries under analysis hold the biggest comparative advantage in the export of medium technology goods (except for France), the BRICS countries – in the export of labor and resource intensive low technology goods, the southeast Asia countries – in the export of high technology goods. RCA growth analysis in 1995–2014 shows that Japan increased its comparative advantage in the domain of export of low and medium technology goods, while the USA only did so for medium technology goods. Moreover, the comparative advantage of Japan and the USA in the domain of high technology goods decreased by ca. 25% during the period.

As for the countries of the European Union, the largest increase in RCA index occurred in the groups of medium and high technology goods. In the case of Poland, the growing technical level of exported goods went hand in hand with a constant reduction in RCA index. While

Table 4  
RCA changes in selected economies for different technology intensity goods (1995–2014)

Specification	Labor-intensive and resource-intensive manuf-actures				Manufactures with skill and technology intensity level:								
					Low		Medium		High				
	1995	2014	change 1995 = 100		1995	2014	change 1995 = 100	1995	2014	change 1995 = 100			
Japan	0.29	0.20	69		1.39	1.51	109	1.72	2.10	122	1.37	1.03	75
United States	0.47	0.44	93		0.55	0.71	128	1.12	1.13	101	1.43	1.08	76
EU-28	1.06	1.03	97		1.12	1.14	102	1.15	1.35	117	0.93	1.02	110
France	0.85	0.90	106		1.08	0.98	90	1.16	1.17	101	1.04	1.34	129
Germany	0.77	0.76	99		1.14	1.09	96	1.56	1.82	117	0.94	1.01	107
United Kingdom	0.63	0.59	93		0.87	0.72	83	1.07	1.26	118	1.41	1.09	77
Poland	2.15	1.71	80		2.27	1.68	74	0.65	1.41	216	0.41	0.71	174
Brazil	1.05	0.55	53		1.67	1.10	66	0.68	0.55	80	0.37	0.32	87
Russia	0.21	0.19	91		1.52	1.13	75	0.19	0.17	86	0.28	0.28	97
India	2.59	1.69	65		0.91	1.30	143	0.27	0.51	188	0.45	0.73	164
China	2.91	2.52	87		1.54	1.55	100	0.62	1.05	169	0.73	1.38	187
South Africa	0.53	0.35	65		1.53	1.27	83	0.61	0.70	114	0.38	0.34	90
Singapore	0.32	0.17	54		0.42	0.47	112	0.57	0.64	113	2.26	2.12	94
Malaysia	0.79	0.72	91		0.37	0.50	136	0.39	0.52	132	1.89	1.57	83
South Korea	1.47	0.47	32		1.88	1.91	102	0.89	1.39	157	1.35	1.38	103
Thailand	1.69	0.81	48		0.54	0.77	142	0.61	1.32	217	1.10	1.15	104

Source: author's calculations based on UNCTAD data, <http://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=24739> (accessed 25.07.2015).

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in the group of high technology goods the index rose by 74%, it is still in the realm of labour-intensive goods of a relatively low technological complexity that Poland holds its biggest comparative advantage.

In the group of BRICS countries, China's results deserve special attention. That country holds a definite comparative advantage in the realm of the labor intensive and resource intensive goods, but the fast increase of RCA index value for high-tech goods shows that the Chinese economy is becoming a force to be reckoned with in the global innovation race. While China's comparative advantage is still lower than Singapore or Malaysia, it has reached a level comparable to South Korea, which for many years has been considered as one of the world's most innovative economies<sup>5</sup>.

### Summary

The experience of the last global economic crisis indicates that increasing the share of the manufacturing sector in GDP can counter some of the negative effects of an economic slowdown. The much discussed process of reindustrialization should not be understood in terms of recreating traditional industries (and idea often mentioned in Polish political circles), but rather as a transformation of the manufacturing area to foster the role of highly qualified personnel, advanced technologies and knowledge. Such approach should bring growth in both production and exports, help to improve the economy's competitiveness, and increase its position in the international division of labor.

The analysis presented here leads to the conclusion that during the last two decades, in most of the highly developed countries the phenomena leading to deindustrialization have prevailed. The growing flows of foreign direct investments have resulted in a large portion of manufacturing being moved from the Golden Triad countries to the developing

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<sup>5</sup> *Global Innovation Index 2014* puts South Korea at 16<sup>th</sup> position, with only Singapore and Hong Kong ahead of it, when considering the group of the newly industrialized countries (see *The Global Innovation Index 2014. The Human Factor in Innovation*, Cornell University, INSEAD, and WIPO; Fontainebleau, Ithaca, and Geneva 2014; p. xxiv).

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countries, especially to the recently industrialized southeast Asian countries and the BRICS countries. There are also symptoms of a growing international specialization by the aforementioned countries in specialized (knowledge intensive) business services. The analysis of the TC and RCA indexes further confirms such changes in the directions of international specialization: the high-developed countries are gradually losing their advantage in the trade of high-tech goods, with the dynamically developing Asian economies as the main beneficiaries. In the case of Poland, there are some positive trends, although the low innovation level of the economy and type of FDI inflowing to the economy ensure that Polish export goods are still of a relatively low technological level.

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