



REPORT

THE POLISH INSTITUTE OF INTERNATIONAL AFFAIRS

DOING BUSINESS WITH TIGERS:

TRENDS, FEATURES AND PROSPECTS
FOR POLAND'S TRADE WITH ASIA

WARSAW
MAY 2013

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Artur Gradziuk, Patryk Toporowski

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Executive Summary

- The major objectives of Poland in its relations with Asia are to expand exports to Asian markets, attract foreign direct investment to Poland and support Polish enterprises in their business interests in Asia. The development of the Polish economy and the attractiveness of the country's market, the largest amongst the new EU members and the best economic performer since the global financial crisis of 2008, have facilitated an improvement in trade and investment relations with non-European countries, including the rapidly developing Asian countries. Even without a common, comprehensive strategy in Polish foreign policy towards Asia, the promotion of business interests in Asia is a priority. Poland is focused on the largest, most advantageous economies in each part of Asia. An improvement in economic cooperation with and actual business conducted in Asia is stimulated by extensive and various instruments of support for Polish enterprises as well as by more active diplomacy.
- Data-based analysis shows that the most important Asian region is North-East with China's domination in trade within this region. Additionally, the three countries of this region—China, Japan and South Korea—are Poland's biggest trade partners among the all Asian countries. A second rank is occupied by Southeast Asia – including Singapore, Malaysia and Thailand. A third region with the biggest trade is Western Asia, with such countries as Israel, United Arab Emirates and Saudi Arabia. Apart from these regions, there emerge some relevant countries, like Kazakhstan, which became the sixth biggest trade partner in 2012.
- Imports and exports involving Asia are concentrated on several products. This pattern can be seen, for example, in exports of Polish copper to China due to high demand there because of its involvement in the global electronics supply chain. In 2012, the main products exported to Poland's Asian partners were engines, meat, synthetic rubber, ships and floating structures. That list varies heavily depending on orders. For example, many of these products were not so relevant in 2000. Generally, copper and ships account for the biggest share of exports to these particular countries. The rest have gained significance over time, especially since the current trade in ships is not as big as it was a decade ago.
- Imports seem to be more diversified than exports. The most important products include telecommunications equipment and cars from Northeast Asia; ships and floating structures and computers from Southeast Asia; insecticides and pesticides (and other similar products), aluminium, and ethylene polymers from Western Asia; organic and inorganic materials, telecommunications equipment, and textiles from Southern Asia; and fuels and raw materials from the CIS.
- In the years to come there is a huge potential to improve economic relations with Asia. The most important goal is to expand exports to narrow the trade deficit, especially with major Asian countries. In order to achieve that goal, the necessary action should include:
 - implementation of a more coherent approach in the promotion of Polish interests to coordinate actions and address the lack of a comprehensive strategy towards Asia;
 - selection and focus on the most advantageous markets and tailoring of instruments that support exports according to the needs of Polish entrepreneurs willing to expand in these strategic markets.
 - apart from government programs devoted to the internationalisation of Polish enterprises or availability of direct and indirect export-supporting instruments, systematic intergovernmental cooperation with key Asian partners is needed in

order to facilitate the enhancement of business prospects for Polish enterprises on markets that are so distant and different in terms of business culture.

- information on the availability of EU-level support should be improved and broadened in order to maximise the synergistic effect of national and “common” support systems for Polish exporters.

Introduction

Only recently has Asia become a more and more important direction for Polish foreign economic policy. After 1989, when Poland stopped being a part of the Eastern European socialist bloc, the reorientation priority of foreign economic cooperation became Western Europe. Only the United States and Canada, important political allies and supporters at the beginning of the country's political and economic transformation, found a special place among the non-European countries that Poland hoped then would be significant trade and investment partners. However, in the second part of the 1990s Poland began to attract foreign investors from Asia, mainly from Japan and South Korea, who started to establish manufacturing enterprises, especially in the automotive and electronics sectors. This inflow of foreign direct investment created good foundations for trade with East Asia.

Closing the long process of accession negotiations with the European Union left more space for interest in developing economic relations with non-EU countries. Asia was certainly a direction for such interest as the continent, especially East Asia, was becoming a more and more important centre of the world economy. As the economic performance of the eurozone is currently lower than the global level, Polish firms are being indirectly encouraged to seek new business opportunities elsewhere, and Asia is a natural direction for expansion to consider. Also, Polish authorities have increased their efforts to facilitate Polish businesses that want to enter the Asian market, begin international cooperation, or locate part of their economic activity on this continent.

This report presents a thorough analysis of the foreign trade patterns of Poland with Asia and is aimed at discovering its strengths and weaknesses. It was prepared as a part of a study conducted within the framework of the "Trade with Asia" Research Project No. 11220101 financed by the International Visegrad Fund, which focused on the foreign trade patterns with Asia of the four Visegrad countries. A thorough analysis of this kind is a novelty. Through an in-depth examination of statistical data regarding the products and geographical structure of exports and imports, the report shows the role of trade relations with Asia, the main problems, and prospects for enhanced economic cooperation. Finally, it aims to map out some advantages and difficulties for firms already present in or considering Asian markets.

The study at the beginning briefly presents the development of Polish foreign economic policy towards Asia. The next section describes trade patterns with Asia and the country's main partners there, which points at the significance of particular countries in terms of trade values. An interesting contribution to this text is a thorough analysis of the commodity structure of trade with Asian partner countries, which indirectly points at the evolution of Polish export specialisation. We also include a short case study of a firm that successfully opened plants in Asia and currently produces both in Poland and elsewhere, including in Asia.

1. Polish Foreign Economic Policy Towards Asia

1.1. Major Priorities

The major objectives of Poland in its relations with Asia are the expansion of exports to Asian markets, attracting foreign direct investment to Poland, and supporting Polish enterprises in their business interests in Asia (FDI or participation in business projects there). According to speeches by Polish officials, politicians from every major party as well as opinions presented by experts, a consensus exists that priority in Polish foreign policy towards Asia should be given to the development of economic relations as Poland doesn't have significant political interests on the continent (with some exceptions, such as Afghanistan or Israel). Some Asian countries—especially their largest economies—are perceived as attractive export markets where Polish products and enterprises should be promoted. Some of them have become an important source of investment in the world, hence persuading Asian companies to invest in Poland should also be a priority task. Nevertheless, Poland has not adopted a document or set a common strategy in its foreign policy towards Asia. In recent years among officials and experts there often has appeared opinion calling for preparing and adopting a strategy in Polish foreign policy towards Asia, but that has not materialised. Currently, the Polish Ministry of Foreign Affairs is working on a strategy towards Asia-Pacific, the region that spans from Pakistan and India to Japan and Indonesia and also includes Australia and New Zealand, but the date for the conclusion of this work and the details of the strategy are as yet unknown.

Many valid priorities for developing economic relations with non-European countries appear in other documents. The most comprehensive one was adopted by the Polish government in 2004, the "Strategy of Poland towards non-European developing countries". That document described the main objectives of Polish foreign policy towards developing countries in Asia, Africa and Latin America. Among the listed priorities, it stated that in the short term, actions should focus on increasing awareness among Polish enterprises about business opportunities in non-European countries. In the mid term, the strategy assumed a significant improvement of economic relations with those countries, narrowing the trade deficit with some of them and increasing the number of Polish specialists working in developing countries. As a long-term objective, it indicated the need to ensure good external conditions for the economic development of Poland. Among the main action to be undertaken to achieve these objectives were the need to identify priority countries in each of those regions from the point of view of Polish interests, potential opportunities for developing economic relations with selected countries, sectors including niches in which there was strong potential for expanding Polish exports, as well as measures to be provided by the administration to support domestic enterprises in their export expansion on those markets and in promoting Poland and Polish products. Although that document has never been reviewed in terms of fulfilling these objectives nor has it become a point of reference for Polish foreign policy towards the country's Asian partners, it seems that the action undertaken by the Polish administration and diplomatic missions fits into the general framework of the priorities presented in that strategy.

More recently, the most important tasks in Polish policy towards Asia were identified in an exposé by Minister of Foreign Affairs Radosław Sikorski, who in March 2012 presented the priorities of Polish foreign policy for 2012-2016. In Asia, four countries were identified as important in terms of developing bilateral relations: China, India, Japan and South Korea. According to the document, those countries are not only attractive in terms of drawing investment to Poland but also in developing commercial contacts in such sectors as infrastructure, finance, tourism and the creative industries. The documents also call for a need to develop cooperation with ASEAN as an important regional integration entity. It also emphasized that developing economic cooperation is the main priority in Polish policy towards Asia. However, there is also an awareness of the need for synergy in Polish foreign policy that combines political, economic, and other components (i.e., cooperation in science and education and the promotion of culture) in order to pursue the country's interests in the selected countries.

1.2. Priority Countries

Northeast Asia is the most important region on the continent in terms of Polish economic interests, with the People's Republic of China a top priority. China gained special interest in Polish foreign economic policy not only due to its huge market and the growing interest of Chinese enterprises to invest abroad but also because of the huge trade deficit that needs to be narrowed. A new chapter in bilateral relations was opened with the visit of Polish President Bronisław Komorowski to China in December 2011, when an agreement on strategic cooperation was signed. The visit by Chinese Prime Minister Wen Jiabao to Poland in April 2012 also had significant meaning with the announcement of new Chinese proposals for developing relations with Central European countries. Those high-level visits brought hope for an intensification of bilateral trade and investment relations and new initiatives directed at developing economic cooperation, such as Polish-Chinese business forums or the GoChina program, which is aimed at supporting Polish enterprises in their export and investment expansion efforts on the Chinese market. Among the prospective areas for developing cooperation are environmental protection, the participation of Chinese enterprises in infrastructure projects in Poland, and science and technology cooperation in projects related to new and clean energy technologies.

Japan is another important Polish partner from the region. The priority objective is to attract more Japanese foreign direct investment to Poland, especially in sectors where there is already a strong presence of capital from the country, such as in car and parts manufacturing and TV production, as well as in clean and alternative energy and the chemical, financial and new technology sectors. Poland also wants to promote exports to Japan, especially food products, medical instruments and equipment, construction materials, furniture, toys and leather.

South Korea is the third most important country for Poland in Northeast Asia in terms of economic cooperation. However, Poland has a huge trade deficit with this country, mostly generated by the import of components for Korean enterprises located in Poland. Although Polish exporters do not have comparable trade with that of the Korean enterprises, among areas with potential to expand Polish exports to South Korea are in the chemical industry, food and agriculture products, shipyard industry, machinery, and green technologies.

In Southern Asia, the priority country in terms of economic cooperation is India. However, the full potential for stronger economic ties has not yet been fulfilled as limited knowledge about the market and high entry costs are the main barriers for most Polish small and medium-sized enterprises to expand their operations to India. Nevertheless, India emerges as a new destination for Polish outward FDI. With total accumulated Polish FDI at \$182 million by the end of 2011, India was a more preferred destination than China (\$127 million). The Polish Ministry of Economy assumes that there are strong opportunities for expansion of cooperation in sectors in which Polish enterprises are well known on the Indian market, such as mining (mining machines and equipment as well as services for the mining industry), energy (parts and components for power plants built by Polish companies in the 1970s and 1980s) and defence (joint projects, including R&D and technology transfers). Among new, prospective sectors are on-shore oil and gas exploration (delivery of equipment or software, and drilling), medicine (pharmaceuticals, medical instruments and equipment), food processing, environmental protection and scientific and research cooperation.

Southeast Asia seems to be a more distant region for the expansion of economic cooperation. Poland has gained especially good experience in trade with Malaysia. At the beginning of the last decade, Poland signed contracts for the delivery of military equipment (tanks and radar) and cooperation in this sector is often indicated as very positive. However, it has also been emphasized in official documents that there is huge potential for the expansion of Polish exports of furniture, pharmaceuticals, cosmetics, food and agriculture products. The main trading partner of Poland in Southeast Asia, though, is Thailand. During a visit to the

region in November 2012, Polish Prime Minister Donald Tusk met the Thai prime minister and decided to establish a permanent mechanism of political and economic cooperation between the countries, hoping it would contribute to an improvement of bilateral trade and investment relations. Indonesia is perhaps not in the top three but is still an important country in the region, one where there is the potential to expand trade relations. Potential areas for cooperation with Indonesia are in mining and exploration (delivery of machines and equipment), energy (turbines, transformers), aviation (training aircraft, helicopters, spare parts), the food industry, road construction, engineering, and the chemical industry. Last, Singapore is an attractive trade partner as one of the few countries with which Poland has a positive current accounts balance. It is also the largest foreign investor from the region, and further investment cooperation was one of the main topics of Prime Minister Tusk's visit to the country. One of the main objectives is to encourage Singaporean capital to participate in the ongoing privatization process in Poland.

In the Western Asia region, the major Polish economic partner is Israel. The main priority in Poland's foreign economic policy towards that country is the expansion of exports. Polish exports to Israel are relatively well diversified, hence the main objective is to encourage more Polish enterprises to be interested in the Israeli market. Among the areas with the largest potential are exports of food and agricultural products, metals and metal products, machines and equipment for construction, and agriculture. Poland also pursues cooperation with Israel in the defence industry under a contract signed in 2004 for the delivery of the Spike rocket and an offset contract that assumed Israeli technology transfers for the Polish military and civilian sectors. The most important trading partners in the Persian Gulf are Saudi Arabia and the United Arab Emirates. Both countries are perceived as attractive partners where Polish enterprises have huge potential to expand trading cooperation in such areas as the export of Polish food and agriculture products, paper industry products, furniture, chemicals, and equipment and materials for construction projects. Poland is not a significant importer of crude oil from the region (Polish refineries are adjusted to process Russian crude oil which has a higher content of sulphur), but there is a growing interest in attracting investors from the region in projects related to the Polish program of exploration for shale gas. In the near future there is a chance that Qatar could become one of the major partners in the region due to a long-term contract signed in 2009 for the delivery of LNG to Poland (from 2014 onward). Furthermore, in December 2012 Qatar Airways opened regular flights between Doha and Warsaw, which can contribute to an intensification of business contacts between Poland and Qatar.

In Central Asia, Poland concentrates on developing relations with Kazakhstan, its main economic partner in the region. The country was even chosen by the Polish Ministry of the Economy as one of the five most attractive markets (together with Algeria, Brazil, Canada and Turkey), in which in 2013 has been implemented a comprehensive program of economic promotion. Under that program, Polish enterprises are supported in their work with their Kazakh partners in the most growth-oriented areas, such as the food and agriculture sector, machines for food processing, machines for the mining industry, environmental protection technologies, equipment for the energy sector, medical equipment, pharmacy, furniture and cosmetics. Furthermore, Kazakhstan is included in three sectoral promotion programs (construction, machines and equipment for the mining sector, defence industry) initiated recently by the Ministry of the Economy. Along with the promotion of Polish exports, Polish enterprises are being encouraged to engage in other forms of cooperation, such as FDI (about 160 firms with Polish capital are registered in Kazakhstan at the beginning of 2013, operating in such areas as the oil and gas sector and pharmaceutical industry), participation in projects related to the modernisation of the energy sector in the country, and the construction of new infrastructure.

In sum, Poland has decided not to forcefully promote economic cooperation with every country in Asia, but to focus on selected priority markets in each region. Such selections was made after an analysis during the last few years of the potential of economic opportunities in the various regions of Asia, while taking into account the capabilities of Polish enterprises.

1.3. Support for Polish Economic Interests in Asia

Although some of the Asian markets are distant and have many barriers to overcome that require more time and financial resources, even to initiate cooperation, there is a strong rationale in seeking opportunities for a stronger presence there as long as traditional European markets are dealing with economic problems. Hence, in recent years Poland has initiated and is implementing several instruments, programs and activities that support and stimulate economic cooperation with the Asian countries. Except for the enhancement of the analytical role and promotional activities of the Trade and Investment Promotion Sections of Polish embassies in Asia (in total there are 10 such separate offices in the priority Asian countries), the Ministry of the Economy, in cooperation with other public administration entities, have implemented a systemic program called the "Promotion of the Polish Economy on International Markets" under the Innovative Economy Operational Programme, containing a sectoral program in which 15 industries are selected for promotion of enterprises and the industry as a whole through various forms of support (i.e., participation in international fairs, business missions, consultations, preparation and production of promotional materials). Those 15 industries are the subjects of an individual promotional programme within the project. The basic idea of such activities is the promotion of the most important Polish export specialties identified by the Ministry of the Economy: the furniture industry, amber jewellery industry, IT and ICT services, the production of yachts and recreational boats, the biotechnology industry, fenestration, the construction industry, the protection and preservation of historical monuments, cosmetics, mining machines and equipment, clothing, accessories and leather goods, medical tourism, the defence industry and Polish food specialties.

Polish enterprises also have access to instruments directly supporting exports, including co-financing the organization of various industry promotion undertakings (shows, tastings, exhibitions, trainings and workshops), obtainment of certificates and attestations required in foreign markets, organization of seminars and conferences, publications, and materials promoting exports. The instrument addressed to enterprises from the SME sector, which dominates the Polish economy, is called "Passport to export", which helps businesses start export activity by co-financing the preparation of an individual export development plan prepared by external consultancy services. Additionally, there are several indirect instruments supporting the internationalisation of Polish business activities. Among them are informational and promotional instruments related to access to better information about selected markets through dedicated websites (i.e., trade.gov.pl), advisory activities of Polish Trade and Investment Promotion Sections abroad or the network of Investors and Exporters Service Centres. Such instruments are very important for Polish enterprises that are focused mostly on European markets and do not have sufficient experience, knowledge and financial resources for expansion to more distant markets like Asia. Hence, recognizing this need in the business sector in order to diversify Polish exports as well as to narrow the trade deficit with Asian countries, public administration entities have intensified efforts to create better conditions for the expansion of exports and investment on markets other than the EU. But the results of such promotional and support activities are still to come, which is proven in the analysis of statistical data of Poland's trade relations with Asia.

2. Trade with Asia: A Data-based Analysis

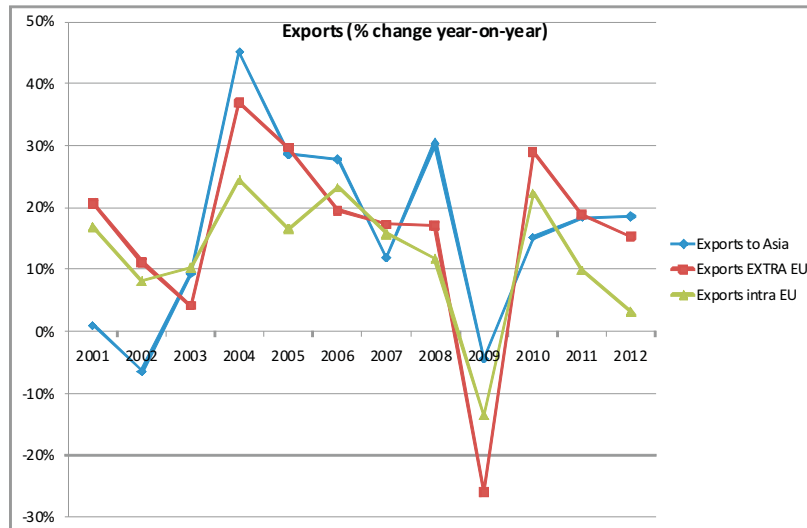
2.1. Asia in Poland's Global Trade

During the decade after 2000, Polish exports increased rapidly, independently from the destination group, i.e., the EU-27, Asia¹, and the rest of the world. However, what is interesting

¹ As defined in this study, that is, all Asian countries excluding Russia and Turkey as big countries not fully belonging to this continent.

is that Asia and the rest of the world as a single entity was the fastest growing destination since 2000. In 2004, Poland joined the European Union, and this brought a significant trade increase, and surprisingly the sharpest year-on-year rise—more than 40%—was noted in trade with Asia during the enlargement year despite the contraction of 2002 (see: Graph 1). This was probably caused by the trade liberalization with the EU in the '90s as changes in trade had taken place earlier. When the crisis hit, exports to Asia fell mildly, which pointed at the severity of the crisis in the EU, whereas in Asia it influenced demand but on a smaller scale.

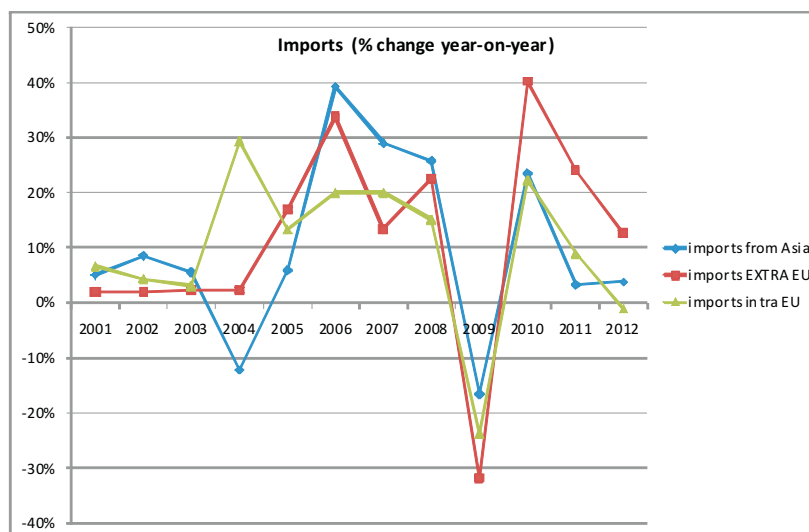
Graph 1. Changes in Polish exports to selected destination regions (year on year)



Source: own calculations based on Eurostat data.

A quite similar situation is seen in imports, which also grew rapidly, however more slowly than exports. However, the trade balance is still negative. Also, in 2009 there was a contraction in imports from each of the supplier groups, which was the effect of shrinking domestic demand. But, contrary to exports, imports from Asia grew weaker than those from the EU-27 and levelled off in 2012.

Graph 2. Changes in Polish imports from the selected regions



Source: own calculations based on Eurostat data.

Trade with the EU-27 dominates Polish exports and imports (see: Tables 1 and 2), but the share of exports is bigger than that of imports—correspondingly, 75.7% and 67.2% in 2012—in

total Polish foreign trade exchange. The share of exports to Asia in 2012 was only 4.6%, which is only slightly bigger than in 2000 when it was 3.4%. However, in the following two years this dropped then started rising until 2004. This is quite similar to imports, but with higher shares (2000—10.5%, 2012—10.3%).

Table 1. Shares of destination groups in Polish export

Share in export (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU27	81.2	81.2	81.2	81.9	80.3	78.6	79.0	78.9	77.8	79.6	79.1	77.8	75.7
Asia	3.4	2.9	2.5	2.5	2.9	3.1	3.3	3.2	3.6	4.1	3.8	4.1	4.6
Rest of World	15.4	15.9	16.3	15.5	16.8	18.2	17.8	18.0	18.6	16.3	17.0	18.1	19.7

Source: own calculations based on Eurostat.

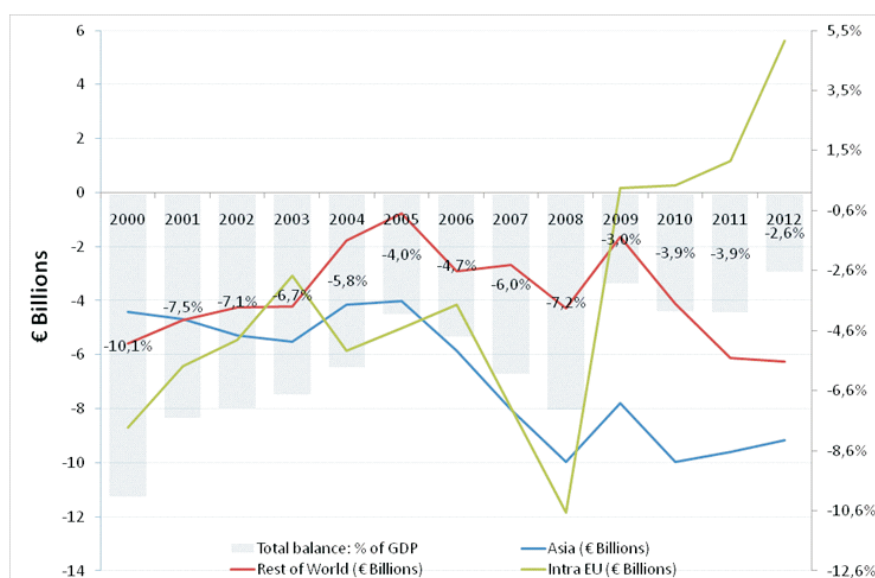
Table 2. Shares of groups-suppliers in Polish import

Share in import (in %)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU27	69.0	69.7	69.7	69.6	75.3	75.3	73.0	73.3	71.9	72.6	70.8	69.4	67.2
Asia	10.5	10.5	10.9	11.2	8.2	7.7	8.6	9.3	10.0	11.0	10.9	10.1	10.3
Rest of World	20.5	19.8	19.4	19.2	16.5	17.0	18.4	17.4	18.2	16.4	18.3	20.5	22.6

Source: own calculations based on Eurostat.

Poland's trade in the 21st century is characterised by a negative balance, contrary to neighbouring countries which have noted a surplus in at least a few years. Almost in the entire period, except for 2000 and 2001, the greatest deficit was with Asia—reaching up to €10 billion in 2008 and 2010 (see: Graph 3). Since the beginning of the crisis, the general balance ameliorated, but it has not become a surplus. In relation to the EU, the net balance during the crisis period became positive. Simultaneously, the gap between exports to and imports from Asia has even widened, though.

Graph 3. Poland's trade balance with certain partners groups in 2000-2012

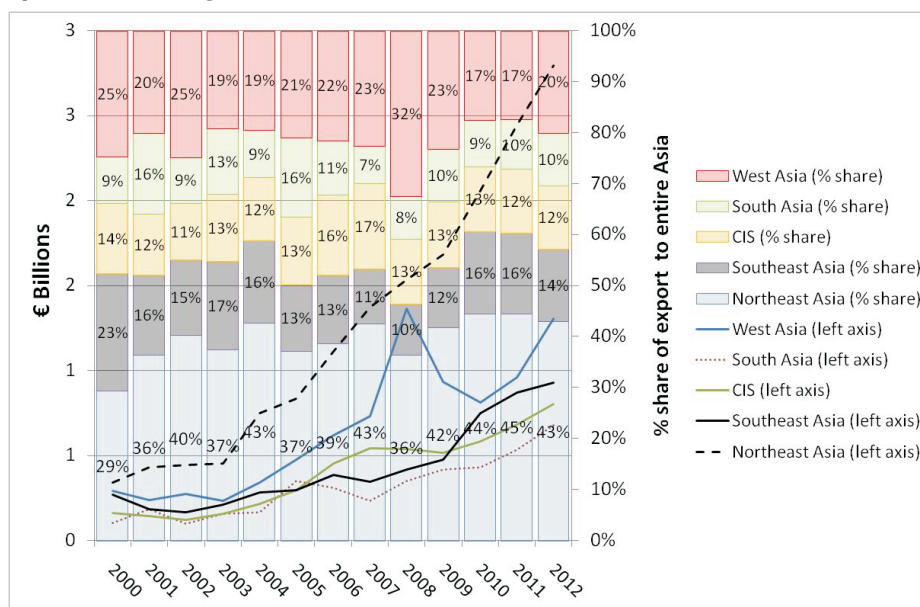


Source: Eurostat.

2.2. Poland's Trade with Asian Regions

At the end of the 20th century, exports to all the Asian regions was alike, not exceeding €500 million in each case. The share of the biggest destination group in terms of export—Northeast Asia²—was less than 30%, whereas the share of the smallest one—Southern Asia—was almost 10%.³ But at the time, exports favoured Northeast Asia, reaching about €2.8 billion in 2012, with a share of 45% sales to that Asian market at the expense of Western⁴ and Southeast Asia⁵ (see: Graph 4). An interesting year is 2008, when exports to Western Asia peaked, which was probably caused by higher incomes due to record oil prices.

Graph 4. Export to Asian regions in 2000-2012



Source: own calculations based on Eurostat data.

The most important region in terms of imports is Northeast Asia, standing for about €4 billion up to 2004, that is 70% of imports from Asia, and afterwards increasing to €10.5 billion in 2008, or 75% of imports from Asia. The crisis influenced domestic demand and made Polish purchases lower, but only in 2009. In 2012, the imports from this region almost exceeded €12 billion, which is around 80% of total imports from Asia. The other regions were less relevant, each of them having not reached even €2 billion during the entire research period. Hence, the Northeast region is becoming increasingly important. It is important to note that in the case of Western Asia a rise in imports in 2008 did not take place because Poland's biggest supplier of oil and gas is the Russian Federation and it is not analysed in this study. In the future, the share of this group may increase due to signed contracts on LNG, however much depends on the possible development the shale gas industry in Poland. The second biggest region was Southeast Asia, with an 18% share in 2000, though it decreased over time to 12% in 2012 (see: Graph 5).

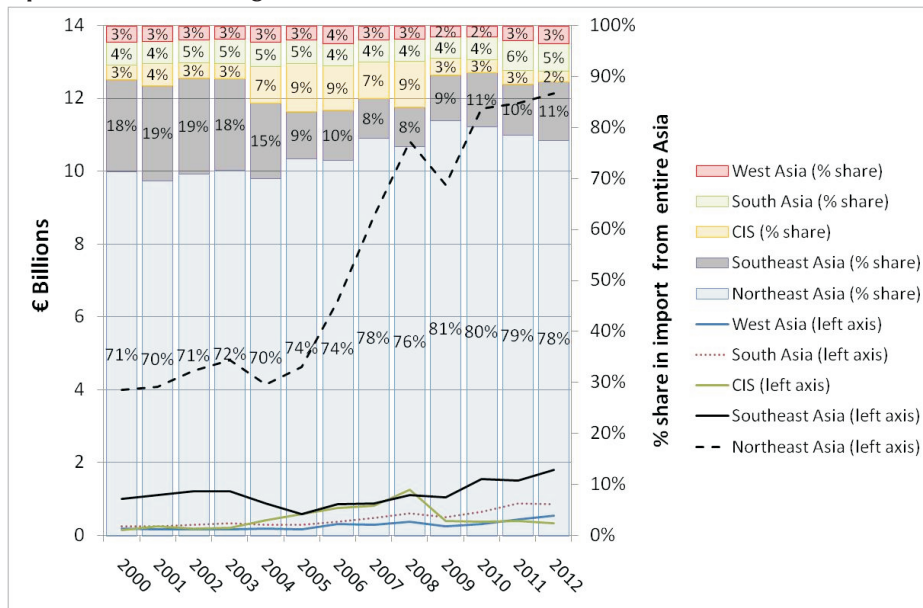
² In this study, Northeast Asia contains China, Hong Kong, Japan, Macao, Mongolia, North Korea, South Korea and Taiwan.

³ In this study, Southern Asia contains Afghanistan, Bangladesh, Bhutan, India, Iran, Maldives, Nepal, Pakistan and Sri Lanka.

⁴ In this study, Western Asia includes Bahrain, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates and Yemen.

⁵ In this study, Southeast Asia contains Brunei, Indonesia, Cambodia, Laos, Myanmar, Malaysia, Philippines, Singapore, Thailand, Timor-Leste and Vietnam.

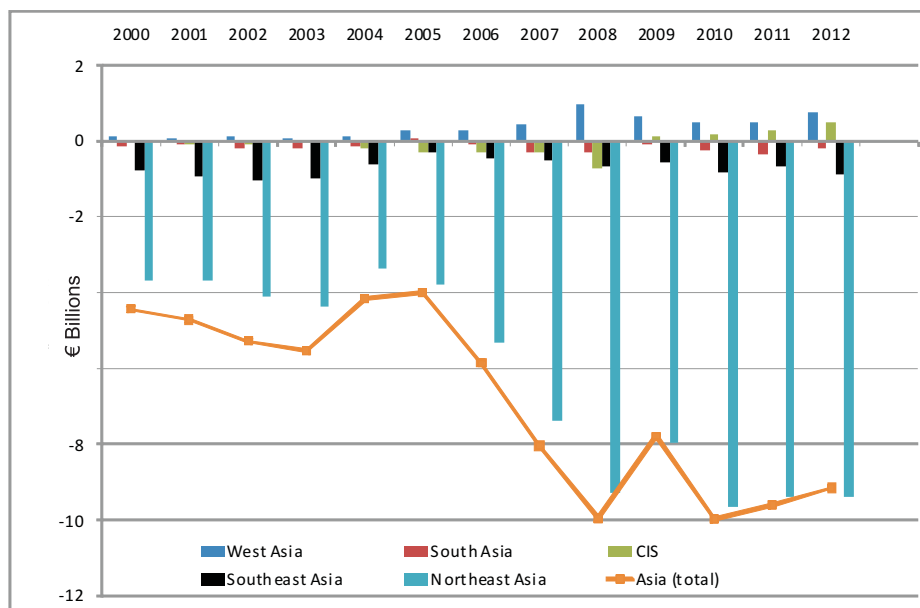
Graph 5. Imports from Asian regions in 2000-2012



Source: own calculations based on Eurostat data.

A gap between the imports and exports in trade with Asia started widening in 2006 from €4.5-5 billion to €10 billion in 2010 and afterwards dropped to €9 billion in 2012. Poland notes the highest deficit with Northeast Asia, which has the greatest influence on Poland’s total trade balance with Asia. Even the values of the trade balance with Asia and with this region are comparable (see: Graph 6). The only region with which Poland had a surplus during the entire period was Western Asia, probably due to the strong domestic demand in this region. In the 2010-2012 a small surplus is noted in trade with CIS countries.⁶

Graph 6. Trade balance with regions in 2000-2012



Source: Eurostat.

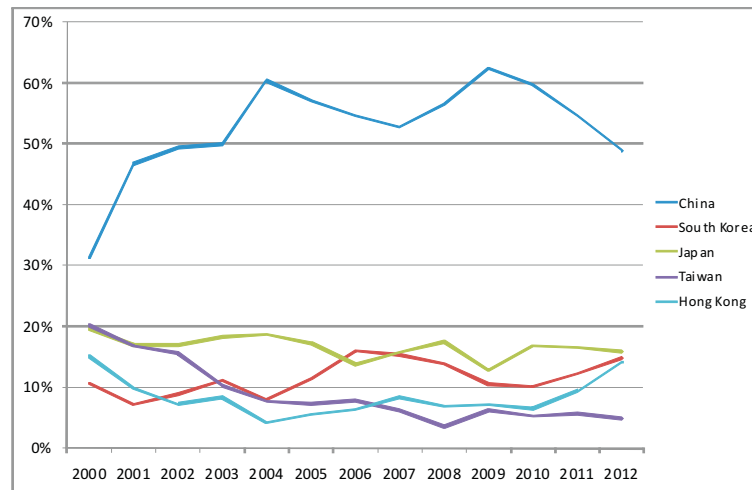
⁶ CIS countries in this study are as follows: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.

2.3. Trade with Asian Countries

2.3.1. Northeast Asia

China⁷ is the biggest importer of Polish goods in this region, accounting for 31% in 2000 to even 62% in 2009, but in 2011 this ratio had shrunk to below 50%. Japan and Taiwan each noted a 20% share in 2000, and these ratios fell correspondingly to 16% and 5% in 2012. Hong Kong's share also dropped from 15% in 2000 to 13% in 2012. South Korea's share of Polish sales remained relatively stable at the level of 11-13% during the entire period (see: Graph 7).

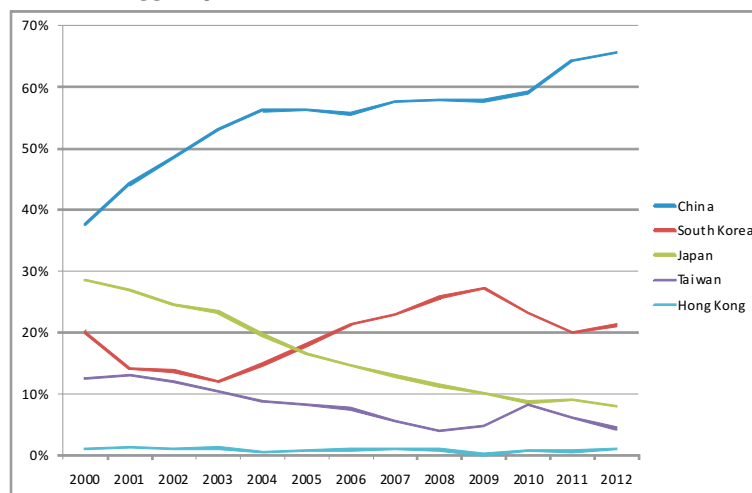
Graph 7. Export shares—5 biggest partners to Northeast Asia, 2000-2012



Source: own calculations based on Eurostat data.

The most important country in terms of imports in the biggest trading group is China, and its significance was gradually, but significantly increasing, from 38% in 2000 to 65% in 2012. Contrary to China, Japan's share in Poland's foreign purchases was contracting, from 29% in 2000 to 8% in 2012 (see: Graph 8), which could be the effect of the relocation of Japanese firms abroad (i.e., to China). This country was outpaced by South Korea, which noted a 21% share in 2011 (a slightly better result than in 2000), but in 2009 it was even 27%.

Graph 8. Import shares—5 biggest partners from Northeast Asia, 2000-2012



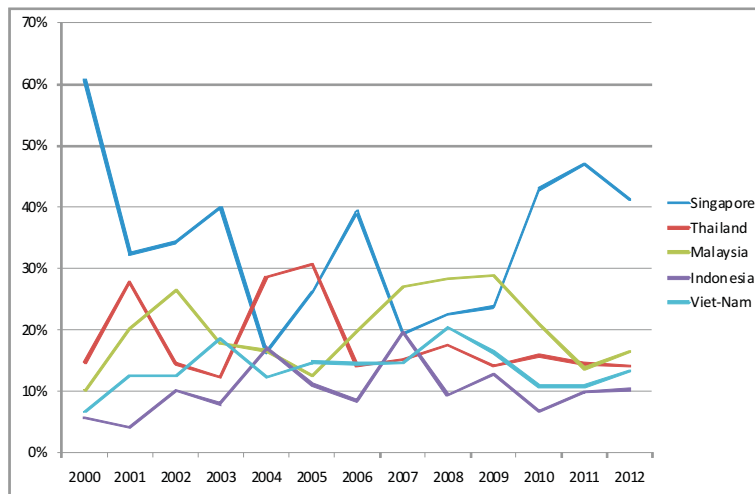
Source: own calculations based on Eurostat data.

⁷ In computations, Hong Kong, Taiwan and Macao are treated separately from China, according to the Eurostat methodology.

2.3.2. Southeast Asia

The biggest Southeast Asia destination country is Singapore, however this country as is often only a hub where goods are re-loaded and re-exported, hence imports and exports are overvalued. The second two biggest destinations are Thailand (in 2000-01, 2004-05 and 2011) and Malaysia (in 2002 and 2006-10). Thailand even became the most important destination for a time, in 2004 and 2005, noting 29% and 30%, respectively, shares of Polish exports to Southeast Asia. Malaysia became the biggest supplier from 2007 to 2009, with around a 26%-29% share.

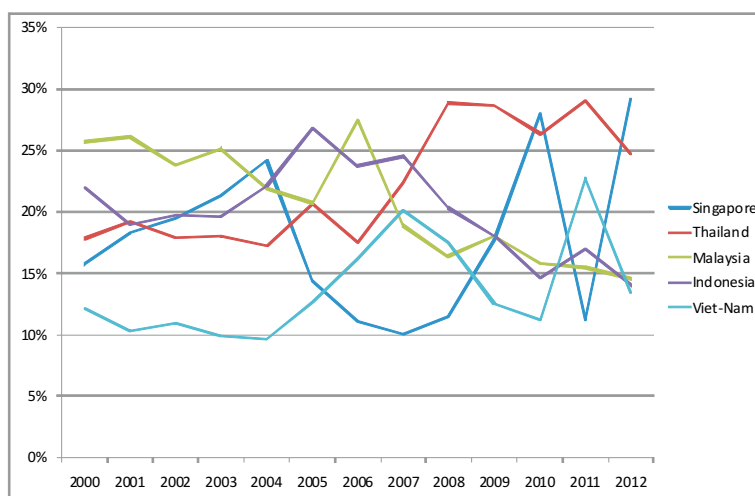
Graph 9. Export shares—5 biggest partners from Southeast Asia, 2000-2012



Source: own calculations based on Eurostat data.

As for imports from Southeast Asia, all of the countries in the region had fluctuating shares, from 10% (Vietnam in 2004 and Singapore in 2008) to 29% (Thailand in 2008-09 and 2011 and Singapore in 2012). Nevertheless, it is clear that Malaysia was the main supplier until 2006, with the exception of 2004-05, then slipped to fourth in 2011 to the advantage of Thailand (see: Graph 10).

Graph 10. Import shares—5 biggest partners from Southeast Asia, 2000-2012

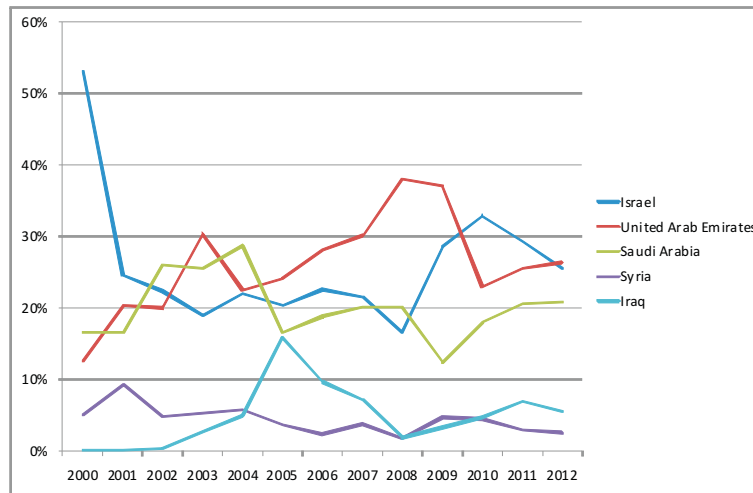


Source: own calculations based on Eurostat data.

2.3.3. Western Asia

In the Western Asia region, three countries a key to Polish exports—Israel, Saudi Arabia and United Arab Emirates—standing in total for 73% in 2012. The biggest partner in Polish exports was Israel in 2000-01 and 2010-11, whereas in the other years, with the exception of Saudi Arabia in 2003 (30%), the United Arab Emirates represented the biggest Polish export destination in Western Asia. In 2005, exports to Iraq were similar to exports to Saudi Arabia.

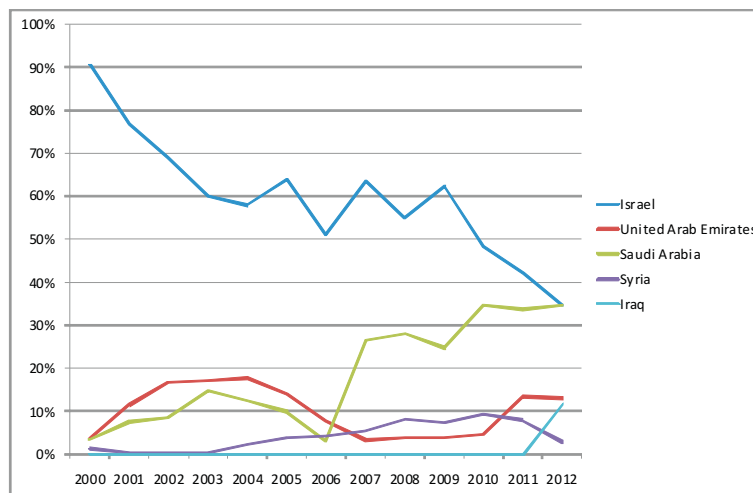
Graph 11. Export shares—5 biggest partners from Western Asia, 2000-2012



Source: own calculations based on Eurostat data.

At the end of the 20th century, the biggest Western Asian supplier to Poland was Israel, which stood for 90% of Polish orders from this region. However, its share was significantly decreasing over the research period to 35% in 2012, to the advantage of Saudi Arabia (which showed a corresponding rise from 5% to 35%). These two countries accounted for 70% of the total in 2012, but in 2000 their share was 95%, which points to the fact that the other countries have little impact on Poland's imports from this region. Especially, Iraq, whose sales as the fifth biggest supplier from the region were in fact close to zero, with the exception to 2012. However, the shares of the United Arab Emirates and Syria were increasing. Especially, Syria, which had slight, constant growth since 2003.

Graph 12. Import shares—5 biggest partners from Western Asia, 2000-2012

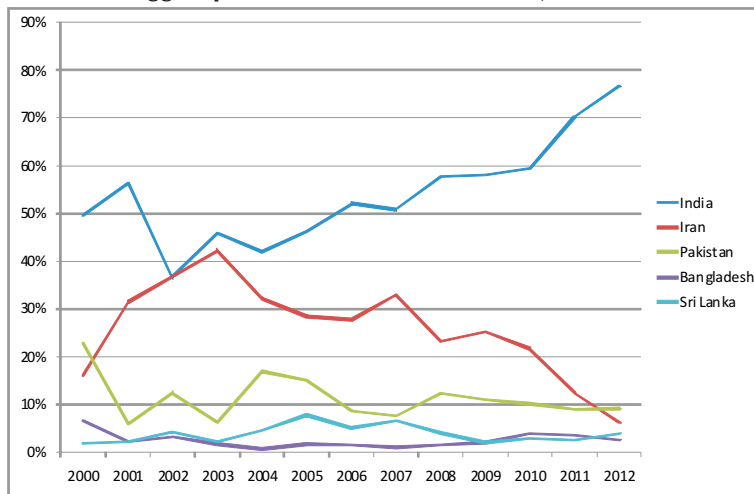


Source: own calculations based on Eurostat data.

2.3.4. Southern Asia

The biggest destination country for Polish goods in Southern Asia is India, maintaining its first position throughout the entire period. Its lowest overall share was in 2002 (37%, or equal to Iran’s purchases from Poland) and afterwards increasing to 76% in 2012. In the 21st century, the second biggest destination country was Iran, peaking in 2003 to a 42% share of Poland’s exports though in the following years it dropped significantly (to 6% in 2012). The third biggest purchaser of Polish goods is Pakistan (second in 2000) though it did not exceed 20% of the total so far in the 21st century and fell below 10% in 2011 and 2012. Bangladesh and Sri Lanka remained relatively stable at 4-7% on average.

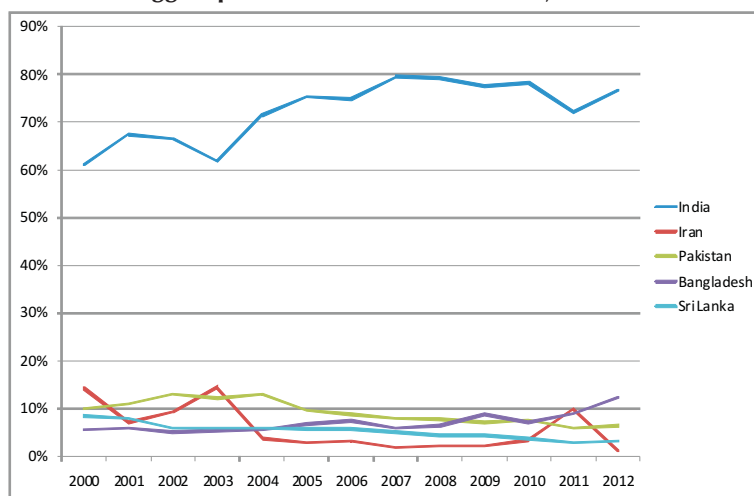
Graph 13. Export shares—5 biggest partners from Southern Asia, 2000-2012



Source: own calculations based on Eurostat data.

India is also the biggest supplier from Southern Asia, accounting for 61% of total imports from this region in 2000 to 80% in 2007 and 2008. The other exporting countries record at most 15% of Poland’s total imports from this region, and since 2005 that figure has been under 10%.

Graph 14. Import shares—5 biggest partners from Southern Asia, 2000-2012

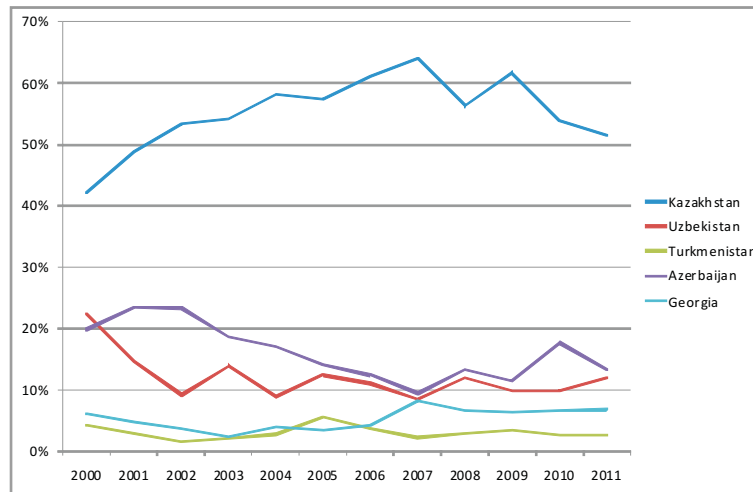


Source: own calculations based on Eurostat data.

2.3.5. Commonwealth of Independent States

Among the CIS, Poland most exports by value go to Kazakhstan, peaking in 2007 at 64%. The lowest share Kazakhstan noted was in 2000 (42%) and afterwards it was rising until 2007, though in 2008 it contracted to 56% then recovered in 2009 to 61%, then fell again in 2010 and 2011. This trend is relatively contrary to the export share to Turkmenistan (its lowest point in 2007 was less than 10%). Except for 2000 and 2001, Uzbekistan's ratio in Polish exports remained stable at 10%. During the entire research period, Azerbaijan and Georgia were relatively invariable and less than 10% (see: Graph 15).

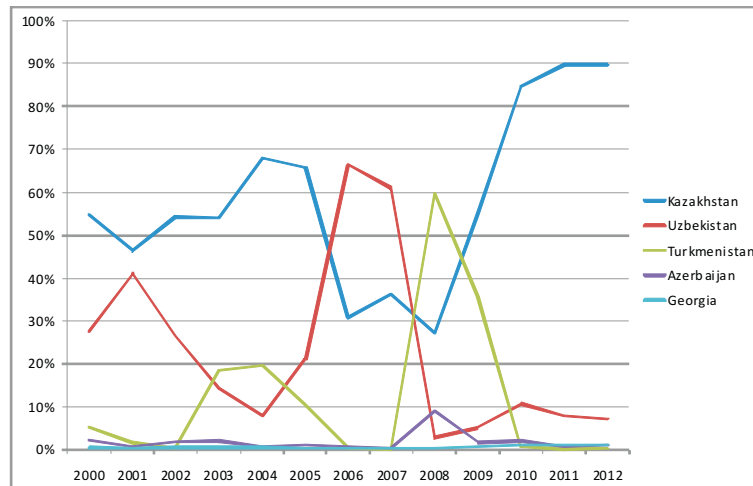
Graph 15. Export shares—5 biggest CIS partners, 2000-2012



Source: own calculations based on Eurostat data.

A less clear image of the CIS region comes from an analysis of imports. The shares of Poland's purchases from particular countries fluctuate, but imports are significant from only three from this region—Kazakhstan, Uzbekistan and Turkmenistan. The first of them held the biggest share in 2000-05, noting around 50-60%, while in 2009-12 it showed a drastic increase, as high as 90% in 2011. The second biggest partner—Uzbekistan—had a highly variable share, with such extreme values as 3% in 2008 and 66% in 2006 (exceeding then Kazakhstan's share). Also, an interesting change in share is observed in the case of Turkmenistan, with several years (not consequential ones) with close to 0% share then 2006 with 60%.

Graph 16. Import shares—5 biggest CIS partners, 2000-2012



Source: own calculations based on Eurostat data.

2.3.6 The Evolution of Trade with the Main Asian Partners

In brief, the geographic composition of exports remains quite similar in most of the regions. The biggest importers of Polish goods remain the same. In some country groups, the main destination country strengthened its position (China in the Northeast, India in Southern Asia and Kazakhstan in the CIS), in other groups, its position weakened. The top five countries remain the same (sometimes with changed ranks) in the Northeast, Southeast and Southern Asia. In Western Asia, Iraq appears in the top 5 export destinations at the expense of Syria (compare: Tables 3 and 4). The role of the five biggest destinations in the country groups increased for the Northeast and barely grew for Southern Asia. Contrary to that, in Western Asia, the geographic concentration within the five biggest countries decreased.

Table 3. Imports from and exports to the main partners in each country group (2000), from biggest to smallest in total trade volumes

Trade flow	Northeast	% share	Southeast	% share	West	% share	South	% share	CIS	% share
Import	China	37.6	Singapore	15.8	Israel	90.6	India	61.1	Kazakhstan	54.8
Export		31.3		60.7		53.0		49.7		42.2
Import	Japan	20.1	Malaysia	25.8	Saudi Arabia	3.3	Iran	14.1	Uzbekistan	27.8
Export		19.7		10.1		16.6		15.9		22.5
Import	South Korea	28.5	Indonesia	21.9	United Arab Emirates	3.7	Pakistan	10.0	Azerbaijan	2.3
Export		10.7		5.6		12.6		23.0		19.9
Import	Taiwan	12.5	Thailand	17.8	Syria	1.3	Sri Lanka	8.3	Turkmenistan	5.3
Export		20.2		14.6		5.1		0.03		4.3
Import	Hong Kong	0.9	Viet-Nam	12.1	Yemen	0.1	Bangladesh	5.5	Tajikistan	6.9
Export		15.2		6.7		5.1		6.4		0.03
Import	Others	0.3	Others	6.6	Others	1.1	Others	0.9	Others	2.9
Export		2.9		2.2		7.5		5.0		11.1

Source: own calculation based on Eurostat.

Table 4. Imports from and exports to the main partners in each country group (2012), from the biggest to smallest in total trade volumes

Trade flow	Northeast	% share	Southeast	% share	West	% share	South	% share	CIS	% share
Import	China	65.6	Singapore	29.2	Israel	34.8	India	76.7	Kazakhstan	89.7
Export		48.9		41.1		25.5		76.7		55.4
Import	South Korea	21.3	Thailand	24.7	Saudi Arabia	34.8	Bangladesh	12.3	Uzbekistan	7.3
Export		14.9		14.0		20.9		2.6		12.0
Import	Japan	7.8	Malaysia	14.5	United Arab Emirates	13.0	Pakistan	6.4	Azerbaijan	1.0
Export		15.9		16.4		26.4		9.0		11.6
Import	Taiwan	4.4	Viet-Nam	13.4	Iraq	11.5	Iran	1.3	Georgia	1.3
Export		4.8		13.3		5.5		6.1		8.5
Import	Hong Kong	0.9	Indonesia	14.1	Oman	1.0	Sri Lanka	3.2	Kyrgyzstan	0.1
Export		14.1		10.2		0.0		3.8		3.6
Import	Others	0.0	Others	4.1	Others	4.9	Others	0.1	Others	0.6
Export		1.4		4.9		21.7		1.7		8.9

Source: own calculation based on Eurostat.

The geographic composition of imports presents a less clear picture especially when focusing on Southeast Asia. In this region, Singapore became the main supplier in 2012 from fourth rank, at the expense of Malaysia which dropped to third. However, the shares of imports from these countries strongly fluctuate. As for Western Asia, Iraq joined the top five at the expense of Jordan. Some re-shuffling also occurred in the CIS countries, with Georgia

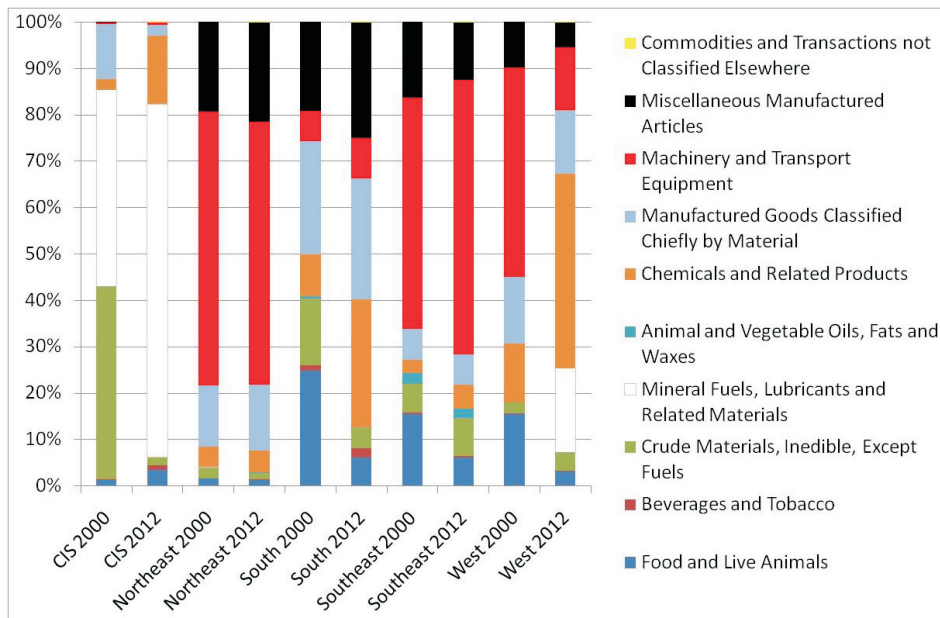
advancing to the top three and Tajikistan decreasing in rank from third to out of the top five. In the Northeast the changes were smaller: Japan fell to third position as South Korea moved ahead. Negligible changes also took place in Southern Asia. Bangladesh advanced to second rank, outpacing Iran, Pakistan and Sri Lanka. What is also interesting, when looking at imports from Asia is the concentration of purchases within the five biggest suppliers (more than 90%).

3. Trade with Asia: Sectoral and Commodity-specific Approaches

3.1. Trade within the Main Sectors

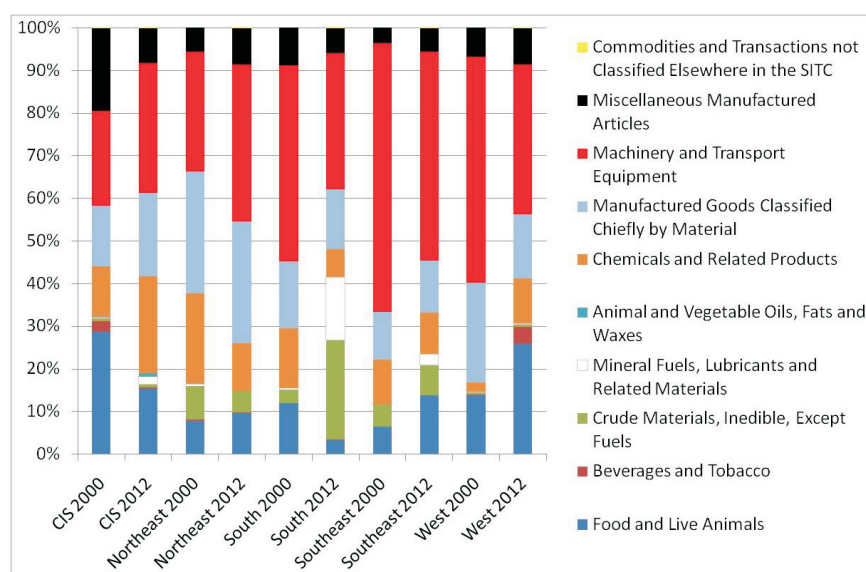
The diversity of imported commodities within the main branches is clearly visible in a cross-regional approach (see: Graph 17). Some groups differ from the rest—such as the CIS countries—in supplying Poland with crude materials and fuels, accounting for around 75% of total import from this group in 2000. In 2012 the same share of purchases belongs solely to fuels and fuels-related items. The most popular category in the other regions (except for Southern Asia) is machinery and transport equipment, accounting for 40-60% of all Polish purchases in 2000. In 2012, the significance of this product category has remained in Northeast Asia and Southeast Asia, whereas Western Asia's share has significantly shrunk in favour of chemicals. The most diversified structure of imports is in trade with Southern Asia, with miscellaneous articles, manufactured goods and food and live animals having similar significance in 2000. In 2012, manufactured goods and chemicals, and to some extent miscellaneous articles, gained importance at the expense of other categories.

Graph 17. Sector-specific structure of imports from Asian regions: 2000 and 2012



Source: own calculations based on Eurostat data.

Poland's export structure is rather more diversified than the structure of imports, but in most cases the main branch is machinery and transport equipment, except for trade with CIS. This category noted 30% in trade with Northeast Asia to more than 60% in trade with Southeast Asia in 2000. However, this share shrunk in 2012 to 25% of total exports to Northeast Asia, 33% to South and Western Asia, and around 50% to Southeast Asia. Furthermore, in Northeast Asia this category dropped to second position and manufactured articles bumped up. Simultaneously, the shares of machinery exports to CIS increased in 2012 to 30%, taking the lead among the other product groups, with food and live animals dropping.

Graph 18. Sector-specific structure of exports to Asian regions: 2000 and 2012


Source: own calculations based on Eurostat data.

3.2. Trade in Commodities

3.2.1. Northeast Asia

Also, an interesting picture emerges when looking deeper into a more detailed product list. In the Northeast region, the biggest destination—China—has two product categories—copper and furniture and furnishings—that account for nearly 40% of all exports in 2012 (for more detailed information, see Annex A1). In copper, this big share is nothing surprising, as China produces electric and electronic components. What's interesting though is the product concentration in the 10 biggest categories in China is decreasing. The concentration is less in the case of South Korea, reaching around 75% in 2000 and around 69% in 2012, but two of its biggest product groups account for 41% in 2000 and 28.5% in 2012. The biggest exported goods category to this country was organo-inorganic compounds, heterocyclic compounds, and nucleic acids and salts in 2000, but in 2011 it was outpaced by internal combustion piston engines and parts. Furthermore, the product category organic and inorganic materials was not even ranked among the top 10 product categories any more. In 2012, the second main group is mechanical handling equipment and parts. Both of these groups were rather insignificant in Polish exports to South Korea at the end of the 20th century. As for Japan, product concentration is relatively weaker compared to China and Japan, however it increased in 2012 to 71.7%. The two biggest product categories account for 28.6% in 2012 (compared to 20.6% in 2000) and are a group of products called other meat and edible meat offal, fresh, chilled or frozen destined for human consumption, and chemical products.

Imports from China are rather less concentrated at the product level, with the 10 biggest product groups accounting for around 50% in 2000 and around 45% in 2012. Poland purchased mostly telecommunications equipment, parts and accessories in 2012, with a 9.2% share of total imports from China, and parts and accessories for office machines and data-processing machines, with an 8.6% share. In contrast, South Korea has a higher concentration of trade, reaching 69.4% in 2012. Imports of telecommunications equipment, parts and accessories and optical instruments and apparatus account for, in total, 56.6% in 2012. As for Japan, the product category with the biggest share (10.2%) is motor cars and other motor vehicles principally designed for the transport of persons but not mass transport, which is the only category remaining first among the analysed countries in Northeast Asia. The second main

category is measuring, checking, analysing and controlling instruments and apparatus, with an 8.7% share.

Table 5. Commodity concentration of exports and imports, Top 3 Northeastern partners

		Import		Export	
		2000	2012	2000	2012
China	Product	toys and games	telecommunications equipment	copper	copper
	% share	9.8	9.2	46.4	34.2
	Product	computers	parts for computers	organic and inorganic materials	furniture and furnishings
	% share	9.7	8.6	15.2	4.1
South Korea	Product	parts for motor vehicles	telecommunications equipment	organic and inorganic materials	combustion piston engines
	% share	21.4	38.3	30.1	30
	Product	computers	optical instruments and apparatus	telecommunications equipment	mechanical handling equipment
	% share	9	13.8	11	8.5
Japan	Product	cars	cars	crude animal materials	meat
	% share	8.6	10.2	10.6	18.7
	Product	computers	measuring, analysing and controlling apparatus	aluminium	miscellaneous chemical products
	% share	8	8.7	10	9.9

Source: own calculations based on Eurostat data.

In order to measure the degree of concentration of exports and imports, we calculated a Herfindahl-Hirschman index,⁸ which is commonly used in assessing the concentration of several characteristics, including product concentration in trade. The index sets values from 0 to 1 (excluding 0 itself), where those closest to “0” mean no concentration (or full diversification),⁹ and “1” means full concentration (only one product).

In each case, the indices are not low, taking into account the number of product categories (more than 250 product groups; for more details, see annex A2), which rather points at the concentration of imports as well as exports in each country. However, imports of South Korean goods are relatively much more concentrated than for China and Japan. Similarly, Polish exports to China look very concentrated, mainly as a result of existing business contracts on Polish copper. What’s also interesting, in the case of Polish purchases, is that product concentration takes place in South Korea and Japan, contrary to China and South Korea, for which it is becoming more diversified.

⁸ See, e.g., A. O. Hirschman, “National Power and the Structure of Foreign Trade”, Berkeley, 1945, www.google.hu/books?id=BezqxPq50dwC&printsec=frontcover&hl=hu#v=onepage&q&f=false

⁹ But much depends on the number of objects: the more objects, the lower the value.

Table 6. Commodity concentration (Herfindahl-Hirschman index), Top 3 Northeastern partners

Flow	Year/country	China	South Korea	Japan
Import	2000	19.15	28.18	19.96
	2012	17.76	43.28	20.90
Export	2000	49.42	35.37	22.52
	2012	35.83	33.81	27.61

Source: own calculations based on Eurostat data.

Also very interesting is to follow the temporal changes in the product structure, that is to view an assessment of how much this structure changes over time. A Finger-Kreinin index¹⁰ is helpful in such an assessment. When the values of this measure are “0”, it means that the assessed structures are totally different. When the values approach “1”, the product structure is the same. In this study, the index consists of two years—2000 and 2012—in order to compare the differences between these two years. According to the results, the product structure is most maintained in Chinese exports and imports, and in imports from Japan. The biggest evolution took place in exports to Japan and in both exports to and imports from South Korea (the structure in 2012 is similar at around 20-33% to the corresponding structure in 2000).

Table 7. The evolution of trade in 2000-2012 (measured with a Finger-Kreinin similarity index), Top 3 Northeastern partners

Flow/country	China	South Korea	Japan
Import	60.89	31.78	56.64
Export	55.94	19.78	32.90

Source: own calculations based on Eurostat data.

3.2.2. Southeast Asia

In Southeast Asia, Poland's concentration of export of goods to the biggest trading partner—Singapore—is very high. The number one product category—ships, boats (including hovercraft) and floating structures—accounted for 61.9% in 2012, but exports were more diversified than in 2000 when this category amounted to 84.6% of Polish exports there. The main product group accounted for 85.2% of Polish exports, which points at a moderate increase in the variety of products compared to the year 2000 (96.2%). The structure of exports to Thailand was also concentrated in 2000 (86.5%), but in 2012 the diversity was significantly greater. Also, a reshuffling of the main product categories took place. Sales of the main product category—internal combustion piston engines and parts—accounted for 16.5% in 2012, compared to 2000 when its share was so small that it was not one of the 10 main categories. Also, a relatively high commodity concentration in the top 10 items is noted in Malaysia: 87% in 2000 and 78.2% in 2012. The most important exported products are cutlery, with a 17% share in 2012, having been insignificant in 2000. The second main item is measuring, checking, analysing and controlling instruments and apparatus, with a 14.8% share.

In Singapore, the shares of imports are distributed relatively less evenly than exports, and the concentration of the 10 main product groups is also high. In 2012, Poland imported mainly ships, boats (including hovercraft) and floating structures—the same main category as exports. This category accounted for 72.2% then but in 2000 was rather insignificant and below the shares of the 10 biggest groups. A second product category of imports from Singapore is organo-inorganic compounds, heterocyclic compounds, nucleic acids and salts, and sulphonamides, which together had only a slightly lower ratio—9.8% in 2012—and which also was a non-existent item in the top 10 imported groups in 2000. The most important Polish purchases from Thailand are in 2012 automatic data-processing machines and parts, magnetic or optical readers, machines

¹⁰ J.M. Finger, M.E. Kreinin, “A Measure of ‘Export Similarity’ and Its Possible Uses”, *The Economic Journal*, vol. 89 no. 356, Dec., 1979, pp. 905-912.

for transcribing data onto data media in coded form and machines for processing data, which held a share in total of 36.3% (similar to 2000). The second category is natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, with a 15% share in 2012. When looking at the concentration of the product groups, it is relatively lower than for the other two countries in the region, however it is still high and strengthening. The 10 main groups account for 74% in 2012 compared to 61.9% in 2000. The structure of imports from Malaysia was similarly concentrated as with Singapore, but the concentration is weakening over time. In 2012, the 10 main groups account for 78%, compared to 85.1% in 2000. The most important product category is automatic data-processing machines and parts, magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data with a share of 24.2%, which is higher than in 2000 when it amounted to 22.5% and was second. In 2012, the second biggest item is articles of apparel and clothing accessories of other than textile fabrics and headgear of all materials, with a 10.7% share.

Table 8. Commodity concentration of exports and imports, Top 3 Southeastern partners

		Import		Export	
		2000	2012	2000	2012
Singapore	Product	computers	ships and floating structures	ships and floating structures	ships and floating structures
	% share	31.4	72.2	84.6	61.9
	Product	parts for computers	organic and inorganic materials	copper	petroleum oils
	% share	22.6	9.8	6.1	6.2
Thailand	Product	computers	computers	organic and inorganic materials	combustion piston engines
	% share	19.6	36.3	29.5	16.5
	Product	semiconductors and circuits	natural rubber and other gums	semi-finished products of iron or steel	starches, inulin and wheat gluten
	% share	9.2	15	18	7.5
Malaysia	Product	semiconductors and circuits	computers	ferrous waste and scrap	cutlery
	% share	24.1	24.2	31.1	17.0
	Product	computers	clothing accessories and headgear	furniture and furnishings	measuring, analysing and controlling apparatus
	% share	22.5	10.7	24.4	14.8

Source: own calculations based on Eurostat data.

The Herfindahl-Hirschman indices are higher than they were for Northeast Asia, pointing at higher product concentration. If we look at imports, a growth in concentration occurred in Singapore and Thailand (especially Singapore). The export structure to Southeast Asia is relatively less concentrated than imports, and an increase in diversity has taken place, seen when analysing the three biggest partners.

Table 9. Commodity concentration (Herfindahl-Hirschman index), Top 3 Southeastern partners

Flow	Year/country	Singapore	Thailand	Malaysia
Import	2000	41.21	25.59	37.63
	2012	73.14	40.59	31.68
Export	2000	84.88	39.13	41.52
	2012	62.59	23.67	30.20

Source: own calculations based on Eurostat data.

When analysing Finger-Kreinin similarity indices, one may assess that there was a moderate change in the structure of imports from Thailand and Malaysia, and relatively high evolution in imports from Singapore. A little change took place in exports to Singapore, but the structure of exports to Thailand and Malaysia evolved significantly from 2000 to 2012.

Table 10. The evolution of trade in 2000-2012 (measured with a Finger-Kreinin similarity index), Top 3 Southeastern partners

Flow/country	Singapore	Thailand	Malaysia
Import	25.05	52.93	48.94
Export	74.94	24.07	20.38

Source: own calculations based on Eurostat data.

3.2.3. Western Asia

What is quite visible is the growing diversification of Polish exports to this region. The cumulative share of the biggest categories is decreasing in each of the three countries. The export structure to Israel was diversifying, from the 10 biggest items holding a share of 90.2% in 2000 to 55.6% in 2012. Poland specialised in the sales of ships, boats (including hovercraft) and floating structures with 69% in 2000, but in recent years, global orders for Polish boats decreased significantly, leading its biggest shipyards to the edge of bankruptcy. In 2011, Israel bought from Poland a variety of products, with the biggest share (10.4%) being motor cars and other motor vehicles and sugars, molasses and honey (8.7%). The export structure of the United Arab Emirates was more diversified in 2000, but now the concentration is similar to Israel's. The most important Polish commodity it buys is telecommunications equipment, parts and accessories (21.1%) and cutlery (7% in 2011). The two biggest selling categories to Saudi Arabia are linked with food: wheat (11.8%) and cheese and curds (8.8%). The two biggest categories are completely new and were non-existent in the top 10 in 2000.

Table 11. Commodity concentration of exports and imports, Top 3 Western Asia partners

		Import		Export	
		2000	2012	2000	2012
Israel	Product	telecommunications equipment	Insecticides, pesticides etc.	ships and floating structures	optical instruments and apparatus
	% share	26.6	12.9	69.0	10.4
	Product	fruit and vegetable juices	engines and motors	live animals	sugars, molasses and honey
	% share	10.6	10.2	5.6	8.7
United Arab Emirates	Product	aluminium	aluminium	cutlery	telecommunications equipment
	% share	69.3	62.4	18.3	21.1
	Product	crustaceans	plates, sheets, foil of plastics	ball or roller bearings	cutlery
	% share	9.4	15.6	12.4	7
Saudi Arabia	Product	polymers of ethylene	polymers of ethylene	iron and steel bars	wheat
	% share	44.4	67.8	25.6	11.8
	Product	polyacetals and polycarbonates	crude petroleum oils	rotating electric plant and parts	cheese
	% share	18.6	18.6	16.4	8.8

Source: own calculations based on Eurostat data.

Poland imports from Israel insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant-growth regulators, disinfectants and similar products as a combined category at 12.9% of total Polish imports from this country. The value of the second biggest category—engines and motors—accounts for 10.2% of total imports from this country. The highly concentrated structure of sales from the United Arab Emirates in 2000 has become even more concentrated in 2012, with a high share devoted to imported aluminium. Similarly, Saudi Arabia sells Poland one product category—ethylene polymers, in primary forms—which accounts for 67.8% of total Polish imports from this country.

An interesting picture emerges from an analysis of the Herfindahl-Hirschman indices. It appears that trade with Israel is moderately concentrated, with significantly increasing diversity over time. In contrast, the structure of imports from the United Arab Emirates is highly concentrated in imports, but not in exports, where a slight diversification in the trade structure has taken place. Imports from Saudi Arabia have been concentrated significantly, achieving quite a high value in the index in 2012. The export structure is moderately concentrated with a tendency towards diversification.

Table 12. Commodity concentration (Herfindahl-Hirschman index), Top 3 Western Asia partners

Flow	Year/country	Israel	United Arab Emirates	Saudi Arabia
Import	2000	31.83	70.11	50.29
	2012	22.23	65.02	70.82
Export	2000	69.47	27.44	34.72
	2012	20.96	25.41	21.71

Source: own calculations based on Eurostat data.

The structure of trade with Israel has changed significantly in 2012 compared to 2000, when looking at the low values in the Finger-Kreinin similarity indices. The most similar product structure then to now is in Poland's imports from the United Arab Emirates. Poland's exports to this country has highly evolved. Half of imports from Saudi Arabia in 2012 are similar to the imports in 2000, whereas exports have changed significantly.

Table 13. The evolution of trade in 2000-2012 (measured with a Finger-Kreinin similarity index), Top 3 Western Asia partners

Flow/country	Israel	United Arab Emirates	Saudi Arabia
Import	36.19	66.83	47.07
Export	14.90	35.65	23.98

Source: own calculations based on Eurostat data.

3.2.4. Southern Asia

When analysing Southern Asia, the structure of exports to India is one of the most diversified in Asia, but it is still quite highly concentrated. Poland exports to it mostly synthetic rubber, reclaimed rubber, waste, parings and scrap of unhardened rubber, which combined account for 15.7% in 2012 (in 2000 it was seventh on the list with a 5.1% share, see Annex A1). Next to it is the group coke and semi-coke with 14.9%. The concentration of the commodity structure is relatively moderate in Iran, compared to the other Asian countries, but in fact it is rather high: 78.7% in 2000 and 69.3% in 2012. The most important product group exported to Iran is internal combustion piston engines, with 30% in 2011, which wasn't as important a category in 2000. The second biggest is mechanical handling equipment, with an 8.5% share. A considerable, but weakening concentration of the product structure is visible in exports to Pakistan. The export of coke and semi-coke accounts for 14.5% of total sales to Pakistan. In

second is the category of ferrous waste and scrap, re-melting scrap ingots of iron or steel, with a share of 11.7%. In 2000, this product category was not as important.

Table 14. Commodity concentration of exports and imports, Top 3 Southern Asia partners

		Import		Export	
		2000	2012	2000	2012
India	Product	tea	organic and inorganic materials	arms and ammunition	synthetic rubber
	% share	11.8	22.6	14.6	15.7
	Product	textile yarn	textile yarn	civil engineering and contractors' plant and equipment	coke and semi-coke
	% share	10.7	5.3	13.7	14.9
Iran	Product	aluminium ores	telecommunications equipment	organic and inorganic materials	combustion piston engines
	% share	63.5	38.3	26.8	30
	Product	fruit and nuts	optical instruments and apparatus	pumps and liquid elevators	mechanical handling equipment
	% share	24.9	18.3	15.1	8.5
Pakistan	Product	toys and games	made-up articles of textile materials	paper and paperboard	coke and semi-coke
	% share	20.2	21.4	23.2	14.5
	Product	fabrics, woven, of man-made textile materials	cotton fabrics	civil engineering and contractors' plant and equipment	ferrous waste and scrap
	% share	16.4	14.9	21.6	11.7

Source: own calculations based on Eurostat data.

The import structure from India is relatively diversified, and this diversity increases over time. Trade with this country is currently one of the least diversified compared to the other Asian countries. Poland imported mostly tea and mata in 2000, for a total 11.8% share, but in 2012 there was no place for this category in the top 10 as organo-inorganic compounds, heterocyclic compounds, nucleic acids and salts, and sulphonamides replaced it at 22.6%. The second biggest item remains the same—textile yarn—however its share dropped from 10.7% in 2000 to 5.3% in 2012. Commodity concentration in Polish imports from Iran is quite concentrated, with The 10 biggest groups accounting for 77.8% in 2012. Iran's supplies to Poland consist mostly of telecommunications equipment (38.3%). Poland also imports optical instruments and apparatus (18.3%). Both categories were rather insignificant in 2000. Pakistani sales to Poland are less diversified. For this destination, Poland exports finished articles, wholly or chiefly of textile materials, accounting for 21.4% of total purchases in Pakistan. The second main product group is cotton fabrics, pointing at the concentration of imports in semi-finished products for the textile industry.

Indian trade with Poland is the least concentrated in Southern Asia, with Herfindahl-Hirschman indices below 30%. Poland's exports to this country becomes more diversified, whereas imports are quite similarly diversified. The levels of concentration remained similar in 2012, compared to 2000.

Table 15. Commodity concentration (Herfindahl-Hirschman index), Top 3 Southern Asia partners

Flow	Year/country	India	Iran	Pakistan
Import	2000	20.54	68.31	31.96
	2012	25.23	67.28	32.17
Export	2000	27.65	34.29	39.04
	2012	27.17	37.14	27.83

Source: own calculations based on Eurostat data.

When analysing the Finger-Kreinin measure for Southern Asia, one may see that in the structure of imports from India and Pakistan slightly fewer than half are similar. But Iranian sales to Poland evolved drastically, and only 28% of imports are the same. Big changes took place, however, on the export side for each country, especially Iran, which may point at changes in Poland's economy.

Table 16. The evolution of trade in 2000-2012 (measured with a Finger-Kreinin similarity index), Top 3 Southern Asia partners

Flow/country	India	Iran	Pakistan
Import	49.29	27.86	49.72
Export	26.07	15.27	23.32

Source: own calculations based on Eurostat data.

3.2.5. Commonwealth of Independent States

The structure of exports to Kazakhstan is moderately concentrated, where the 10 main categories account for 45% in 2012. The biggest one—perfumery, cosmetic or toilet preparations—accounts for 8.5%, which is a relatively lower share compared to the ratios of the biggest categories in the other Asian countries; but it's far from a low share, bearing in mind that there are around three hundreds product categories. With a little lower share is the category paper and paperboard. Uzbekistan has a moderately greater concentration of the 10 main selling categories, but exports there were extremely concentrated in 2000, when Poland specialised in providing sugars, molasses and honey, accounting for 84% of total exports. In 2012, this category was not in the 10 biggest commodity groups. In 2012, Poland exports meat of bovine animals, fresh, chilled or frozen as the biggest item, with 13.3% of total sales to Uzbekistan, and pump and air or other gas compressors, with a 10.1% share. A similar evolution from extremely high concentration of imports in 2000 to moderate diversity is noted in Turkmenistan's import structure. This country buys mainly structures of iron, steel or aluminium, the biggest group and accounting for 13.4% of total Polish exports to the country. The furniture and furnishings category is the second biggest group of products, totalling 11.4%.

Table 17. Commodity concentration of exports and imports, Top 3 CIS partners

		Import		Export	
		2000	2012	2000	2012
Kazakhstan	Product	petroleum oils	liquefied propane and butane	civil engineering and contractors' plant and equipment	perfumery
	% share	75.7	72.7	17.4	8.5
	Product	cotton	inorganic chemical elements	furniture and furnishings	paper and paperboard
	% share	7.6	11.4	16.7	7.7

		Import		Export	
		2000	2012	2000	2012
Uzbekistan	Product	cotton	residual petroleum products	sugars, molasses and honey	meat of bovine animals
	% share	91.9	48.8	84.0	13.3
	Product	textile yarn	salts and peroxy salts	furniture and furnishings	pumps, fans, purifying apparatus
	% share	5.8	15.7	3.6	10.1
Turkmenistan	Product	cotton	textile yarn	sugars, molasses and honey	structures and parts of structures of iron, steel,
	% share	88.1	69.0	61.2	13.4
	Product	textile yarn	residual petroleum products	furniture and furnishings	furniture and furnishings
	% share	8.9	23.8	13.4	11.4

Source: own calculations based on Eurostat data.

The concentration of imports from CIS is extremely concentrated and only in Kazakhstan in 2012 was the share of the 10 biggest groups slightly below 99%. The biggest group delivered from Kazakhstan is liquefied propane and butane, at 72.7% of total imports from this country in 2012. From Uzbekistan, the biggest item is residual petroleum products and related materials with a 48.8% share in 2012. It is also a significant product category from Turkmenistan (23.8% share), but is that country's second biggest category, after textile yarn, which accounts for 69%.

A closer analysis of the Herfindahl-Hirschman indices allows us to say that imports are very highly concentrated in each of these countries, however a slight diversification of structure is taking place. The biggest changes in import concentration took place in Uzbekistan. In contrast, export structures to CIS countries have become considerably diversified.

Table 18. Commodity concentration (Herfindahl-Hirschman index), Top 3 CIS partners

Flow	Year/country	Kazakhstan	Uzbekistan	Turkmenistan
Import	2000	76.50	92.04	88.51
	2012	74.01	53.77	73.18
Export	2000	26.89	84.17	63.66
	2012	17.55	23.16	24.04

Source: own calculations based on Eurostat data.

Polish imports from the main CIS countries has almost totally transformed since 2000 to 2012. For Polish exports, the smallest differences between the commodity structure in 2000 and 2011 is noted in trade with Kazakhstan (the Finger-Kreinin index is about 43%). The structure of exports with Uzbekistan and Turkmenistan has considerably changed.

Table 19. The evolution of trade in 2000-2012 (measured with a Finger-Kreinin similarity index), Top 3 CIS partners

Flow/country	Kazakhstan	Uzbekistan	Turkmenistan
Import	4.49	6.58	9.09
Export	43.42	16.97	16.24

Source: own calculations based on Eurostat data.

3.2.6. Summary

To sum up, trade (imports as well as exports) with Asia is rather concentrated, with such flagship examples as Chinese imports of Polish copper—an unbeatable Rank 1 product category since the beginning of the research period—due to high Chinese involvement in the global electronics supply chain. There is no clear tendency seen as to whether the concentration strengthens or weakens for either imports or exports. For Polish exports, most countries (with the exception of Japan) have more diversified trade now. Imports from Asian countries has evolved also towards greater diversity, but this is not the case in as many countries as exports. Also, one should note the shift in traded products, which in many of the examined countries takes place year by year. This points at the higher impact of short-term contracts over long-term ones.

3.3. Trade with Asia: High-Tech Products

3.3.1. Northeast Asia

The trade in high-tech products with Asian countries is relatively less significant. In the Northeast region, the share of high-tech products is significantly higher in imports than in exports. Their shares in exports are rather stable, varying from 2.8% in 2007 in China to 7.1% in 2009 in South Korea. There is no homogeneous trend in imports, though. Since 2000, when the high-tech share was 20.3-26.2% in all three countries, it evolved differently: in China, the share remained the same; in Japan, it significantly decreased to 4.6% in 2011; and in South Korea, it increased to 51.6% in 2011. These low values point to the fact that the destination of sophisticated products is elsewhere, probably the EU.

Table 20. Share of high-technology products in Polish exports to and imports from the main Northeast Asian countries

Northeast Asia Flow	China		Japan		South Korea	
	export	import	export	import	export	import
2000	5.3	23.6	2.1	26.2	4.7	20.3
2007	2.8	13.0	3.0	9.4	2.5	29.8
2009	3.2	28.2	4.2	7.2	7.1	50.1
2011	4.7	23.0	5.5	4.6	3.4	51.6

Source: own calculations based on Eurostat data.

Although the ratios of total Polish sales to these countries are low, it is interesting to analyse the structure of high-tech products. The biggest broad category of these products is electronics and telecommunications (57.6% of total high-tech exports to China and South Korea) and computers/office machines (25.3% in China, and 12.5% in South Korea). Japan's leading imports from Poland in 2011 were "aerospace" equipment (47.8) and scientific instruments (36.2).

Table 21. Structure of high-technology products in Polish exports to the main Northeast Asian countries in 2011

Group	China	Japan	South Korea
Aerospace	2.86	47.75	2.95
Chemistry	2.31	0.69	2.23
Computers/office machines	25.29	3.61	12.49
Electrical machinery	0.90	0.89	2.58
Electronics telecommunications	57.59	3.47	54.29
Non-electrical machinery	1.97	4.40	3.20
Pharmacy	3.20	3.01	0.34
Scientific instruments	5.88	36.18	21.92

Source: own calculations based on Eurostat data.

3.3.2. Southeast Asia

Similar to Northeast Asia, the ratio of high-tech commodities to total trade with Southeast Asian countries is bigger in imports than in exports (with the exception of Malaysia around the emergence of the crisis). For instance, on one hand, the high-tech intensity of Poland's exports to Singapore varies from 0.9% in 2000 to 9% in 2007, with 1.3% in 2011. On the other hand, high-tech imports from this country accounted for even 71.9% of total Polish purchases. Later it decreased to 23.1%, in 2011. High-tech Exports to Thailand are also less than imports (with the exception of 2007), and bearing in mind the high fluctuations it is difficult to assess whether there is a positive trend in exports or not. However, in imports, a downward trend is rather visible. Imports from Malaysia in 2000 was largely high-tech, and later the structure of imports deteriorated. For instance, in 2007 it reached the level of 16.8% of total imports. Polish exports in 2009 included 66.6% high-tech, but in 2011 this ratio dropped to 19.4%.

Table 22. Share of high-technology products in Polish exports to and imports from the main Southeast Asian countries

Southeast Asia Flow	Singapore		Thailand		Malaysia	
	export	import	export	import	export	import
2000	0.9	71.9	7.8	32.8	1.5	63.6
2007	9.0	7.3	17.0	9.6	30.6	16.8
2009	3.9	56.0	11.2	29.1	66.8	25.8
2011	1.3	23.1	7.8	25.2	19.4	33.5

Source: own calculations based on Eurostat data.

The biggest broad category of these products is electronics and telecommunications (66.7 of total high-tech exports to Singapore and 33.9% to Thailand) and scientific instruments (71.9% of total exports to Malaysia). Chemistry products account for 71.9% of total Polish high-tech exports to Malaysia.

Table 23. Structure of high-technology products in Polish exports to the main Southeast Asian countries in 2011

Group	Singapore	Thailand	Malaysia
Aerospace	0.02	0.25	0.01
Chemistry	0.12	37.31	0.00
Computers/office machines	15.70	0.76	14.29
Electrical machinery	3.27	2.80	0.09
Electronics telecommunications	66.65	33.89	7.84
Non-electrical machinery	7.51	2.28	5.88
Pharmacy	0.12	19.53	0.01
Scientific instruments	6.61	3.17	71.88

Source: own calculations based on Eurostat data.

3.3.3. Western Asia

Table 24 represents the high-tech intensity of Polish trade with Western Asia. Interestingly, imports from Poland's biggest trading partner in the region—Israel—are around half high-tech (below 50% in 2000 and 2011 and above 50% in 2007 and 2009). The high-tech intensity of exports is rather low, though. The high-tech export intensity was also low with the United Arab Emirates and Saudi Arabia at the beginning of the research period, but after the

beginning of the crisis it considerably ameliorated. Imports from the UAE are not high-tech at all, but some imports from Saudi Arabia were high-tech (20%) until the crisis.

Table 24. Share of high-technology products in Polish exports to and imports from the main Western Asian countries

Western Asia	Israel		United Arab Emirates		Saudi Arabia	
	export	import	export	import	export	import
2000	4.4	45.4	0.5	0.5	0.1	19.6
2007	7.6	51.8	3.0	5.6	9.4	19.9
2009	8.2	50.2	21.1	1.7	15.6	4.1
2011	4.9	41.1	19.8	0.7	16.0	1.1

Source: own calculations based on Eurostat data.

In 2011, the biggest broad category of these products was electronics and telecommunications (55.2% of total high-tech exports to Israel and 74.1% to United Arab Emirates) and aerospace (87.1% of total exports of sophisticated products to Saudi Arabia).

Table 25. Structure of high-technology products in Polish exports to the main Western Asian countries in 2011

Group	Israel	United Arab Emirates	Saudi Arabia
Aerospace	8.76	0.03	87.12
Chemistry	3.13	0.04	0.20
Computers/office machines	12.72	9.64	1.93
Electrical machinery	4.17	0.16	0.19
Electronics telecommunications	55.24	74.06	8.38
Non-electrical machinery	12.74	3.56	1.35
Pharmacy	0.00	0.60	0.00
Scientific instruments	3.25	11.90	0.84

Source: own calculations based on Eurostat data.

3.3.4. Southern Asia

The small high-tech intensity in Poland's trade with Southern Asia is clearly visible in Table 26. The only exception is exports to India in 2000 and 2007. The ratio in the other countries and trade flows is not higher than 10%. This may point at the fact that these countries are not interested in products made in Poland.

Table 26. Share of high-technology products in Polish exports to and imports from the main Southern Asian countries

Southern Asia	India		Iran		Pakistan	
	export	import	export	import	export	import
2000	36.9	6.1	8.6	1.6	2.2	7.9
2007	19.3	4.5	2.4	0.3	5.0	1.4
2009	4.8	2.6	0.6	7.6	3.0	8.2
2011	5.7	3.3	2.5	0.0	2.2	8.2

Source: own calculations based on Eurostat data.

The biggest broad category of these products is non-electrical machinery (47.9% of total high-tech exports to India and 58.7% to Pakistan in 2011) and scientific instruments (55.2% of total exports to Iran). More than a quarter of total high-tech goods sent to Iran are chemistry products.

Table 27. Structure of high-technology products in Polish exports to the main Southern Asian countries in 2011

Group	India	Iran	Pakistan
Aerospace	0.00	0.00	0.00
Chemistry	0.19	27.81	2.11
Computers/office machines	18.08	4.75	4.83
Electrical machinery	1.12	0.62	0.24
Electronics telecommunications	9.58	1.24	4.26
Non-electrical machinery	47.92	10.07	58.72
Pharmacy	5.73	0.31	15.54
Scientific instruments	17.38	55.21	14.30

Source: own calculations based on Eurostat data.

3.3.5. Commonwealth of Independent Countries

The high-tech intensity of trade with the CIS countries is extremely low, reaching, for example, almost none in imports from Turkmenistan and Uzbekistan, and only a little fraction of the total exports to these two countries. A little higher share is noted in imports from Kazakhstan, but still are below 10% of total volume.

Table 28. Share of high-technology products in Polish exports to and imports from the main CIS countries

CIS	Kazakhstan		Uzbekistan		Turkmenistan	
	export	import	export	import	export	import
2000	0.8	3.7	0.2	0.0	0.0	0.2
2007	1.6	5.1	1.2	0.0	1.1	0.0
2009	1.7	7.2	0.9	0.0	1.6	0.0
2011	2.8	7.4	0.6	0.0	0.3	0.0

Source: own calculations based on Eurostat data.

Bearing in mind that the values of high-tech intensity of export are extremely low, the structure of this group of products is not relevant. But it is worth saying that these countries in 2011 were interested mostly in electronics and telecommunications (45.5% in Kazakhstan, 26.5 in Uzbekistan and 28.1 in Turkmenistan) and in high-tech pharmacy products (42.3% in Kazakhstan, 66.5 in Uzbekistan and 33.3 in Turkmenistan).

Table 29. Structure of high-technology products in Polish exports to the main Western Asian countries in 2011

Group	Kazakhstan	Uzbekistan	Turkmenistan
Aerospace	0.00	0.00	0.00
Chemistry	0.27	0.90	3.78

Computers/office machines	4.32	1.28	10.82
Electrical machinery	2.30	3.53	1.19
Electronics telecommunications	45.46	26.54	28.06
Non-electrical machinery	4.74	0.62	22.72
Pharmacy	42.28	66.53	33.30
Scientific instruments	0.64	0.60	0.12

Source: own calculations based on Eurostat data.

To sum up, Asia is not the biggest receiver of technologically sophisticated Polish products (mainly it is the EU). It is also difficult to assess whether this picture will change in the next several years.

4. Firm-level Relations with Asian Countries—Case Study of Selena

Firms today should not concentrate on a national market but should try to take the advantages given by the global economy. Asia has important source factors of production, such as capital, labour and land. It provides services and is also a big and growing market. Firms may profit in many aspects in relocating some of their business activities (including sales) there and thus grow further.

The eastern direction gradually attracts the attention of a growing number of Polish firms. One of them—Selena—specialises in producing chemistry products for the construction industry and entered the Chinese market in 2009, which was very difficult but had huge potential. This firm is highlighted on the website of the Polish Ministry of the Economy (www.gochina.gov.pl/index/?id=a4a042cf4fd6bfb47701cbc8a1653ada) as a successful story for others. The corporation went global even earlier, selling worldwide (10-15% of revenues currently comes solely from Kazakhstan and Russia), but opening up business in the East Asian market was a milestone in Selena's activity. The motives for this are clear: China is a growing market, and a potentially bigger receiver of Selena products, and relocating production there additionally enhances the firm's competitiveness.

Selena owns plants and corporations in several places in the world, including Brazil, Russia, Spain, Turkey and the U.S. Since 2009, it owns two plants in China: in Foshan (in a sealants production cluster), and since 2011 in a special economic zone in Nantong (producing polyurethane foam), building it from scratch. It also has several units in other Chinese cities. These facilities produce for both internal purposes and for external markets.

Selena profits from its strong position thanks to technologically advanced products, which translates into a satisfactory level of orders. Once the adjustment to the Chinese economic environment ends, sales from the Nantong factory alone are expected to amount to €30-35 million a year, which is a moderate value. Total revenues of the whole holding were around €250 billion in 2011 (www.selena.com/cms/?page_id=1481). This was because the company's main market is still the EU. However, due to the fast growth of the Asian market and stagnation in the EU, the eastward direction will become more important. The company plans to open a centre in China for expansion to Southeast Asia and Pacific countries.

Conclusions and Recommendations

1. *Prospects.* There is huge potential for improvement of Polish trade as well as investment relations with Asia in the future. From the perspective of a majority of Asian countries, Poland is the main economic partner in Central and Eastern Europe (and is becoming a logistics centre for Chinese products, for example) and among the largest partners in the EU. As the largest economy among the so called new Member States of the EU with good economic growth prospects, Poland may be perceived as a gateway to the European market, and thus attractive to Asian businesses. Asian corporations could seek opportunities to expand on Polish markets not only in trade terms but also in other business opportunities (there are still several Polish state-owned firms to be privatised and special economic zones that are advantageous for brownfield and greenfield investments in many sectors). The continually increasing trade volume may facilitate this. Also, the rapid modernisation of Asian economies, together with a rising middle-class creates prospects for Polish firms, particularly those specialising in manufacturing high-tech products. The share of trade in these commodities points at possible growth potential.
2. *The Problem of Trade Balance.* The importance of the continent for Poland as a major non-European and highly attractive market is growing. One of Poland's challenges is to ameliorate its trade balance with Asia. In 2012, Poland noted a trade surplus only against two regions—CIS and Western Asia—, though this is unlikely to continue in the CIS. Especially important is balancing trade with Northeast Asia (China in particular) and Southeast Asia. There needs to be promotion of Polish products in these regions as refined and sophisticated ones.
3. *Smart Strategy.* Asia as a whole is rapidly expanding despite the crisis. However, the heterogeneity of the Asian continent characterized by the diversity of their economies requires a smart approach in the promotion of Polish interests that should assume the selection and focus on the most attractive markets. The very first step is encompassing the expansion of economic cooperation with Asia in Poland's general foreign strategy. This points to the need to go beyond several uncoordinated plans and accidental activities and forge a complex broad program—the sooner, the better. The preparation of such a program and its implementation would require good intergovernmental cooperation as a trigger to induce business relations.
4. *Support.* Activities supporting the improvement of Polish economic relations with Asia, apart from business mission forums, consultations, preparation and production of promotional materials, fairs and other one-time actions, could involve longer-term objectives and actions that would stimulate such things as joint research, exchanges of scientists, and mutual internship programs in universities and firms for academics and all degrees of management. In the longer-term, enabling scholarships in technical and economic universities for students from Asian countries of greater importance will create foundations for potential business opportunities. Additionally, support for facilitating the creation of joint ventures (that is, preparing the grounds for it by simplifying legal aspects, opening information bureaus, helping to find partners, etc.) would be helpful. Also, liberalising the visa regime would enable strengthening economic ties through facilitated business trips. On top of that, if possible, the national airlines of Asian countries and LOT should be encouraged to establish permanent links between the biggest Polish cities and the main economic centres in Asia. This is all dependent on the relevance of commercial diplomacy in government priorities—if it is exposed as a very important issue in Poland as well as in the key partner countries, then intergovernmental cooperation could entail joint business activities. For bigger partners such as China, India or Japan, the asymmetry of their economies may make it difficult to attract greater attention to Poland, and this fact should be taken into the account by Polish policymakers. In these markets,

Poland should be promoted more intensely as a reliable partner who can facilitate access to the EU's Single Market, and more generally let the partners obtain knowledge of Polish business potential. Additionally, various forms of governmental export support is necessary to rebalance trade cooperation in order to narrow the trade deficit.

5. *The EU Context.* It is also important to fully use the EU dimension of facilitating cooperation with crucial Asian countries (i.e., European Union Chamber of Commerce in China). Currently, Polish firms are little aware of such possibilities, and perhaps, apart from encouraging Polish businesses with national resources, Poland should also show entrepreneurs the availability of assistance under the EU banner. Additionally, Poland as an EU Member should influence common external economic policy by initiating strategic partnership programs and lobbying for a considerable share of Polish business representatives in such common activities. However, the EU dimension should not replace the national one. This is especially important due to the cultural conditions in several Asian countries—doing business with the visible assistance of Poland's government is perhaps not necessary in every case but significantly increases the priority of the undertaking and thus contributes to its success.

Annex A1: The 10 Main Commodities in Trade, Based on SITC3 Levels (see Annex A2)

Table A1. The 10 main commodities in exports, SITC3 level, Top 3 Northeastern partners

China				South Korea				Japan			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
682	46.4	682	34.1	515	30.1	713	30.0	291	10.6	012	18.7
515	15.2	821	4.1	764	10.9	744	8.5	684	10.0	598	9.9
514	4.5	515	3.9	784	9.1	012	8.2	022	8.5	696	9.9
781	2.8	792	3.5	282	9.0	682	4.0	821	6.0	781	9.6
764	2.7	772	3.2	743	3.9	723	4.0	012	5.7	784	6.1
012	2.0	012	2.9	776	3.5	784	3.5	675	5.6	821	5.7
735	1.9	784	2.7	022	2.4	663	3.0	592	4.7	663	4.5
778	1.5	773	2.3	664	2.1	898	3.0	782	4.3	714	2.7
291	1.3	232	2.3	778	2.0	764	2.7	872	4.3	893	2.7
773	1.2	288	2.1	541	2.0	691	2.5	893	3.5	872	2.0
Sum	79.4	Sum	61.1	Sum	74.9	Sum	69.3	Sum	63.2	Sum	71.7

Source: own calculations based on Eurostat data.

Table A2. The 10 main commodities in imports, SITC3 level, Top 3 Northeastern partners

China				South Korea				Japan			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
894	9.8	764	9.2	784	21.3	764	38.3	781	8.6	781	10.2
752	9.7	759	8.6	752	9.0	871	18.3	752	8.0	874	8.7
759	6.0	752	7.0	781	8.2	776	4.0	713	7.2	713	8.2
762	4.9	778	4.4	653	7.7	781	3.8	784	6.7	743	6.5
764	4.2	772	3.2	713	7.4	778	3.0	759	6.4	784	5.9
778	3.4	894	2.9	776	4.7	772	2.6	778	5.9	728	4.9
291	3.3	699	2.6	695	3.8	674	2.3	764	5.3	714	4.8
775	3.3	775	2.6	778	2.9	884	2.3	728	2.7	778	3.4
845	2.9	821	2.4	764	2.5	793	1.8	874	2.2	748	3.4
899	2.8	771	2.1	655	1.8	575	1.4	776	2.2	746	2.1
Sum	50.2	Sum	45.1	Sum	69.4	Sum	77.8	Sum	55.4	Sum	58.0

Source: own calculations based on Eurostat data.

Table A3. The 10 main commodities in exports, SITC3 level, Top 3 Southeastern partners

Singapore				Thailand				Malaysia			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
793	84.6	793	61.9	515	29.5	713	16.5	282	31.1	696	17.0
682	6.1	334	6.2	672	17.7	592	7.5	821	24.4	874	14.8
716	1.5	784	4.0	562	12.7	591	6.8	022	8.1	682	12.0
686	1.3	764	3.6	716	11.3	232	6.4	722	5.6	232	11.0
676	0.6	744	2.4	591	4.8	034	5.2	641	4.6	282	7.4
752	0.6	691	2.1	022	4.0	022	5.0	699	3.8	022	7.2
712	0.5	232	1.6	778	2.3	778	4.6	248	3.1	759	2.8
746	0.4	712	1.5	784	1.6	625	3.8	716	2.8	744	2.7
821	0.4	716	1.0	749	1.4	784	3.6	723	2.4	641	1.9
775	0.3	022	0.8	641	1.2	772	3.6	813	1.1	723	1.4
Sum	96.2	Sum	85.2	Sum	86.5	Sum	62.9	Sum	87.0	Sum	78.2

Source: own calculations based on Eurostat data.

Table A4. The 10 main commodities in imports, SITC3 level, Top 3 Southeastern partners

Singapore				Thailand				Malaysia			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
752	31.4	793	72.2	752	19.6	752	36.3	776	24.1	752	24.2
759	22.6	515	9.8	776	9.2	231	15.0	752	22.5	848	10.7
764	9.3	776	4.8	071	6.3	764	7.3	762	11.9	422	8.4
778	7.0	752	3.6	764	5.4	741	3.3	764	11.8	776	8.3
776	3.9	899	1.3	037	4.6	775	2.6	231	4.1	772	7.8
785	3.5	898	1.3	231	3.9	058	2.3	848	3.1	764	7.2
542	3.3	785	1.3	653	3.8	897	2.0	763	2.5	821	4.0
775	3.1	748	1.1	845	3.1	625	1.9	759	2.1	775	2.7
772	2.8	874	0.8	058	2.9	037	1.8	741	1.6	893	2.5
762	1.5	575	0.8	762	2.9	784	1.5	653	1.5	231	2.3
Sum	88.5	Sum	97.1	Sum	61.9	Sum	74.0	Sum	85.1	Sum	78.0

Source: own calculations based on Eurostat data.

Table A5. The 10 main commodities in exports, SITC3 level, Top 3 Southern partners

India				Iran				Pakistan			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
891	14.6	232	15.7	515	26.8	713	30.0	641	23.2	325	14.5
723	13.7	325	14.9	742	15.1	744	8.5	723	21.6	282	11.7
541	11.8	793	10.5	778	8.8	012	8.2	022	19.9	696	10.7
778	7.6	282	8.6	774	8.0	682	4.0	514	7.5	022	9.0
792	6.0	675	5.1	513	5.0	723	4.0	673	4.5	745	8.7
793	5.9	784	3.2	776	3.9	784	3.5	746	4.3	874	8.1
232	5.1	288	2.7	676	3.5	663	3.0	745	3.1	269	6.9
744	4.9	874	2.6	664	3.1	898	3.0	874	1.9	728	3.8
776	4.2	713	2.2	724	2.4	764	2.7	724	1.7	676	2.7
714	3.5	696	2.0	651	2.1	691	2.5	674	1.6	641	1.7
Sum	77.1	Sum	67.4	Sum	78.7	Sum	69.3	Sum	89.3	Sum	77.8

Source: own calculations based on Eurostat data.

Table A6. The 10 main commodities in imports, SITC3 level, Top 3 Southern partners

India				Iran				Pakistan			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
074	11.8	515	22.6	285	63.5	764	38.3	894	20.2	658	21.4
651	10.7	651	5.3	057	24.9	871	18.3	653	16.4	652	14.9
071	7.1	851	3.5	059	3.2	776	4.0	658	11.2	574	10.9
ri0515	4.2	661	3.3	291	0.8	781	3.8	652	8.1	653	8.1
658	3.3	542	2.8	764	0.7	778	3.0	874	6.8	291	7.7
845	3.2	658	2.6	232	0.6	772	2.6	611	5.2	848	6.7
842	3.2	121	2.2	752	0.6	674	2.3	042	4.8	841	5.3
222	2.6	784	2.2	659	0.5	884	2.3	845	3.7	894	2.9
695	2.6	625	2.1	785	0.5	793	1.8	848	3.5	842	2.5
652	2.3	845	2.1	292	0.4	575	1.4	263	3.0	845	2.1
Sum	50.9	Sum	48.9	Sum	95.8	Sum	77.8	Sum	83.1	Sum	82.5

Source: own calculations based on Eurostat data.

Table A7. The 10 main commodities in exports, SITC3 level, Top 3 Western partners

Israel				United Arab Emirates				Saudi Arabia			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
793	69.0	781	10.4	696	18.3	764	21.1	676	25.6	041	11.8
001	5.6	061	8.7	746	12.4	696	7.0	716	16.4	024	8.8
821	2.7	784	8.7	676	10.8	122	5.0	073	13.1	821	6.7
891	2.6	641	4.4	723	5.0	821	4.4	062	5.9	778	5.3
634	2.1	775	4.4	773	4.7	778	4.3	022	4.0	073	5.1
686	2.0	111	4.1	699	4.0	553	3.9	625	3.6	062	4.8
676	2.0	642	4.1	653	3.8	073	3.8	664	3.1	714	4.7
764	1.6	011	3.9	641	3.7	752	3.1	778	2.8	625	4.6
641	1.4	073	3.4	674	3.1	098	3.0	048	2.5	048	4.5
778	1.2	048	3.4	533	2.7	773	2.8	696	2.0	874	3.7
Sum	90.2	Sum	55.6	Sum	68.5	Sum	58.3	Sum	79.0	Sum	60.0

Source: own calculations based on Eurostat data.

Table A8. The 10 main commodities in imports, SITC3 level, Top 3 Western partners

Israel				United Arab Emirates				Saudi Arabia			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
764	26.6	591	12.9	684	69.3	684	62.4	571	44.4	571	67.8
059	10.6	714	10.2	036	9.4	582	15.6	574	18.6	333	18.6
752	9.5	891	7.5	845	3.1	741	6.7	811	10.8	575	7.7
591	4.0	272	4.9	842	2.3	699	6.2	691	6.7	699	1.6
871	3.5	582	4.7	841	1.9	665	1.4	522	5.6	582	1.6
057	3.5	764	4.6	843	1.1	778	0.8	699	2.7	574	0.9
893	3.0	071	3.9	844	1.1	679	0.8	533	2.3	712	0.8
741	2.9	515	3.6	553	1.0	897	0.6	821	1.4	714	0.2
778	2.7	772	3.6	667	0.9	728	0.6	743	1.3	728	0.1
651	2.4	778	3.6	652	0.7	061	0.6	516	1.2	542	0.1
Sum	68.7	Sum	59.4	Sum	90.8	Sum	95.7	Sum	95.1	Sum	99.6

Source: own calculations based on Eurostat data.

Table A9. The 10 main commodities in exports, SITC3 level, Top 3 CIS partners

Kazakhstan				Uzbekistan				Turkmenistan			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
723	17.4	553	8.5	061	84.0	011	13.3	061	61.2	691	13.4
821	16.7	642	7.7	821	3.6	743	10.1	821	13.4	821	11.4
121	5.6	542	6.4	553	2.9	542	7.5	741	9.7	782	8.0
542	4.1	728	5.4	542	1.5	061	6.5	727	4.7	012	6.5
634	3.8	741	3.0	091	0.9	784	5.8	091	2.5	745	5.8
091	3.7	057	3.0	893	0.6	553	4.7	658	1.7	781	5.5
553	3.2	533	2.9	634	0.6	001	4.3	699	1.6	553	5.2
811	2.9	775	2.9	554	0.5	783	3.6	679	1.4	411	3.7
642	2.7	022	2.6	723	0.5	292	3.3	022	0.8	772	2.6
679	2.4	679	2.5	012	0.5	634	3.2	553	0.5	783	2.5
Sum	62.4	Sum	45.0	Sum	95.6	Sum	62.3	Sum	97.4	Sum	64.6

Source: own calculations based on Eurostat data.

Table A10. The 10 main commodities in imports, SITC3 level, Top 3 CIS partners

Kazakhstan				Uzbekistan				Turkmenistan			
2000		2012		2000		2012		2000		2012	
Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share	Code SITC3	share
333	75.7	342	72.7	263	91.9	335	48.8	263	88.1	651	69.0
263	7.6	522	11.4	651	5.8	523	15.7	651	8.9	335	23.8
685	5.9	321	7.6	334	0.5	652	10.7	268	0.9	652	5.5
522	3.7	523	2.3	344	0.4	651	9.4	655	0.8	931	1.2
674	2.0	041	1.4	686	0.3	562	6.5	845	0.3	098	0.44
671	1.9	222	0.9	652	0.3	121	3.8	212	0.3	842	0.04
686	0.9	223	0.8	059	0.2	057	2.1	652	0.2	893	0.01
334	0.8	034	0.8	342	0.2	059	1.4	752	0.1	-	-
673	0.6	344	0.4	657	0.1	611	0.5	844	0.04	-	-
342	0.3	682	0.2	523	0.1	292	0.4	778	0.04	-	-
Sum	99.4	Sum	98.6	Sum	99.7	Sum	99.1	Sum	99.7	Sum	100

Source: own calculations based on Eurostat data.

Annex A2: List of SITC 3-digit Level Product Categories

001 live animals other than animals of division 03	061 sugars, molasses and honey
011 meat of bovine animals, fresh, chilled or frozen	062 sugar confectionery
012 other meat and edible meat offal, fresh, chilled or frozen (except meat and meat offal unfit or unsuitable for human consumption)	071 coffee and coffee substitutes
016 meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal	072 cocoa
017 meat and edible meat offal, prepared or preserved, n.e.s.	073 chocolate and other food preparations containing cocoa, n.e.s.
022 milk and cream and milk products other than butter or cheese	074 tea and matã
023 butter and other fats and oils derived from milk	075 spices
024 cheese and curd	081 feeding stuff for animals (not including unmilled cereals)
025 eggs, birds', and egg yolks, fresh, dried or otherwise preserved, sweetened or not; egg albumin	091 margarine and shortening
034 fish, fresh (live or dead), chilled or frozen	098 edible products and preparations, n.e.s.
035 fish, dried, salted or in brine; smoked fish (whether or not cooked before or during the smoking process); flours, meals and pellets of fish, fit for human consumption	111 non-alcoholic beverages, n.e.s.
036 crustaceans, molluscs and aquatic invertebrates, whether in shell or not, fresh (live or dead), chilled, frozen, dried, salted or in brine; crustaceans, in shell, cooked by steaming or boiling in water, whether or not chilled, frozen, dried, salted or in brine; flours, meals and pellets of crustaceans or of aquatic invertebrates, fit for human consumption	112 alcoholic beverages
037 fish, crustaceans, molluscs and other aquatic invertebrates, prepared or preserved, n.e.s.	121 tobacco, unmanufactured; tobacco refuse
041 wheat (including spelt) and meslin, unmilled	122 tobacco, manufactured (whether or not containing tobacco substitutes)
042 rice	211 hides and skins (except furskins), raw
043 barley, unmilled	212 furskins, raw (including heads, tails, paws and other pieces or cuttings, suitable for furriers' use), other than hides and skins of group 211
044 maize (not including sweet corn), unmilled	222 oil-seeds and oleaginous fruits of a kind used for the extraction of "soft" fixed vegetable oils (excluding flours and meals)
045 cereals, unmilled (other than wheat, rice, barley and maize)	223 oil-seeds and oleaginous fruits, whole or broken, of a kind used for the extraction of other fixed vegetable oils (including flours and meals of oil-seeds or oleaginous fruit, n.e.s.)
046 meal and flour of wheat and flour of meslin	231 natural rubber, balata, gutta-percha, guayule, chicle and similar natural gums, in primary forms (including latex) or in plates, sheets or strip
047 other cereal meals and flours	232 synthetic rubber; reclaimed rubber; waste, parings and scrap of unhardened rubber
048 cereal preparations and preparations of flour or starch of fruits or vegetables	244 cork, natural, raw and waste (including natural cork in blocks or sheets)
054 vegetables, fresh, chilled, frozen or simply preserved (including dried leguminous vegetables); roots, tubers and other edible vegetable products, n.e.s., fresh or dried	245 fuel wood (excluding wood waste) and wood charcoal
056 vegetables, roots and tubers, prepared or preserved, n.e.s.	246 wood in chips or particles and wood waste
057 fruit and nuts (not including oil nuts), fresh or dried	247 wood in the rough, whether or not stripped of bark or sapwood, or roughly squared
058 fruit, preserved, and fruit preparations (excluding fruit juices)	248 wood, simply worked, and railway sleepers of wood
059 fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter	251 pulp and waste paper
	261 silk
	263 cotton
	264 jute and other textile bast fibres, n.e.s., raw or processed but not spun; tow and waste of these fibres (including yarn waste and garnetted stock)
	265 vegetable textile fibres (other than cotton and jute), raw or processed but not spun; waste of these fibres
	266 synthetic fibres suitable for spinning

- 267 other man-made fibres suitable for spinning; waste of man-made fibres
- 268 wool and other animal hair (including wool tops)
- 269 worn clothing and other worn textile articles; rags
- 272 fertilizers, crude, other than those of division 56
- 273 stone, sand and gravel
- 274 sulphur and unroasted iron pyrites
- 277 natural abrasives, n.e.s. (including industrial diamonds)
- 278 other crude minerals
- 281 iron ore and concentrates
- 282 ferrous waste and scrap; remelting scrap ingots of iron or steel
- 285 aluminium ores and concentrates (including alumina)
- 287 ores and concentrates of base metals, n.e.s.
- 288 non-ferrous base metal waste and scrap, n.e.s.
- 289 ores and concentrates of precious metals; waste, scrap and sweepings of precious metals (other than of gold)
- 291 crude animal materials, n.e.s.
- 292 crude vegetable materials, n.e.s.
- 321 coal, whether or not pulverized, but not agglomerated
- 322 briquettes, lignite and peat
- 325 coke and semi-coke (including char) of coal, of lignite or of peat, whether or not agglomerated; retort carbon
- 333 petroleum oils and oils obtained from bituminous minerals, crude
- 334 petroleum oils and oils obtained from bituminous minerals (other than crude); preparations, n.e.s., containing by weight 70% or more of petroleum oils or of oils obtained from bituminous minerals, these oils being the basic constituents of the preparations; waste oils
- 335 residual petroleum products, n.e.s., and related materials
- 342 liquefied propane and butane
- 343 natural gas, whether or not liquefied
- 344 petroleum gases and other gaseous hydrocarbons, n.e.s.
- 411 animal oils and fats
- 421 fixed vegetable fats and oils, "soft", crude, refined or fractionated
- 422 fixed vegetable fats and oils, crude, refined or fractionated, other than "soft"
- 431 animal or vegetable fats and oils, processed; waxes; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.
- 511 hydrocarbons, n.e.s., and their halogenated, sulphonated, nitrated or nitrosated derivatives
- 512 alcohols, phenols, phenol-alcohols, and their halogenated, sulphonated, nitrated or nitrosated derivatives
- 513 carboxylic acids and their anhydrides, halides, peroxides and peroxyacids; their halogenated, sulphonated, nitrated or nitrosated derivatives
- 514 nitrogen-function compounds
- 515 organo-inorganic compounds, heterocyclic compounds, nucleic acids and their salts, and sulphonamides
- 516 other organic chemicals
- 522 inorganic chemical elements, oxides and halogen salts
- 523 salts and peroxy salts, of inorganic acids and metals
- 524 other inorganic chemicals; organic and inorganic compounds of precious metals
- 525 radioactive and associated materials
- 531 synthetic organic colouring matter and colour lakes, and preparations based thereon
- 532 dyeing and tanning extracts, and synthetic tanning materials
- 533 pigments, paints, varnishes and related materials
- 541 medicinal and pharmaceutical products, other than medicaments of group 542
- 542 medicaments (including veterinary medicaments)
- 551 essential oils, perfume and flavour materials
- 553 perfumery, cosmetic or toilet preparations (excluding soaps)
- 554 soap, cleansing and polishing preparations
- 562 fertilizers (other than those of group 272)
- 571 polymers of ethylene, in primary forms
- 572 polymers of styrene, in primary forms
- 573 polymers of vinyl chloride or of other halogenated olefins, in primary forms
- 574 polyacetals, other polyethers and epoxide resins, in primary forms; polycarbonates, alkyd resins, polyallyl esters and other polyesters, in primary forms
- 575 other plastics, in primary forms
- 579 waste, parings and scrap, of plastics
- 581 tubes, pipes and hoses, and fittings therefore, of plastics
- 582 plates, sheets, film, foil and strip, of plastics
- 583 monofilament of which any cross-sectional dimension exceeds 1 mm, rods, sticks and profile shapes, whether or not surface-worked but not otherwise worked, of plastics
- 591 insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant-growth regulators, disinfectants and similar products, put up in forms or packings for retail sale or as preparations or articles (e.g., sulphur-treated bands, wicks and candles, and fly-papers)
- 592 starches, inulin and wheat gluten; albuminoidal substances; glues
- 593 explosives and pyrotechnic products
- 597 prepared additives for mineral oils and the like; prepared liquids for hydraulic transmission;

- anti-freezing preparations and prepared de-icing fluids; lubricating preparations
- 598 miscellaneous chemical products, n.e.s.
- 599 residual products of the chemical or allied industries, n.e.s.; municipal waste; sewage sludge; other wastes
- 611 leather
- 612 manufactures of leather or of composition leather, n.e.s.; saddlery and harness
- 613 furskins, tanned or dressed (including heads, tails, paws and other pieces or cuttings), unassembled, or assembled (without the addition of other materials), other than those of heading 848.31
- 621 materials of rubber (e.g., pastes, plates, sheets, rods, thread, tubes, of rubber)
- 625 rubber tyres, interchangeable tyre treads, tyre flaps and inner tubes for wheels of all kinds
- 629 articles of rubber, n.e.s.
- 633 cork manufactures
- 634 veneers, plywood, particle board, and other wood, worked, n.e.s.
- 635 wood manufactures, n.e.s.
- 641 paper and paperboard
- 642 paper and paperboard, cut to size or shape, and articles of paper or paperboard
- 651 textile yarn
- 652 cotton fabrics, woven (not including narrow or special fabrics)
- 653 fabrics, woven, of man-made textile materials (not including narrow or special fabrics)
- 654 other textile fabrics, woven
- 655 knitted or crocheted fabrics (including tubular knit fabrics, n.e.s., pile fabrics and openwork fabrics), n.e.s.
- 656 tulles, lace, embroidery, ribbons, trimmings and other smallwares
- 657 special yarns, special textile fabrics and related products
- 658 made-up articles, wholly or chiefly of textile materials, n.e.s.
- 659 floor coverings, etc.
- 661 lime, cement, and fabricated construction materials (except glass and clay materials)
- 662 clay construction materials and refractory construction materials
- 663 mineral manufactures, n.e.s.
- 664 glass
- 665 glassware
- 666 pottery
- 667 pearls and precious or semiprecious stones, unworked or worked
- 671 pig-iron, spiegeleisen, sponge iron, iron or steel granules and powders and ferro-alloys
- 672 ingots and other primary forms, of iron or steel; semi-finished products of iron or steel
- 673 flat-rolled products of iron or non-alloy steel, not clad, plated or coated
- 674 flat-rolled products of iron or non-alloy steel, clad, plated or coated
- 675 flat-rolled products of alloy steel
- 676 iron and steel bars, rods, angles, shapes and sections (including sheet piling)
- 677 rails or railway track construction material, of iron or steel
- 678 wire of iron or steel
- 679 tubes, pipes and hollow profiles, and tube or pipe fittings, of iron or steel
- 681 silver, platinum and other metals of the platinum group
- 682 copper
- 683 nickel
- 684 aluminium
- 685 lead
- 686 zinc
- 687 tin
- 689 miscellaneous non-ferrous base metals employed in metallurgy, and cermets
- 691 structures and parts of structures, n.e.s., of iron, steel or aluminium
- 692 metal containers for storage or transport
- 693 wire products (excluding insulated electrical wiring) and fencing grills
- 694 nails, screws, nuts, bolts, rivets and the like, of iron, steel, copper or aluminium
- 695 tools for use in the hand or in machines
- 696 cutlery
- 697 household equipment of base metal, n.e.s.
- 699 manufactures of base metal, n.e.s.
- 711 steam or other vapour-generating boilers, superheated water boilers, and auxiliary plant for use therewith; parts thereof
- 712 steam turbines and other vapour turbines and parts thereof, n.e.s.
- 713 internal combustion piston engines and parts thereof, n.e.s.
- 714 engines and motors, non-electric (other than those of groups 712, 713 and 718); parts, n.e.s., of these engines and motors
- 716 rotating electric plant and parts thereof, n.e.s.
- 718 power-generating machinery and parts thereof, n.e.s.
- 721 agricultural machinery (excluding tractors) and parts thereof
- 722 tractors (other than those of headings 744.14 and 744.15)
- 723 civil engineering and contractors' plant and equipment; parts thereof
- 724 textile and leather machinery and parts thereof, n.e.s.
- 725 paper mill and pulp mill machinery, paper-cutting machines and other machinery for the manufacture of paper articles; parts thereof
- 726 printing and bookbinding machinery and parts thereof

- 727 food-processing machines (excluding domestic); parts thereof
- 728 other machinery and equipment specialized for particular industries; parts thereof, n.e.s.
- 731 machine tools working by removing metal or other material
- 733 machine tools for working metal, sintered metal carbides or cermets, without removing material
- 735 parts, n.e.s., and accessories suitable for use solely or principally with the machines falling within groups 731 and 733 (including work or tool holders, self-opening die-heads, dividing heads and other special attachments for machine tools); tool holders for any type of tool for working in the hand
- 737 metalworking machinery (other than machine tools) and parts thereof, n.e.s.
- 741 heating and cooling equipment and parts thereof, n.e.s.
- 742 pumps for liquids, whether or not fitted with a measuring device; liquid elevators; parts for such pumps and liquid elevators
- 743 pumps (other than pumps for liquids), air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters; centrifuges; filtering or purifying apparatus; parts thereof
- 744 mechanical handling equipment and parts thereof, n.e.s.
- 745 non-electrical machinery, tools and mechanical apparatus and parts thereof, n.e.s.
- 746 ball- or roller bearings
- 747 taps, cocks, valves and similar appliances for pipes, boiler shells, tanks, vats or the like, including pressure-reducing valves and thermostatically controlled valves
- 748 transmission shafts (including camshafts and crankshafts) and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws; gearboxes and other speed changers (including torque converters); flywheels and pulleys (including pulley blocks); clutches and shaft couplings (including universal joints); articulated link chain; parts thereof
- 749 non-electric parts and accessories of machinery, n.e.s.
- 751 office machines
- 752 automatic data-processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, n.e.s.
- 759 parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with machines falling within groups 751 and 752
- 761 monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus
- 762 reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock
- 763 sound recording or reproducing apparatus; video recording or reproducing apparatus; whether or not incorporating a video tuner
- 764 telecommunications equipment, n.e.s., and parts, n.e.s., and accessories of apparatus falling within division 76
- 771 electric power machinery (other than rotating electric plant of group 716) and parts thereof
- 772 electrical apparatus for switching or protecting electrical circuits or for making connections to or in electrical circuits (e.g., switches, relays, fuses, lightning arresters, voltage limiters, surge suppressors, plugs and sockets, lamp-holders and junction boxes); electrical resistors (including rheostats and potentiometers), other than heating resistors; printed circuits; boards, panels (including numerical control panels), consoles, desks, cabinets and other bases, equipped with two or more apparatus for switching, protecting or for making connections to or in electrical circuits, for electric control or the distribution of electricity (excluding switching apparatus of subgroup 764.1)
- 773 equipment for distributing electricity, n.e.s.
- 774 electrodiagnostic apparatus for medical, surgical, dental or veterinary purposes, and radiological apparatus
- 775 household-type electrical and non-electrical equipment, n.e.s.
- 776 thermionic, cold cathode or photo-cathode valves and tubes (e.g., vacuum or vapour or gas-filled valves and tubes, mercury arc rectifying valves and tubes, cathode-ray tubes, television camera tubes); diodes, transistors and similar semiconductor devices; photosensitive semiconductor devices; light-emitting diodes; mounted piezoelectric crystals; electronic integrated circuits and microassemblies; parts thereof
- 778 electrical machinery and apparatus, n.e.s.
- 781 motor cars and other motor vehicles principally designed for the transport of persons (other than motor vehicles for the transport of ten or more persons, including the driver), including station-wagons and racing cars
- 782 motor vehicles for the transport of goods and special-purpose motor vehicles
- 783 road motor vehicles, n.e.s.
- 784 parts and accessories of the motor vehicles of groups 722, 781, 782 and 783
- 785 motor cycles (including mopeds) and cycles, motorized and non-motorized; invalid carriages
- 786 trailers and semi-trailers; other vehicles, not mechanically-propelled; specially designed and equipped transport containers

- 791 railway vehicles (including hovertrains) and associated equipment
- 792 aircraft and associated equipment; spacecraft (including satellites) and spacecraft launch vehicles; parts thereof
- 793 ships, boats (including hovercraft) and floating structures
- 811 prefabricated buildings
- 812 sanitary, plumbing and heating fixtures and fittings, n.e.s.
- 813 lighting fixtures and fittings, n.e.s.
- 821 furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
- 831 trunks, suitcases, vanity cases, executive cases, briefcases, school satchels, spectacle cases, binocular cases, camera cases, musical instrument cases, gun cases, holsters and similar containers; travelling bags, insulated food or beverages bags, toilet bags, rucksacks, handbags, shopping bags, wallets, purses, map cases, cigarette cases, tobacco pouches, tool bags, sports bags, bottle cases, jewellery boxes, powder boxes, cutlery cases and similar containers, of leather or of composition leather, of sheeting of plastics, of textile materials, of vulcanized fibre or of paperboard, or wholly or mainly covered with such materials or with paper; travel sets for personal toilet, sewing or shoe or clothes cleaning
- 841 men's or boys' coats, capes, jackets, suits, blazers, trousers, shorts, shirts, underwear, nightwear and similar articles of textile fabrics, not knitted or crocheted (other than those of subgroup 845.2)
- 842 women's or girls' coats, capes, jackets, suits, trousers, shorts, shirts, dresses and skirts, underwear, nightwear and similar articles of textile fabrics, not knitted or crocheted (other than those of subgroup 845.2)
- 843 men's or boys' coats, capes, jackets, suits, blazers, trousers, shorts, shirts, underwear, nightwear and similar articles of textile fabrics, knitted or crocheted (other than those of subgroup 845.2)
- 844 women's or girls' coats, capes, jackets, suits, trousers, shorts, shirts, dresses and skirts, underwear, nightwear and similar articles of textile fabrics, knitted or crocheted (other than those of subgroup 845.2)
- 845 articles of apparel, of textile fabrics, whether or not knitted or crocheted, n.e.s.
- 846 clothing accessories, of textile fabrics, whether or not knitted or crocheted (other than those for babies)
- 848 articles of apparel and clothing accessories of other than textile fabrics; headgear of all materials
- 851 footwear
- 871 optical instruments and apparatus, n.e.s.
- 872 instruments and appliances, n.e.s., for medical, surgical, dental or veterinary purposes
- 873 meters and counters, n.e.s.
- 874 measuring, checking, analysing and controlling instruments and apparatus, n.e.s.
- 881 photographic apparatus and equipment, n.e.s.
- 882 photographic and cinematographic supplies
- 883 cinematographic film, exposed and developed, whether or not incorporating soundtrack or consisting only of soundtrack
- 884 optical goods, n.e.s.
- 885 watches and clocks
- 891 arms and ammunition
- 892 printed matter
- 893 articles, n.e.s., of plastics
- 894 baby carriages, toys, games and sporting goods
- 895 office and stationery supplies, n.e.s.
- 896 works of art, collectors' pieces and antiques
- 897 jewellery, goldsmiths' and silversmiths' wares, and other articles of precious or semiprecious materials, n.e.s.
- 898 musical instruments and parts and accessories thereof; records, tapes and other sound or similar recordings (excluding goods of groups 763 and 883)
- 899 miscellaneous manufactured articles, n.e.s.
- 931 special transactions and commodities not classified according to kind
- 961 coin (other than gold coin), not being legal tender
- 971 gold, non-monetary (excluding gold ores and concentrates)
- 972 gold, monetary and gold coin and current coin
- 999 confidential trade

Annex A3: High-technology Products List – SITC Revision 4

(http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an5.pdf)

Group Code Title:

Aerospace:

(714-714.89-714.99)+ *Aeroplane motors, excluding 714.89 and 714.99*
 792.1+ *Helicopters*
 792.2+792.3+792.4+ *Aeroplanes and other aircraft, mechanically-propelled (other than helicopters)*
 792.5+ *Spacecraft (including satellites) and spacecraft launch vehicles*
 792.91+ *Propellers and rotors and parts thereof*
 792.93+ *Undercarriages and parts thereof*
 874.11 *Direction finding compasses; other navigational instruments and appliances*

Computer/office machines:

751.94+ *Multifunction office machines, capable of connecting to a computer or a network*
 751.95+ *Other office machines, capable of connecting to computer or a network office machines*
 752+ *Computers*
 759.97 *Parts and accessories of group 752*

Electronic-telecommunications:

763.31+ *Sound recording or reproducing apparatus operated by coins, bank cards, etc*
 763.8+ *Video apparatus*
 (764-764.93-764.99)+ *Telecommunications equipment, excluding 764.93 and 764.99*
 772.2+ *Printed circuits*
 772.61+ *Electrical boards and consoles < 1000V*
 773.18+ *Optical fibre cables*
 776.25+ *Microwave tubes telecommunications*
 776.27+ *Other valves and tubes*
 776.3+ *Semiconductor devices*
 776.4+ *Electronic integrated circuits*
 776.8+ *Piezoelectric crystals*
 898.44+ *Optical media*
 898.46 *Semiconductor media*

Pharmacy:

541.3+ *Antibiotics*
 541.5+ *Hormones and their derivatives*
 541.6+ *Glycosides, glands, antisera, vaccines*
 542.1+ *Medicaments containing antibiotics or derivatives thereof*
 542.2 *Medicaments containing hormones or other products of subgroup 541.5*

Scientific instruments:

774+ *Electrodiagnostic apparatus for medicine or surgery and radiological apparatus*
 871+ *Optical instruments and apparatus*
 872.11+ *Dental drill engines*
 (874-874.11-874.2)+ *Measuring instruments and apparatus, excluding 874.11, 874.2*
 881.11+ *Photographic cameras instruments*
 881.21+ *Cinematographic cameras*
 884.11+ *Contact lenses*
 884.19+ *Optical fibres other than those of heading 773.1*
 (899.6-899.65-899.69) *Orthopaedic appliances, excluding 899.65, 899.69*

(778.6-778.61-778.66-778.69) + *Electrical capacitors, fixed, variable or adjustable, excluding 778.61, 778.66, 778.69*

Electrical machinery:

778.7+ *Electrical machines, having individual functions machinery*

778.84 *Electric sound or visual signalling apparatus*

522.22+ *Selenium, tellurium, phosphorus, arsenic and boron*

522.23+ *Silicon*

522.29+ *Calcium, strontium and barium*

522.69+ *Other inorganic bases*

Chemistry:

525+ *Radioactive materials*

531+ *Synthetic organic colouring matter and colour lakes*

574.33+ *Polyethylene terephthalate*

591 *Insecticides, disinfectants*

Non-electrical machinery:

714.89+ *Other gas turbines*

714.99+ *Part of gas turbines*

718.7+ *Nuclear reactors and parts thereof, fuel elements, etc*

728.47+ *Machinery and apparatus for isotopic separation*

731.1+ *Machine-tools working by laser or other light or photon beam, etc*

731.31+ *Horizontal lathes, numerically controlled*

731.35+ *Other lathes, numerically controlled*

731.42+ *Other drilling machines, numerically controlled*

731.44+ *Other boring-milling machines, numerically controlled*

731.51+ *Milling machines, knee-type, numerically controlled machinery*

731.53+ *Other milling machines, numerically controlled*

731.61+ *Flat-surface grinding machines, numerically controlled*

731.63+ *Other grinding machines, numerically controlled*

731.65+ *Sharpening machines, numerically controlled*

733.12+ *Bending, folding, straightening or flattening machines, numerically controlled*

733.14+ *Shearing machines, numerically controlled*

733.16+ *Punching machines, numerically controlled*

735.9+ *Parts and accessories of 731 and 733*

737.33+ *Machines and apparatus for resistance welding of metal, fully or partly automatic*

737.35 *Machines and apparatus for arc welding of metal, fully or partly automatic*

Armament:

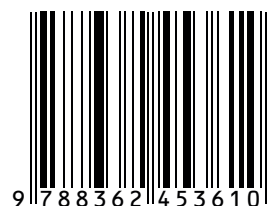
891 *Arms and ammunition*

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