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BILATERAL TRADE BY PRODUCTS BETWEEN THE V4 COUNTRIES AND CHINA IN YEARS 2009–2019

Abstract. Subject and purpose: Using annual data for the periods 2009–2019, this paper examines trade flows between China and the Visegrad Group countries. The aim of this article is to assess real changes taking place in international trade in the Visegrad Group countries (V4) over the last eleven years. The starting point for the analysis was 2009 – the time after the 2008 economic crisis, and it was compared especially to 2018 – a year marked by a significant improvement in the economy. The purpose is to discuss concerns related to the differences in bilateral trade between China and Poland, Czech Republic, Hungary, and Slovak Republic. The main aim of this research is to distinguish the characteristics of bilateral trade by products between V4 and China in years 2009–2019. The purpose of this article is also to systematize and discuss points of view, rationalizing further empirical research. Two research hypotheses, resulting from the research purpose, were formulated: H1: in the V4 countries import exceeds export, and this trend seems to be growing, H2: Chinese goods imported to the V4 are much more sophisticated than those exported.

Design/Methodology/Approach: To assess the initial and current situation on international trade between the V4 and China, the author uses variables obtained from WTO and OEC resources, diagnosing the situation in Poland, Czech Republic, Hungary, and Slovak Republic. The collected empirical data were processed using theoretical methods such as analysis, synthesis, and comparison to formulate conclusions using deductive and inductive inference methods.

Practical Implications: The results can be used in scientific and expert work on diagnostic and forecast trends in bilateral trade by products between the V4 and China.

Originality/Value: It concerns the indication of the importance of the V4 trade with China compared to the share of the V4 countries in world trade. It was also possible to identify the top export and import products of the V4. The findings also confirm the significant change in China's trading structure.

Keywords: foreign trade, bilateral trade, Visegrad Group, V4, Poland, Czech Republic, Slovak Republic, Hungary, China, export of products, import of products.

Introduction

Since the end of the 1970s and the implementation of China's "open door" strategy, foreign trade policy has been changing. Since the beginning, China has been the destination for many countries because of its cheap labour force (Fojtikova, Stanickova, Melecky, 2017). Former leader Deng Xiaoping adopted a "great international circulation" strategy. Still, the 2008–2009 global crisis exposed the export-led model's vulnerability and prodded policymakers to rebalance growth toward domestic demand (Yao, 2020). Since 2010, China has changed its development strategy – from an export-led growth strategy to a strategy focused on domestic consumption. Now, in 2020, when the external environment is less predictable for China, the strategy of a dual circulation economy is promoted. The "dual circulation" strategy is a key priority in the government's 14th five-year plan (2021–2025). At the same time, with a rapid recovery from the coronavirus, the Chinese market's demand for overseas products will continue to increase.

In 2019 China was the largest exporter of products (13,2% share of world trade) and the second-largest importer (10,8% share of world trade) in the world. The world's merchandise trade amounted to USD 19.051T and consisted of manufactured products – USD 13.3B, fuels and mining products – USD 3.0B, and agricultural products – USD 1.8B (WTO, 2020). At the same time, China was the third-largest partner for EU export of products (9%) and the largest partner for EU import of products (19%). Both exports to China from the EU and imports from China to the EU increased between 2009 and 2019. The Netherlands was the largest importer of goods from China, and Germany was the largest exporter of goods to China in 2019 (Eurostat, 2020). Germany is the top exporter and the leading importer of all V4 countries (OEC, 2020). This article focuses on bilateral trade in products between China and the Visegrad Group.

The Visegrad countries' entrance into the EU in 2004 signified another milestone in the development of China's bilateral relations with them. In recent years China has tended to sell more goods to the Visegrad Group than it buys, becoming one of the most important import partners of the V4. It is related to the growing trade deficit in bilateral trade by products.

The plan of this study is as follows. We start, in section 1, with the literature review concerning the importance of foreign trade and threats connected with it. In section 2, the share of Visegrad Group and China in world merchandise trade was presented. In section 3, empirical results of analysis concerning bilateral trade flows in products between the V4

and China are given. In section 4, top export and import products in bilateral trade between all V4 countries and China were presented. Lastly, there is a conclusion with a few comments on this work.

1. The role of foreign trade – literature review

International trade means the exchange of products or services between two different countries. It is an important factor in dynamizing economic development. International trade influences the structure of national income, can increase the efficiency of management, and impacts the volume and dynamics of the national income from the point of view of supply and demand. In recent years international trade has become increasingly important, with a larger share of GDP devoted to exports and imports. World Bank stats show that world exports as a % of GDP have increased from 12% in 1960 to around 30% in 2019 (World Bank, 2020).

International trade theories can be divided into three groups. The first group is classical, including absolute advantage (A. Smith) and comparative advantage (D. Ricardo). The second is neoclassical – factor proportions theory (theory of Heckscher-Ohlin). The third one includes new theories (modern theories), contributed to by the changes taking place in modern economies and international trade. These theories include, e.g., preference/country similarity, product life cycle, global strategy rivalry, models based on the new growth theory, Porter's national competitive advantage, gravity model.

The concept of absolute advantage was developed by Adam Smith in 1776 to show how countries can gain from trade by specializing in producing and exporting those goods. Absolute advantage is focused on a country's ability to produce a good more efficiently than another country. According to A. Smith, by focusing on their own specialization, countries will then import goods that are expensive or cumbersome to produce, thus benefiting country B who specializes in producing that good. Smith's theory states that through specialization, production would become more efficient. Absolute advantage looks at the absolute productivity and reasons that with increased efficiencies, people in both countries would benefit, and trade should be encouraged (Orłowska, 2013).

D. Ricardo developed the classical theory of comparative advantage in 1817 to explain why countries engage in international trade even when they don't have absolute advantage. The theory of comparative advantage states that countries should specialise in those goods where they have a rel-

atively lower opportunity cost, even if one country can produce two goods at a lower absolute cost, because trade allows countries to specialise. Comparative advantage focuses on the relative productivity differences, which are sufficient for the development of specialization and international trade in manufacturing costs.

In the early 1900s, E. Heckscher and B. Ohlin formulated the factor proportions theory. They focused their attention on how a country could gain comparative advantage by producing products that utilized factors that were in abundance in the country. Heckscher-Ohlin’s theory stated that countries would produce and export goods that required resources or factors that were in great supply and, therefore, cheaper production factors (Misala, 1996).

After World War II, a lot of new (modern) theories were developed. New trade theories (Panda, Sethi, Chaudhuri, 2016) place less emphasis on comparative advantage and relative input costs. New trade theories generally state that a driving factor behind trade is giving consumers greater choice of differentiated products. They highlight the source of the benefits of foreign trade. Table 1 presents an overview of the most important new trade theories.

Table 1
The most important new trade theories

Theory	The source of the benefits of foreign trade	Author/Authors of theory
preference/country similarity (1960s)	similar country demand; the existence of similarities and differences in the level of individual income; the structure of demand is determined by the level of per capita income, the level of economic development of the country, consumer preferences	S. Linder
product life cycle (1960s, 1970s)	technological diversity of countries; the limited flow of information concerning production techniques between countries; production of goods at different stages of the product life cycle; production of the new product will occur entirely in the home country of its innovation	R. Vernon S. Hirsch H. Johnson L. Wells M. Posner J. Finger
intra-industry trade (1970s)	trade between two countries of goods produced in the same industry	H. Grubel P. Lloyd
gravity model (1960s, 1970s)	the gravity model states that the volume of trade between two countries is proportional to their economic mass and a measure of their relative trade frictions; the forces of attraction and repulsion between countries	Q. Stuart G. Carey W. Isard J. Tinbergen H. Linnemann

Theory	The source of the benefits of foreign trade	Author/Authors of theory
global strategy rivalry (1980s)	multinational corporations effort to gain a competitive advantage against other global firms in their industry	P. Krugman K. Lancaster
models based on the new growth theory (1980s, 1990s)	foreign trade is related to economic growth; improvements in innovation, knowledge, and human capital leads to increased productivity; importance of the role of technological advancements	P. Romer R. Lucas G. Grossman E. Helpman
competitive advantage (1990s)	countries should pursue policies that create high-quality goods to sell at high prices in the market; competitiveness in an industry depends on the capacity of the industry to innovate and upgrade	M. Porter

Source: Own elaboration based on Białynicka-Birula, 2014; Orłowska, 2013; Anderson, 2008; Ruffin, 2013, Suranovic 2020.

The theory of international trade is in constant development. It means that there is no singular theory that would be dominant around the world. In practice, governments and companies use a combination of these theories to both interpret trends and develop strategy, knowing that foreign trade strengthens the country's position on the world stage. The Chinese challenge many international strategies and theories of international trade, including comparative advantage theory, competitive advantage theory, and resource-based view, which means that the possession of strategic resources provides a country with an opportunity to develop competitive advantages over its rivals (Barney et al., 2012).

The gravity model (Anderson, 2011) demonstrates that China's size and the size of its trade partners are important factors determining trade flows. An additional aspect of new trade theory is to pursue specialization, and this enables companies to benefit from economies of scale, which outweighs most other factors. Trade allows a product to have multiple country sources, for example, car production, where the production process is global – it means that engines, tyres, design, or marketing could come from different countries.

International trade is vital for every country because it promotes and encourages economic growth, currency stability, and an increased standard of living. International trade gives consumers and countries the opportunity to be exposed to goods and services not available in their own countries, or which would be more expensive domestically. It also allows countries to use their resources (labor, technology, capital) more efficiently and to participate in a global economy, encouraging the opportunity for foreign direct

investment (Investopedia, 2020). Countries tend to import products that are relatively expensive for in-country production or which are not possible to produce. In summary, trade advantages include differences in factor endowments, gains from specialization, efficiency gains, political benefits, benefits of increased competition, and substantial value for the global economy.

But there are also growing concerns about the potential negative effects of trade – in particular, the unbalanced benefits with some losing out and deficit in the balance of payments that summarized transactions between residents and nonresidents during a period. The disadvantages of foreign trade are also, for example, impediment in the development of infant industries, economic and/or political dependence, exhaustion of natural resources, import of harmful goods, storage of goods that result in the shortage of these goods in the exporting country and causes inflation, trade wars. Trade can lead to over-specialization and unemployment risk when goods for domestic consumption can be produced more cheaply abroad. However, the level and scope of countries' foreign trade are influenced by many factors; it can be underlined that trade policy is often the most important (Fojtikova, Stanickova, Melecky, 2017).

Developing countries are increasingly driving the performance of the world economy. The rapid growth of China's trade has been observed over the past three decades. China is currently one of the largest economies and the largest exporter in the world. New factors, conducive to trade growth, were identified such as China's vertical integration with the global supply chain. Existing studies don't pay sufficient attention to the problems of China's trade structure (Qiu, Xue, 2014). The significant change in China's trade structure was associated with the fast growth of foreign trade. First of all, there has been a shift from labour-intensive to capital- and technology-intensive exports (Caporale, Sova, Sova, 2015). China is changing from "Made in China" to "Create in China" (Shen et al., 2020).

Key to Chinese success in the global economy was an export-oriented economic strategy accompanied by gradual economic liberalization and selective opening up of the economy. In 2018 China's top export products were: broadcasting equipment (USD 224B), computers (USD 147B), office machine parts (USD 100B), integrated circuits (USD 90.9B), and telephones (USD 55.3B). China exports mostly to The United States (USD 499B), Hong Kong (USD 282B), Japan (USD 155B), South Korea (USD 107B), and Germany (USD 96.9B). China's top imports were: crude petroleum (USD 208B), integrated circuits (USD 133B), iron ore (USD 59.2B), cars (USD 45.2B), and petroleum gas (USD 44.2B), importing mostly from South

Korea (USD 160B), Japan (USD 139B), The United States (USD 119B), Germany (USD 109B), and Taiwan (USD 97.4B) (OEC, 2020).

The V4 are not significant import and export partners for China. The share of China's exports to Poland (as the percent of total China's export) is 0.98%, to Czech Republic 0.73%, to Hungary 0.26%, to Slovak Republic 0.13%. Import to China (as the percent of China's total imports) amounts: 0.16% from Poland, 0.17% from Czech Republic, 0.16% from Hungary, and 0.026% from Slovak Republic (OEC, 2020). On the other hand, we can ask: Is China a significant partner in foreign trade for the Visegrad Group countries (V4)?

2. Visegrad Group and China in world merchandise trade

The population of the Visegrad Group countries is almost 64 million citizens, and the total area is 533,613 square kilometers (it is about 18 times smaller than China). The population of China is 1.4B, the unemployment rate is 3.6%, inflation 2.9%, and public debt amounts to 52.6%. Among the Visegrad Group countries, the highest unemployment rate is in Slovak Republic (5.8%), and the lowest is in the Czech Republic (2.0%). Inflation in all the V4 countries reaches around 2%. The highest public debt is observed in Hungary (66.3%) and the lowest in Czech Republic (30.2%). The main indicators concerning the V4 and China are presented in table 2.

Table 2

Main indicators of V4 and China, 2019

	total population (mln)	total area (km ²)	currency	unemployment (%)	inflation (%)	public debt (%GDP)
Poland	37.97	312 683	PLN	2.3	2.9	46.0
Czech Republic	10.63	78 867	CZK	2.0	2.9	30.2
Hungary	9.78	93 028	HUF	3.4	3.4	66.3
Slovak Republic	5.45	49 035	EUR	5.8	2.8	48.0
CHINA	1400	9 596 960	CNY	3.6	2.9	52.6

Source: Own elaboration based on World Bank, 2020 and IMF, 2020.

China's economy is the second-largest, with an estimated nominal GDP of USD 14.3T. Table 3 presents the main economic indicators of analyzed countries relating to gross domestic product (GDP) and indicators concern-

ing foreign trade (as a percent of GDP). Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. Imports of goods and services represent the value of all goods and other market services received from the rest of the world.¹ Merchandise trade as a share of GDP is the sum of merchandise exports and imports divided by the value of GDP, all in current US dollars.

Table 3

GDP and foreign trade (% GDP) in V4 and China, 2019

	GDP (current USD, billions)	GDP per capita (PPP USD)	GDP growth 2018 (annual %)	GDP growth 2019 (annual %)	export of goods and services (% GDP)	import of goods and services (% GDP)	merchan- dise trade (% GDP)
Poland	595.9	34431.2	5.4	4.5	55	52	91
Czech Republic	250.7	43299.6	3.2	2.3	78	72	158
Hungary	163.5	34507.1	5.4	4.6	85	81	155
Slovak epublic	105.1	34066.9	3.2	2.3	96	94	176
CHINA	14 342.9	16829.9	6.8	6.1	19	18	31

Source: Own elaboration based on World Bank, 2020.

Czech Republic has the highest GDP per capita; in Poland, Hungary, and Slovak Republic it is about USD 34000 PPP. In the case of China, it is only USD 16829.9. Both the export and import of goods and services differ between the V4 countries. The highest share of GDP occurs in Slovak Republic, and the lowest in the case of Poland. The same is true with merchandise trade as a share of GDP (Slovak Republic 176%, Poland 91%), and in the case of China, it is only 31% GDP. In 2018 the GDP growth was the largest in China (6.8%), while in the V4, the highest was in the case of Poland (5.4%). In all analyzed countries, GDP growth in 2019 was lower than in 2018. This was a sign of the beginning of the crisis connected with the economic cycle, which in 2020 was aggravated by the announcement of the coronavirus pandemic (Blake, Wadhwa, 2020).

In 2019 China was the largest product exporter in the world with a value of USD 2499B and the second largest product importer (USD 2077B). China's share of exports in world product trade amounted to 13.2%, and their share of imports was 10.8%. Merchandise exports of the Visegrad Group countries in years 2009–2019 is presented in figure 1, and the evolution of imports for this period is presented in figure 2.

The largest share of world's merchandise trade in 2019, among the V4, belongs to Poland (1.4%), ranked at 24th place, and the smallest share

Figure 1. Export of products in V4, 2009–2019 (USD, million)

Figure 2. Import of products in V4, 2009–2019 (USD, million)

Source: Own elaboration based on WTO, 2020.

Table 4

V4 in world merchandise trade, 2019

	EXPORT				IMPORT			
	Value bln USD	Share (% of world's merchandise trade)	Annual percentage change (%)	Rank	Value bln USD	Share (% of world's merchandise trade)	Annual percentage change (%)	Rank
Poland	264	1,4	0	24	262	1,4	– 3	19
Czech Republic	199	1,1	– 2	28	178	0,9	– 3	29
Hungary	124	0,7	– 2	34	120	0,6	– 2	33
Slovak Republic	90	0,5	– 4	38	90	0,5	– 3	39

Source: Own elaboration based on WTO, 2020.

is in Slovak Republic (0.5%) – 38th place in the world's product trade. The situation is similar in the case of imports (table 4).

The gravity theory is validated by the fact that the V4 countries main trading partner is Germany – due to geographical proximity and strong economic links. Table 5 shows the top five export partners of the V4. Germany's largest share in exports with the V4 is Czech Republic (almost 32%), and the smallest concerns Slovak Republic (almost 22%). For Poland and Hungary, it is similar and amounts to 27%. China's share, shown later in this article, ranges from 1% to 2%.

As already mentioned, Germany is also the main import partner of the Visegrad Group countries. Slovakia has the lowest share of German imports (18%). In the case of Poland, Hungary, and Czech Republic the share is similar and amounts to approximately 26%–27%. It is worth emphasizing

Table 5

The top export partners of V4, %, share of total export

	THE TOP EXPORT PARTNERS				
	1	2	3	4	5
Poland	Germany 27.3%	Czech Republic 6.2%	United Kingdom 6.14%	France 5.51%	Italy 4.57%
Czech Republic	Germany 31.8%	Slovak Republic 7.13%	Poland 5.92%	France 5.08%	United Kingdom 4.6%
Hungary	Germany 26.8%	Italy 5.17%	Romania 5.09%	Slovak Republic 4.74%	Austria 4.46%
Slovak Republic	Germany 21.7%	Czech Republic 11.5%	Poland 7.35%	France 6.4%	Austria 5.66%

Source: Own elaboration based on OEC, 2020.

Table 6

The top export partners of V4, %, share of total import

	THE TOP IMPORT PARTNERS				
	1	2	3	4	5
Poland	Germany 25.5%	China 9.11%	Italy 5.68%	Russia 5.51%	Netherlands 4.76%
Czech Republic	Germany 27.4%	China 10.6%	Poland 8.94%	Slovak Republic 5.98%	Italy 4.24%
Hungary	Germany 26%	Poland 5.99%	China 5.87%	Austria 5.49%	Czech Republic 5.27%
Slovak Republic	Germany 18.1%	Czech Republic 16.4%	Poland 7.44%	Hungary 6.6%	Vietnam 6.19%

Source: Own elaboration based on OEC, 2020.

that the second most crucial import partner for Poland and Czech Republic is China at approximately 10%. For Hungary, the second partner is Poland (6%), and the third is China, with a share of 6% (table 6). The V4 countries are important trading partner for Slovak Republic Czech Republic (second place), Poland (third place), and Hungary (fourth place), and China is its ninth most important partner with a share of 4% of total import.

China relies heavily on export-led growth. In 2018 China exported mostly to The United States (19.3%), Hong Kong (10.9%), Japan (6.01%), South Korea (4.14%), and Germany (3.75%). The most common import partners for China were South Korea (9.93%), Japan (8.6%), The United States (7.37%), Germany (6.79%), and Taiwan (6.05%) (OEC, 2020) (OEC, 2020).

From the point of view of Central and East European (CEE) countries, the Visegrad Group countries have for a long time been seen by China as the most critical partners in the CEE grouping because the V4 have taken the critical share of Chinese trade and investment with CEE countries. To a large extent, this stems from the fact that Poland and Hungary have been seen as strategically important by China. The V4 also assumed an important role in the forming of the 17+1 concept (Karásková et al., 2020). The Visegrad Group's importance will systematically decrease within the framework of "17+1" (Przychodniak, 2020). However, Central and Eastern European Countries have relatively low trade with China, while the Visegrad Group countries show the highest trade flows (Karásková et al., 2020).

The most important export goods of the V4 countries are vehicle parts and cars. Because the V4 have relatively low labour costs, it attracts the attention of investors in these sectors. Poland has clearly the most diversified exports, thanks to a well-developed and sizeable foodstuffs and agricultural produce sector, as well as the metallurgical industry sector and a large output of furniture. It is noteworthy to emphasize that a large portion of the exported products by the V4 countries are produced by foreign companies. It means that local investors don't play a significant role in foreign trade, especially in the cases of Slovakia and Hungary (Kowalczyk, 2020). The most important import goods are: crude petroleum, cars and vehicle cars (Poland); vehicle parts, broadcasting equipment, and office machine parts (Czech Republic); vehicle parts, cars and packaged medications (Hungary); vehicle parts, broadcasting equipment, and cars (Slovak Republic) (OECD, 2020). And what do the Visegrad Group countries export to China and import from China?

3. Foreign trade between the V4 and China

The share of exports to China, as a share of the total exports of the V4 countries, fluctuates at around 1.5 percent. In 2009, the largest share belonged to Hungary (1.87%) and Slovak Republic (1.65%), Poland had a share of 1.22%, while the smallest share was in Czech Republic (0.88). In the case of Poland, this share has not changed in the last ten years. In the Czech Republic, the share has been gradually increased and reached the highest share in 2017 (1.63%). For Hungary, the percentage of exports to China was also the highest in 2017 (2.92%). In 2019 the highest share of export to China was in Slovak Republic (2.3%), then in Hun-

gary (1.44%), Czech Republic (1.3%) and the smallest was in Poland – similar to 10 years ago (1.22%) (OECD, 2020). Therefore, the share of exports to China as a portion of the total exports of the V4 countries is not significant (figure 3).

However, in the case of imports, the situation is different, with the percentage distribution being completely different from exports. In 2019, Slovak Republic had the lowest percentage (3.93%) and the Czech Republic the highest (10.13%). The share in the case of Poland is similar to the Czech Republic and amounted to 9.6%. And for Hungary, it was 7.6%, similar to ten years ago, with the highest being in 2019. In 2009, in the case of Poland, this share amounted to 9%, and the highest was in 2016 (11.6%). The percentage of Czech Republic in 2009 was 9.95%, and the highest in 2015 (13.2%). In Slovak Republic's case, the share in 2009 was higher than in 2019 and amounted to 5.7%. The highest was in 2015 (8.34%) (OECD, 2020). In general, in recent years (2018–2019), the volume of imports from China, as related to total imports, has decreased slightly (figure 4).

Figure 3. Export to China of V4, 2009–2019 (share of total exports, %)

Figure 4. Import from China of V4, 2009–2019 (share of total exports, %)

Source: Own elaboration based on www.oec.world (20.01.2021).

Tables 7 and 8 present the values of export and import to China in the years 2009–2019 for the V4 countries, and the figures below (figure 5 and figure 6) demonstrates the trade dynamics in the analyzed period.

Table 7

Export to China, 2009–2019, USD, million

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Poland	1665,34	2083,17	2316,57	2149,85	2387,48	2682,67	2389,49	2241,98	2859,24	2635,69	3220,96
Czech Republic	994,00	1476,10	2069,33	1994,42	2239,38	2450,29	2241,87	2310,24	2968,91	2790,88	2580,64
Hungary	1552,25	1947,85	2190,08	2330,33	2429,57	2654,93	2197,09	2700,88	3323,14	2591,38	1780,07
Slovak Republic	928,04	1609,35	2695,08	2478,13	2776,71	2483,34	1585,58	1695,32	1985,25	1877,84	2062,69

Source: Own elaboration based on www.oec.world (20.01.2021).

Table 8

Import from China, 2009–2019, USD, million

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Poland	13466,26	16095,63	17416,37	17517,28	18933,76	22400,31	22004,98	23342,20	27122,19	24502,16	25151,81
Czech Republic	10452,28	15324,89	18559,25	14848,26	15147,20	17120,31	18660,05	17593,92	20255,65	19573,85	18056,52
Hungary	5917,61	7380,50	7314,22	6557,63	6306,99	5863,74	5555,17	5717,29	6397,38	7142,73	9105,86
Slovak Republic	3173,48	4056,85	4723,01	4832,44	5947,03	6344,51	6074,61	6034,14	5958,04	3706,79	3538,93

Source: Own elaboration based on www.oec.world (20.01.2021).

In 2019 compared to 2018, China's exports from Poland and Slovak Republic increased while in Hungary and Czech Republic it decreased. At the same time imports of Czech Republic and Slovak Republic decreased, Poland and Hungary saw an increase (figure 5 and figure 6).

Figure 5. Export to China of V4, 2009–2019 (USD, million)

Figure 6. Import from China of V4, 2009–2019 (USD, million)

Source: Own elaboration based on OEC, 2020.

As shown by the data in figures 5 and 6, imports of the Visegrad Group are more diversified than exports. The data also shows that, in terms of value, Poland exported and imported the most, and Slovak Republic is involved the least in bilateral trade with China (table 7 and table 8). But if we calculate exports and imports *per capita* for each country of the V4, the situation is entirely different (table 9). The exports' value per capita for Poland is less impressive than that of the Slovak Republic, Czech Republic and even Hungary. In the case of imports, the value per capita is similar in Poland and Slovak Republic, and the highest is in Czech Republic (almost 1700 USD *per capita*).

At the same time, it is worthwhile to stress that the total value of exports for all V4 countries amounted to USD 7,149M, in 2017 it almost doubled, and in 2019 it reached USD 11,663M. In the case of imports, the total value amounted to USD 35,019M, and in 2019 it was USD 57,872M. In 2019

Table 9
Export and import between V4 and China, USD, per capita, 2019

	export to China USD, <i>per capita</i>	import from China USD, <i>per capita</i>
Poland	84.83	662.41
Czech Republic	242.77	1698.64
Hungary	182.01	931.07
Slovak Republic	378.47	649.34

Source: Own elaboration based on table 2, table 7, and table 8.

the imports of all V4 countries, compared to 2009, increased by 65%, and the highest was in Czech Republic (73%, while in 2008 compared to 2009 it was 87%). Poland’s imports 87% (for comparison: in 2018 compared to 2009 it increased by 87%), while in Hungary 54% (for comparison: in 2018 compared to 2009 it increased by 21%) and in Slovak Republic only 12% (for comparison: in 2018 compared to 2009 it increased by 17%) (OEC, 2020). The total exports of all V4 can be seen in figure 7.

In 2019, compared to 2009, the increase of exports for the V4 countries, in total, amounted to 63%, while in 2018, this change, compared to 2009, was 67%. In 2019, compared to 2009, the highest increase was recorded in the Czech Republic (160%), and the lowest was in Hungary (15%) while taking into account 2018, this change compared to 2009 was 70%. For Poland, this increase in 2019 compared to 2009 was 93%, while in Slovakia, it was 122% (OEC, 2020). The total imports for all V4 countries are presented in figure 7. As can be seen from the data presented in figures 7 and 8, the total exports and imports for the V4 to China show a growing trend, although recently the value of this trade is below the trend line.

Figure 7. Total exports of V4 to China (USD, million) **Figure 8.** Total imports of V4 from China (USD, million)

Source: Own elaboration based on OEC, 2020.

The difference between export and import leads to an increasing deficit in the balance of trade of the V4 as a whole (figure 9), but also for individual countries of the Visegrad Group (figure 10). All the V4 countries have a high trade deficit. A trade deficit occurs when a country's imports exceed its exports during a given time period. The trade deficit is calculated by taking the value of goods being imported and subtracting it by the value of goods being exported.

Figure 9. Total deficit of trade balance of V4 with China (USD, million) **Figure 10.** Deficit in trade balance of V4 with China (USD, million)

Source: Own elaboration based on OEC, 2020.

Trade between the V4 and China results in a negative trade balance of USD –49,209M. The largest deficit of the V4 as a group was recorded in 2017. As figure 8 shows, the largest deficit (in terms of value) was held by Poland, but let's calculate the deficit per capita for individual V4 countries in 2019. It turns out that the Czech Republic has the highest deficit per capita (USD 1456), the smallest belongs to Slovak Republic (USD 271). In the case of Poland it is USD 578 of deficit in trade balance *per capita*, and in the case of Hungary – USD 749. The trade deficit of all Visegrad Group countries increased from USD 27.87B in 2009 to USD 46.21B in 2019 (OEC, 2020).

Exports from Poland to China are roughly eight times smaller than Chinese imports into the country. For Czech Republic it is about seven times, for Hungary five times, and for Slovak Republic a little more than one and a half times. The question arises: what are the top exports to China and imports from China in bilateral trade of Visegrad Group countries?

4. Top export and import products in bilateral trade between V4 and China

China is the third-largest partner for EU exports of goods (9%) and the largest partner for EU imports of goods (19%). The most common imported products were telecommunications equipment, automatic data processing machines, electrical machinery and apparatus, the most common exported products are: motor cars and motor vehicles, motor vehicle parts, aircraft, and associated equipment. EU imports from China were at least twice as large as EU exports to China (Eurostat, 2020).

In 2018, Poland exported USD 2.63B to China. Poland's main exports to China were refined copper (USD 528M), vehicle parts (USD 108M), and other furniture (USD 96.6M). Slovakia exported USD 1.88B to China, and the main products exported from Slovakia to China were cars (USD 1.2B), engine parts (USD 122M), and vehicle parts (USD 44.7M). The main products exported from Hungary to China were cars (USD 630M), packaged medicaments (USD 99M), and vehicle parts (USD 95.6M). It means that Hungary exported USD 2.59B to China. Czechia exported USD 2.79B, and the main exports to China were dissolving grades chemical wood pulp (USD 156M), liquid pumps (USD 150M), and low-voltage protection equipment (USD 148M) (OEC, 2020)

The top export products of the Visegrad Group countries in the years 2009–2018 are presented in table 10, emphasizing the value of these products in 2018, from which the latest data is available. To summarize, Czech Republic, Hungary, and Slovak Republic export cars and vehicle parts and the top export product of Poland is refined copper.

At the same time, the V4 countries are dependent on technologically advanced products from China, e.g., computers, office machine parts, telephones, broadcasting equipment. The top import products of the Visegrad Group countries in the years 2009–2018 were presented in table 11, emphasizing the value of this product in 2018.

In 2018, Poland imported from China USD 24.50B. The main products imported from China to Poland were office machine parts (USD 1.59B), broadcasting equipment (USD 1.28B), and broadcasting accessories (USD 1B). China exported USD 19,56B to Czech Republic. The main products imported from China to Czech Republic were broadcasting equipment (USD 5.07B), office machine parts (USD 2.69B), and computers (USD 2.53B). China exported USD 7.14B to Hungary. The main products imported from China to Hungary were telephones (USD 738M), office machine parts (USD 689M), and LCDs (USD 388M). China exported

Table 10

Top export product of V4 in years 2009–2018, % of export to China

	2009	2011	2012	2013	2014	2015	2016	2017	2018	VALUE of top export product in 2018 (USD)
Poland	refined copper 34,3%	refined copper 40,8%	refined copper 32,7%	refined copper 30,9%	refined copper 29,6%	refined copper 30,1%	refined copper 19,1%	refined copper 24,5%	refined copper 20,4%	528 mln
Czech Republic	transmissions 7,7%	vehicle parts 6,42%	vehicle parts 5,71%	vehicle parts 6,72%	vehicle parts 8,34%	vehicle parts 9,36%	vehicle parts 10,1%	vehicle parts 9,26%	dissolving grades chemical woodpulp 5,64%	156 mln
Hungary	spark-ignition engines 38,2%	spark-ignition engines 29,8%	spark-ignition engines 30,5%	spark-ignition engines 26,5%	spark-ignition engines 13,4% and cars 13,4%	cars 20,2%	cars 27,2%	cars 29,6%	cars 25,2%	630 mln
Slovak Republic	cars 69,3%	cars 82,5%	cars 79,8%	cars 78,3%	cars 75%	cars 63,7%	cars 62,9%	cars 64,4%	cars 64,6%	1,2 bln

Source: Own elaboration based on OEC, 2020.

Table 11

Top import product of V4 in years 2009–2018, % of import from China

	2009	2011	2012	2013	2014	2015	2016	2017	2018	VALUE of top import product in 2018 (USD)
Poland	computers 9,41%	computers 7,68%	computers 10,3%	computers 10,3%	computers 9,55%	computers 9,45%	computers 8,56%	broadcasting accessories 7,01%	office machine parts 6,28	1,59 bln
Czech Republic	office machine parts 15,6% and computers 15,6%	computers 28,1%	computers 29,5%	computers 26,4%	computers 23,3%	computers 23,7%	computers 21,5%	broadcasting equipment 18,7%	broadcasting equipment 26,7%	5,07 bln
Hungary	broadcasting equipment 19%	telephones 44,3%	telephones 29,1%	telephones 25%	telephones 20,9%	telephones 18,1%	telephones 17,4%	telephones 10,8%	telephones 11,1%	738 mln
Slovak Republic	broadcasting accessories 12,9%	broadcasting accessories 18,2%	broadcasting accessories 16,3%	broadcasting accessories 17,6%	broadcasting equipment 15,6%	broadcasting equipment 19,7%	broadcasting equipment 16,2%	broadcasting equipment 16,4%	LCDs 12,7%	442 mln

Source: Own elaboration based on OEC, 2020.

USD 3.71B to Slovakia. The main products exported from China to Slovakia were LCDs (\$442M), broadcasting accessories (USD 317M), and broadcasting equipment (USD 246M) (OEC, 2020).

Generally, Chinese goods imported to the V4 are much more sophisticated than those exported, considering that the car and its parts are foreign direct investment. It means that the activity of multinational companies in global production networks, not in local companies, can cause than one decision of a global company concerning relocation or change in internal deliveries among affiliates can significantly change the trade volumes of a given country vis-à-vis China (Karásková et al., 2020).

5. Conclusion

China became the second-largest global economy and the largest exporter in the world. Over the past decade, China has become an emerging power, while the economic position of the United States and the European

Union has weakened (Pangsy-Kania, 2021). Key to the Chinese success story was an export-oriented economic strategy. In this paper, we have investigated the evolution of trade flows between China and trade partners belonging to the V4. The growth of export of Visegrad Group countries to China remained relatively modest after 2012, and even decreased slightly for a few years after 2014, while the imports from China to V4 increased substantially.

During the last 11 years, the exports of Poland to China increased by 93%, from \$1.67B in 2009 to \$3.22M in 2019, and imports increased 87%. Exports of Czech Republic to China increased by 160%, from USD 994M to USD 2.58B. Exports of Hungary to China increased by 15%, from USD 1.55B to USD 1.78B. Exports of Slovak Republic to China increased by 122%, from USD 928M to USD 2.06B. It means that the total exports of the V4 increased by 63%, from USD 7.15B to USD 11.66B. During the same analyzed period, the imports from China to Poland increased by 93%, from USD 13.47B in 2009 to USD 25.15B in 2019. Imports from China to Czech Republic increased by 73%, from USD 10.45B to USD 18.06B. The imports from China to Hungary increased by 54%, from USD 5.92B to USD 9.12B. The imports from China to Slovak Republic increased by 12%, from USD 3.17B to USD 3.54B. It means that total imports of V4 increased by 65%, from USD 35.02B to USD 57.87B. As a result of bilateral trade between the V4 and China, the trade deficit increased rapidly – from USD 27.87B in 2009 to USD 46.21B in 2019 (OEC, 2020). Chinese goods imported to the V4 are much more sophisticated than those exported. The study results confirmed that in view of the different aspects concerning bilateral trade by products between the V4 and China, it is varied. Still, in all V4 countries, import exceeds export, and this trend seems to be growing.

If the One Belt One Road Initiative (Hosain, 2019; Ciborowski, Oziewicz, Pangsy-Kania, 2021) eventually will be fully implemented, there is a chance to increase the exports to Asian countries, primarily to China. It can enable diversification of export destinations of the V4 countries. Maybe the Visegrad countries should pay more attention improving relations with Japan, which is a democratic and reliable partner? But that's a topic for another article.

N O T E

¹ They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude compensation of employees and investment income (formerly called factor services) and transfer payments.

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