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Intra-Industry Trade between Selected Central and Eastern European Countries (Poland, the Czech Republic, Hungary, Slovakia and Slovenia) and the China Area: The Position of Textiles and Clothing

Abstract

Intra-industry trade refers to the exchange of products belonging to the same industry. The term is usually applied to international trade, where the same kinds of goods and services are both imported and exported. The intra-industry share of manufacturing trade has increased significantly across many Organisation for Economic Co-operation and Development (OECD) countries since the late 1980s. Central and Eastern European members of the OECD - especially the Czech Republic, Slovakia, Poland and Hungary - are among the countries with high and growing intra-industry trade as a percentage of the total manufacturing trade. Recent years have also seen an increase in the intra-industry trade of these countries with China and the China Area, with special reference to China - Hong Kong and China - Macau. The aim of this paper is to present the results of the intra-industry trade phenomenon and its development during recent years between selected Central and Eastern European economies and the China Area, with special emphasis on the most advanced branches of textile and clothing manufacturing.

Key words: intra-industry trade, textile, clothing, Eastern European Countries.

Introduction

Since the late 1970s, the Chinese economy has been moving towards a more market-oriented economy. Structural changes have granted increased authority to local officials and plant managers in industry and permitted a wide variety of small-scale enterprises in services and light manufacturing industry. Due to its increasing openness to foreign trade and investment, the Chinese economy became the second largest economy in the world in 1999 in terms of Gross Domestic Product (GDP), after the United States. It should be emphasized that textiles, as well as chemicals, fertilisers, machinery (especially for agriculture), processed foods, iron and steel, building materials, plastics, toys, and electronics are dominant among the major specialised branches of industry. Changes in economic policy, including the decentralisation of control and the creation of 'special economic zones' to attract foreign investment, have led to considerable industrial growth, especially in light industries that

produce consumer goods [1]. Among Chinese exports of manufactured products, the highest share belongs to textiles, garments, electronics, and arms [2]. A crucial decision related to the development of Chinese exports was when it became a member of the World Trade Organization (WTO) in 2002. Accession to the WTO simultaneously forced the government to open up the service sector. China's entry into the WTO has mostly benefited coastal cities, especially in the southeastern Chinese provinces of Hong Kong and Macau.

China has major attractions such as low-cost labour and an enormous domestic market of more than 1.2 billion consumers. The climate for foreign investors has been improving gradually. As one of the

fastest-growing economies in the world, the China Area attracted an Foreign Direct Investment (FDI) of more than USD 152 billion in the year 2007. Also observed is the growing share of inward and outward stock FDI of the China Area in the world economy and in the Asia Region (compare **Table 1** for detailed data concerning inward and outward stock FDI of the China Area).

While making some attempts to analyse and predict the future and clothing market of China and Eastern European countries it should be considered that as for technology-intensive products, a very active Intra-Industry Trade (IIT) may be observed among the East Asian countries. As early as the late 1990s, Japan exported JPY 272.4 billions worth of telecommu-

Table 1. Foreign Direct Investment; *Source:* www.unctad.org.

Foreign Direct Investment	Year	WORLD	DPING ASIA	CHINA AREA	Share of China Area in %	
		Millions of Current USD			World	Developing Asia
Inward Stock FDI	2005	10,180,063	1,613,586	800,444	7.9	49.6
	2006	12,470,085	2,016,072	1,041,418	8.4	51.7
	2007	15,210,560	2,706,635	1,520,764	10.0	56.2
Outward Stock FDI	2005	10,597,664	890,030	528,942	5.0	59.4
	2006	12,756,149	1,205,116	751,505	5.9	62.4
	2007	15,602,339	1,721,675	1,124,279	7.2	65.3
Inward Flow	2005	968,697	210,025	107,264	11.1	51.1
	2006	1,411,018	272,890	119,388	8.5	43.7
	2007	1,833,324	319,333	145,535	7.9	45.6
Outward Flow	2005	880,808	79,412	39,509	4.5	49.8
	2006	1,323,150	141,105	66,775	5.0	47.3
	2007	1,996,514	194,663	76,483	3.8	39.3

nications equipment and parts to China and Hong Kong while importing JPY 221.8 billion's worth of the same products from the two economies. Similarly, in the case of television receivers, Japan exported to and imported from China and Hong Kong a total of JPY 37.5 billion's and JPY 39.5 billion's worth of merchandise in 1999, respectively. The export-led growth of East Asian countries has depended not only on regional trade but also on trade with other regions, especially the United States and the European Union. East Asia is not only a major supplier of IT products for the regional market but also for the world [3].

Intra-industry trade: methodological and general aspects

The extent of intra-industry trade is typically much higher across the categories of manufactured goods than it is across trade in non-manufactured goods. It is the greatest for the more sophisticated manufactured products, such as chemicals, machinery, transport equipment, electrical equipment, and electronics. This is because sophisticated manufacturing products are more likely to benefit from the economy of scale in production and are easier to "differentiate" for the final consumer, thus facilitating trade in similar products [4].

Intra-industry trade refers to the exchange of products belonging to the same industry. The term is usually applied to international trade, where the same kinds of goods and services are both imported and exported. Such trade is more beneficial than inter-industry trade because it stimulates innovation and exploits economy of scale [5].

Methodology of intra-industry trade

Many efforts have been undertaken over recent years to verify intra-industry trade theory using highly developed countries as an example. Measurements of such trade have been made on the basis of the indicator most frequently applied, as developed by H. G. Grubel and P. J. Lloyd [6 - 9]. Its basic form is expressed as follows:

$$R = \frac{(X_i + M_i) - |X_i - M_i|}{(X_i + M_i)}$$

Where $(X_i + M_i)$ expresses the global value of foreign turnover for industries i ,

i.e. the sum of exports $(X_i + M_i)$ signifies the absolute value of the difference between the export and import of goods from the given industry.

The average level of intra-industry exchange may be calculated in line with the following formula:

$$\bar{R} = \frac{\sum_{i=1}^n (X_i + M_i) - |X_i - M_i|}{\sum_{i=1}^n (X_i + M_i)} \cdot 100$$

However, the formula presented is not free of defects. If X_i differs from M_i , that is if there is a deficit or surplus in a given country's foreign trade, then the average R significantly lowers intra-industry trade in the global turnover (it is never able to achieve a value of 100). Aware of this fact, Grubel and Lloyd proposed a formula with an average adjusted \bar{R} . The improved formula is intended to take into account the disfigured impact of unbalanced global turnover for the given country on the intensity of intra-industry trade and is expressed as follows:

$$\bar{R} = \frac{\sum_{i=1}^n (X_i + M_i) - \sum_{i=1}^n |X_i - M_i|}{\sum_{i=1}^n (X_i + M_i) - \sum_{i=1}^n X_i - \sum_{i=1}^n M_i}$$

The intra-industry share of manufacturing trade has increased significantly across many OECD countries since the late 1980s. The increase in IIT, with its implied structural convergence, is a high-income and middle-income phenomenon. While some, mainly Asian, lower-income countries exhibit rapidly increasing IIT shares, Africa has largely been excluded from this trend [10].

Central and Eastern European members of the OECD are among the countries with a high and growing intra-industry trade as a percentage of the total manufacturing trade [4]. Among the countries with the most rapid increase in intra-industry trade over the 1990s are the Eastern European "transition economies" of the Czech Republic, Hungary, Poland, and Slovakia. All of these countries were characterised by high and growing inflows of foreign direct investment (FDI) throughout the 1990s, especially from Western Europe. The combination of rising intra-industry trade and high foreign direct investment inflows is consistent with the increasing tendency of multinational companies to locate parts of their production operations in these countries. This is partly reflected in the trends of

these countries as well as by the fact that there was a steady increase in foreign direct investment outflows throughout the 1990s [14].

Also observed over recent years is the increase in the intra-industry trade of these countries with China and the China Area, with special reference to China-Hong Kong and China-Macau.

Intra-industry trade between selected central and eastern european new member states of the european union and the china area

The development of economic cooperation with the Asian region (with special reference to the China Area) is at the center of European Union policy for the development of external relations in line with crucial strategic documents such as "Global Europe: Competing in the World - A Stronger Partnership to Deliver Market Access for European Exporters," [11] "Europe and Asia: A Strategic Framework for Enhanced Partnerships" [12] and "Regional Programming for Asia (*) - Strategy Document 2007-2013" [13].

At present, new Members of the European Union, with special reference to the Czech Republic, Poland, Slovakia, Hungary, and Slovenia, are rapidly becoming involved in the process of the development of economic cooperation with the China Area on the basis of intra-industry trade. The results of this cooperation are presented in **Table 2**. All the data present the ranking of intra-industry trade indexes in the year 2007 for the bilateral trade of selected Central and Eastern European (CEE) countries with China, China-Hong Kong, and China-Macau. All the high indicators visible/displayed in the Table apply to trade in goods that are highly processed. The Table includes data for yarns, textiles, clothing and other related products such as machinery for textiles, paper, rubber and leather goods as well as some other products presented for comparison. The small amount of positions concerning textiles & clothing mirrors the situation of this market, where these goods are ejected step by step by other countries. This tendency which is even worse today will be the subject of the next article.

The limited content of **Table 2** accepted in order to limit the volume of this arti-

cle causes that some non-textile goods analysed are not presented by values of IIT trade.

Table 2 presents the IIT indicators. As can be seen from the measurement results presented for Poland, the level of the increase in intra-industry trade over the two years examined is characterised by a growth tendency (the indicators clearly show a higher level in 2007 than in 2006, with the exception of ships, boats, and floating structures in the case of cooperation with China as well as with respect to other machinery for specific industries, n.e.s. and sound recorders or reproducers in trade with China–Hong Kong). As can be seen in the results shown in **Table 2**, the only goods achieving a high level of growth in intra-industry trade between Poland and China–Macau is **women’s clothing**.

It clearly shows a strong development tendency in intra-industry trade between the Czech Republic and China as well as China–Hong Kong in 2007 as compared with 2006 (strongly growing indicators increasing to very high levels as compared with their relatively low levels in 2006), with the exception of glassware (in trade with China), musical instruments, parts, records, tapes, and such like in trade with China–Hong Kong. However, the level of increase in intra-industry trade between the Czech Republic and China–Macau is low.

As in the case of the Czech Republic, the data for Slovakia demonstrate the very dynamic development of such trade in the groups of goods presented in 2007 as compared with earlier results achieved in 2006.

It was only in the case of two products - i.e. metalworking machinery (excluding machine–tools) and parts, and **knitted and crocheted fabrics, n.e.s.** - that the IIT indicator for Slovakia and China was lower. However, in Slovakia’s exchange with China - Hong Kong, a fall in the indicator only occurred in the case of the other non–electric machinery, tools, and mechanical apparatus product group. As in the case of the Czech Republic, Slovakia also showed a very low IIT indicator level in trade with China - Macau.

In contrast to the countries discussed above, in the case of Hungary the most favorable results for intra-industry trade were achieved in relation to the province

Table 2. Intra-industry Trade between the particular, selected Eastern European Countries and the China Area divided in China – Hong Kong, China – Macau and China without these regions; **Source:** Own calculations based on the UNCTAD–Comtrade database.

Country	Chiny area	Assortment	IIT	
			2006	2007
Poland	China	Sanitary, plumbing, heating, fixtures, fittings, n.e.s.	0.341	0.788
		Other machinery for particular industries, n.e.s.	0.458	0.715
	China - Hong Kong	Rubber articles, n.e.s.	0.491	0.944
		Plastic articles, n.e.s.	0.671	0.938
		Miscellaneous manufactured articles, n.e.s.	0.972	0.935
	China - Macau	Women’s clothing	0.097	0.177
Czech Republic	China	Paper and paperboard	0.952	0.990
		Rubber tyres, tyre treads, flaps, and inner tubes	0.658	0.947
		Polyethers, epoxide resins, polycarbonate and polyesters	0.605	0.924
		Polymers of vinyl chloride or halogenated olefins	0.161	0.832
		Other machinery for particular industries, n.e.s.	0.850	0.999
		Aircraft and associated equipment, spacecraft, etc.	0.055	0.929
	China - Hong Kong	Silver, platinum, and other metals of the platinum group	0.000	0.850
		Clothing accessories from textiles	0.540	0.983
		Tulles, trimmings, lace, ribbons, and other small wares	0.071	0.852
		Men’s and boy’s clothing of textiles knitted and crocheted	0.000	0.856
		Paper and paperboard, articles cut to shape or size	0.818	0.958
Slovakia	China	Other machinery for particular industries, n.e.s.	0.080	0.958
		Instruments and appliances, n.e.s., for medical purposes, etc.	0.157	0.809
		Textile yarn	0.556	0.725
	China - Hong Kong	Knitted and crocheted fabrics, n.e.s.	0.927	0.575
		Leather	0.000	0.905
Hungary	China	Other machinery for particular industries, n.e.s.	0.151	0.782
		Textile and leather machinery, and parts thereof, n.e.s.	0.344	0.607
	China - Hong Kong	Knitted and crocheted fabrics, n.e.s.	0.531	0.571
		Special yarn, special textile fabrics and such like	0.017	0.570
		Organo–inorganic, heterocyclic compounds, and nucleic acids	0.000	0.487
Slovenia	China	Synthetic organic coloring matter and coloring lakes	0.023	0.000
		Inorganic chemical elements, oxides, and halogen salts	0.000	0.837
	China - Hong Kong	Rubber articles, n.e.s.	0.148	0.928
		Photographic apparatuses and equipment, n.e.s.	0.057	0.987
		Measuring, analysing, and control apparatuses, n.e.s.	0.606	0.970
China - Hong Kong	Electro–diagnostic apparatuses for the medical sciences, etc.	0.092	0.836	
	Paper and paperboard	0.363	0.677	
	Aircraft and associated equipment, spacecraft, etc.	0.000	0.780	
	Pigments, paints, varnishes, and related materials	0.635	0.748	
China - Hong Kong	Textile and leather machinery, and parts thereof, n.e.s.	0.751	0.985	
	Medicinal and pharmaceutical products, excluding 542	0.001	0.911	
	Measuring, analysing and controlling apparatuses, n.e.s.	0.194	0.591	

of Hong Kong. Also noted was the uniform worsening trend for the year 2007 as compared with the previous year with respect to IIT indicators for Hungary’s trade with China–Macau. A favorable tendency for Hungary was achieved with respect to the clear growth of IIT indicators for all groups of goods of the processing industry (i.e. photographic apparatuses and equipment, n.e.s., measuring, analysing, and control apparatuses,, rubber articles, n.e.s., office machines, soaps, cleansing and polishing preparations, household equipment, electrical or non–electrical, n.e.s., radio–broadcast receivers, whether or not combined, electro–diagnostic apparatuses for the medical sciences, etc., printed matter, electri-

cal machinery and apparatuses, n.e.s., and plastic articles, n.e.s.

Comparison of these indicators for Slovenia with those presented earlier for Poland, the Czech Republic, Slovakia and Hungary allow to state that Slovenia is the clear leader of the group of countries examined. All the groups of show a strong growth trend in terms of intra-industry trade. This is particularly clear in the case of trade with both China and China–Hong Kong. The results for intra-industry trade between Slovenia and China–Macau are also growing, albeit at a significantly lower rate. Most of the positive results were achieved by Slovenia for the group of highly processed goods.

In the cooperation between Slovenia and China–Hong Kong, two positions are in the lead in terms of the growth of the IIT indicator —**textile and leather machinery**, and parts thereof, n.e.s. as well as medicinal and pharmaceutical products, excluding 542.

■ Conclusions

1. In becoming a part of the European Union strategies aimed at the development of cooperation with the countries of Asia, the new European Union member states - Poland, Czech Republic, Hungary, Slovakia, and Slovenia - have intensified their intra–industry trade in the processing industry with China and its provinces - Hong Kong and, to a lesser extent, Macau. The most dynamic development of such cooperation was seen in the year 2007, which was marked by very strong growth compared to the relatively poor results achieved in the year 2006.
2. Intensive growth of the IIT indicators, especially with respect to China–Hong Kong, was noted for Slovenia, followed by Hungary. The Czech Republic, Slovakia and Poland developed cooperation with China on an intra–industry level, cooperating with the provinces of Hong Kong and Macau to a significantly lesser extent. In this respect all three countries achieved a significant intensification of trade on an intra–industry level, but the clear leader out of the three was the Czech Republic, whose level of increase in trade with China on an intra–industry level was relatively the highest.
3. With respect to the textile and clothing industry, worth noting is the growing importance of cooperation on an intra–industry level between Poland and China–Macau in the area of women’s clothing, as well as between the Czech Republic and China–Hong Kong in the areas of clothing accessories, textile fabrics, men’s and boy’s clothing, textiles, knitted and crocheted fabrics, tulle, trimmings, lace, ribbons, and other small wares. Slovakia developed cooperation with China on an intra–industry level in the field of textile yarn, and with China–Hong Kong in the area of textile and leather machinery, and parts thereof, n.e.s., knitted and crocheted fabrics, n.e.s., as well as special yarns, special textile fabrics and such like. Also worthy of attention are the very high intra–industry trade indicators achieved by Slovenia

with respect to China–Hong Kong in the area of textile and leather machinery, and parts thereof, n.e.s.



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