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Intensifying or Diversifying Exports

Effects of Poland's Adhesion to the EU

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Abstract

This study examines Poland's adhesion to the EU and the structural effects this has had on Polish exports which has grown significantly during the last two decades. The purpose is to analyze whether this growth has been the result of intensified or diversified Polish exports. In order to seize the structural effects this study decomposes the Polish trade flows into an extensive margin (new flows) and intensive margin (old flows). To further investigate the dynamics of the change in export flows this study also performs cross-sectional and cross-country comparisons. The study focuses on "item level" observations which monitor the Polish export performance during 1995-2007.

The most important empirical finding in this study show that the overall trend of Polish export to all the EU-15 is increasing at the intensive margin. The analysis also shows that there is a clear relationship between the increase at the intensive margin and the aggregated export growth. The intensification of existing export is considered to be greater when it comes to already explored markets where the product coverage is relatively high. The increase in the intensive margin mainly applies to Manufactured Goods (SITC 5-8). This sector has historically been the primary focus for Polish export and the area which benefited greatly from liberalized trade already at the beginning of the integration process.

Keywords: economic integration, trade creation, Poland, EU, intensified export, diversified export, intensive margin, extensive margin

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List of Abbreviations

CAP	Common Agricultural Policy
CEE-5	Central/South European Economies
CMEA	Council for Mutual Economic Assistance
COMECON	Council for Mutual Economic Assistance
CU	Customs Union
EU	European Union
FDI	Foreign Direct Investments
FTA	Free Trade Area
GATT	General Agreement of Tariffs and Trade
GDB	Gross Domestic Product
NAFTA	North American Free Trade Agreement
OECD	Organization for Economic Co-operation and Development
SITC	Standard International Trade Classification

1. Introduction

A basis for integration with Western Europe was established by the Polish governments-in-exile as early as during the Second World War. Unofficial representatives were sent to attend the Hague congress in 1948 and it was understood that when Poland should be free to join there would be a place reserved in the Council of Europe. However, any attempts of integration or even co-operation were doomed to fail during the Cold War era. Not until the Polish revolution in 1989 and the collapse of communism in 1991, was the integration process able to begin. The first step in approaching Western Europe was signing the new generation association agreement with the European Community in 1991. (The EC will hereafter be referred to as the European Union or the EU.) The agreement, simply called the Europe Agreement, was a preamble which declared that full membership in the European Union was the ultimate goal. The agreement was designed to promote integration and would lead to changes in laws and policies which would facilitate future accession.¹ In May 2004 Poland, together with ten other Central and East European countries, completed the accession to the European Union. This was the final step in a more than two decades long integration process and the proof of a successful Polish transition to a market economy.²

Integration is expected to result in positive welfare effects by stimulating trade and investments. In the case of Poland the desire to become a part of a united Europe would increase the opportunities for dynamic growth by bringing in technology and attracting investments. When focusing on regional integration the objectives in most studies are mainly trade policy and the removal of barriers to trade. In Poland both the increase in export and the inflow of foreign direct investments can be seen as positive consequences of the integration process. An interesting aspect of the development is however not only to what extent the trade has been stimulated, but also how the trade patterns and industrial structures have changed.³

The purpose of this paper is to analyze how the integration of Poland into the European Union has affected the patterns of exports to the EU-15.⁴ The aim is to focus on the kinds of products, old or new, exported to different destinations. Are there differences in export

¹ Stawarska (1999) pp. 823-824

² Senior Nello (2005) pp. 407-408

³ Senior Nello (2005) and Stawarska (1999)

⁴ Members in the EU-15 are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden and U.K.

growth depending on the destination and structure? Could export growth be explained by diversified or intensified export flows?

The outline of the paper is as follows. Chapter 2 provides an overview of economic policies and trade patterns in Poland. The third chapter gives a theoretical background to the trade effects of economic integration. Chapter 4 begins with a short presentation of the data used in the study. Thereafter the method and estimations used are explained. The empirical results are divided into both an aggregated and a disaggregated section. The last chapter summarizes the main results and draw some conclusions.

2. Trade Policies and Trade Patterns

This section will present a background to the Polish economy and to the trade policies at the beginning of the end of the Soviet period, and later the transition into a market economy. The process which resulted in a membership in the European Union will be explained. In the latter part of this section the Polish export patterns and its significant changes, since the fall of the iron curtain in 1989, are summarized to provide a more complete picture.

2.1 Poland at the end of the Communist era

Poland did for decades, during the centrally planned economic system, experience a constant excess demand and a shortage in the consumer goods markets. The unreliable supply of basic goods, such as food and clothing, were often rationed. As a result of Poland's relations with the Soviet Union, the republic took part in the CMEA (Council of Mutual Economic Assistance) or COMECON which was formed in 1949.⁵ The CMEA planned the specialization and industrial location within the Eastern bloc and the Polish industry was chosen to primary focus on heavy industrial and capital goods.⁶ The purpose of specialization within the CMEA was for each region to focus on few industries and then to trade within the bloc. However, the system was not relying on any economic principles and disregarded all economic and geographical advantages in the various regions. Almost all decisions were instead political and motivated by confidence in heavy industry and economies of scale. In many regions this resulted in a great dependency in only one large enterprise.⁷

In Poland a communist-led reform during the 1980s resulted in a gradual reduction of the role of the central planning system. The Polish economic system began during the reform period, to some extent, become more dynamic. However, the overall impact of Eastern Europe reforms performed by communist parties has by historic evidence been proved difficult to fully apply, which was also the case in Poland. There proved to be too many barriers that prevented the reforms to be thorough enough to create a market economy.⁸

⁵ Members in CMEA were the USSR, Albania, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland and Romania together with the non-European countries of Cuba, Mongolia and Vietnam.

⁶ See Lipton & Sachs (1990) and Ławniczak (1992) on Polish specialization.

⁷ Kancs (2007) pp. 4-5

⁸ Factors, as ideology of state ownership based on state enterprise managers, the lack of legitimacy in communist control among the public and failure of other significant institutional matters, made real competition and international financial support farfetched and almost impossible.

In September 1989 a revolving change of regime came into force when the communist party was replaced by the Solidarity-led government of Prime Minister Tadeusz Mazowiecki. Poland was the first of the Eastern European countries with a non-communist government to take on a program of fundamental market reform. One of the goals with the new policy dimensions was to “return to Europe” i.e. the creation of political and economic institutions in the style of Western Europe. In practice this meant multiparty parliamentary democracies and market economies with large private sectors.⁹ Another goal was to “leap to the market” which broadly meant that the ongoing hyperinflation, that was skyrocketing during the fall of 1989, was to be rapidly stabilized. This further co-occurred with an instant liberalization of prices and international trade.

Table 2.1 Distribution of exports of East European countries and the USSR 1988 (% of total export)

Destination Origin	Eastern Europe	USSR	Developed countries	Rest of the world
Bulgaria	18	61	7	14
Czechoslovakia	30	43	19	8
German Dem. Rep.	24	42	27	7
Hungary	17	28	43	12
Poland	16	24	47	13
Romania	21	31	33	15
<i>Above six</i>	22	40	27	11
USSR	49	–	25	26

Source: Ławniczak (1992) p. 93

Along with the reform process in the 80s, the CMEA became more and more disintegrated and the trade links began to break up. This was partly because many of the members came to the conclusion that the system was inefficient when ignoring advantages in regions and countries. A very large degree of trade had been exchanged with USSR, and as shown in Table 1.1 it made up as much as a quarter (24%) of the Polish exports in 1988, which made the dependency of the Soviet market very high. The trade ties between all former members in the CMEA had been very extensive. In the case of Poland in 1989 the bilateral trade within the CMEA accounted for 40%. Without the CMEA, estimations suggested that this share instead ought to have been 19%.¹⁰

⁹ Lipton & Sachs (1990) pp. 75-78

¹⁰ Dangerfield (1995) p. 5

In August 1990 eight of the fifteen member states became independent of Soviet and pulled out of the union, in 1991 the CMEA was formally dissolved. Between 1989 and 1992, when the East-East trade no longer had official priority, Poland's trade with the former CMEA states declined sharply. Together with the new market approach Poland was finally given the opportunity to improve trade relations with Western Europe and the European Community.¹¹

2.2 The Europe Association Agreement

Before the 1980s the CMEA countries had a strained relationship with the EU and were placed at the bottom of their preferential trading arrangement. The export from these countries faced the same tariffs as non-European industrial economies and was therefore higher than both developed European countries and developing economies. After the fall of CMEA the EU signed bilateral trading agreements with the Central/South European economies (CEE-5).¹² The aim of the agreements was to set a political framework for a gradual integration of the CEE-5 into the European Union. The main goal of the integration was to gradually and ultimately establish a free-trade area meaning complete abolishment of tariffs and quotas. The agreements were known as the Europe Agreements and even though they were individually drawn, followed the same pattern for all the CEE-5s.¹³

Poland signed the Europe Agreement with the EU in December 1991. Future access to Western European markets were considered as the most efficient catalyst and an instrument to increase trade and bring new technology to Poland. In March 1992 an interim agreement handling trade issues was put in place and ratified. A range of quantitative restrictions on imports from the West were rapidly abolished together with a reduction in taxes on exports. The Europe Agreements were ratified in 1994 signifying liberalization and a harmonized integration in a wider sense.¹⁴

Trade was to be gradually liberalized but the process was complex. Certain conditions in various areas lead to temporary protective measures. As shown in table 1.2, different transition periods were put in place for different sectors. The liberalization process was founded on the principle of asymmetry which means that the EU, as the stronger trade partner entity, started the removal of customs duties on Polish imports earlier.

¹¹ Dangerfield (1995) pp. 4-6, Ławniczak (1992) pp. 92-93

¹² Bulgaria, Czechoslovakia, Hungary, Poland and Romania

¹³ Kaminski (1994) p. 14

¹⁴ See Mroczek & Rubaszek (2004) and Kaminski (1994) on the Europe Agreement.

The complete removal of most quantitative restrictions and tariffs were set out to be on January 1st 2001. However, the conditions of the agreement included quite restrictive rules of origin. The rules established that 60% of the value of exported goods should originate in any of the countries concerned by the agreement.¹⁵

Table 2.2 The timetable for liberalizing EU-Polish industrial trade.

Destination /origin	EU /POLAND	POLAND /EU
Commodities		
Industrial goods	1992	1992 (mainly raw materials), 1999
Minerals and chemical products	1993	
Nonferrous metals	1994	
Other sensitive industrial goods	1995	2001 (Petroleum prod.) 2002 (vehicles)
Textile	1997 ¹	
Steel/Coal	1996 ²	1999(Steel, some steel 1992)

Notes: Year only indicated in the table if different from industrial goods.

¹Quantitative restrictions eliminated 1998

²1993 for most coal products.

Source: Wilhelmsson (2006) pp. 8

As of the beginning of 1995 about 50% of the Polish exports of industrial products to the EU were benefiting from duty free trade, the exception was sensitive sectors such as steel and coal, textiles and clothing. Opposed to the industrial sector, the trade of agricultural products were subject to limited and selective liberalization and was also affected by the rules of origin.¹⁶ As can be seen in table 1.3 the Polish industrial exports had free access to the EU market in 1996, with the exception of the sensitive products already mentioned.

¹⁵ Kaminski (1994) pp. 15-16

¹⁶ Mroczek & Rubaszek (2004) pp. 10-13

Table 2.3 Reduction of customs duties applied to industrial commodities exported from Poland, introduced in Europe Agreement (% of basic customs duties, applied at the beginning of each calendar year 1992-1998).

Year	1992	1993	1994	1995	1996	1997	1998
Group of commodities							
Textile products^a	71	71	57	43	29	14	0
Steel products	80	80	40	20	10	0	0
Minerals and chemical products	50	0	0	0	0	0	0
Nonferrous metals	80	60	40	0	0	0	0
Other goods from the so called “sensitive” group^b	80	70	55	20	0	0	0
Remaining industrial goods^c	0	0	0	40	0	0	0

^aThe Agreement has preserved non-tariff barriers introduced by Agreement on voluntary restraints on exports dated 1996. Their elimination was expected within the framework of liberalization introduced within the Uruguay Round of GATT, while the postponement of the end of the Uruguay Round led to an additional Protocol being approved in December 1992, according to which the quantitative limits were to be eliminated by the end of 1997;

^b the customs are applied to imports exceeding yearly tariff contingents or plafonds, which were increasing by 20% each year;

^c limits imposed on coal imports have to be eliminated gradually in the first year of the Agreement, with exception of imports to Germany and Spain, where custom duties are supposed to be lifted till end of 1995.

Source: Zukrowska (2000) p. 15

While Poland was gradually integrated into the EU the capital flows were also liberalized and the economy slowly became a part of the global financial system. The creation new regulations and the relatively stable macroeconomic situation stimulated the inflow of foreign direct investments (FDI) and most of the capital invested in Poland came from EU companies.¹⁷

The establishment of a free trade area between Poland and the EU was expected to stimulate trade flows. As a consequence trade with other trading partners decreased relatively speaking. In the theory of economic integration this effect is often referred to as trade creation and trade diversion. Further widening of the Polish liberalization, including transfer of capital, services, agricultural products, intellectual property and sensitive goods, were to come as a result of the adhesion to the European single market.¹⁸

2.3 From the Association Agreement to the European Union

At the Copenhagen summit in 1993 the European Council agreed on conditions for the CEE countries to join the EU. In order to become a member the applying country was to fulfil the

¹⁷ Mroczek & Rubaszek (2004) pp. 10-13

¹⁸ See Mroczek & Rubaszek (2004) and Senior Nello (2005) on trade liberalization.

obligations and satisfy both economic and political conditions set up by the EU. The general criteria was that the candidate country must guarantee democracy and human rights, the candidate must be capable of accepting membership responsibilities and also to have a functioning market economy to be competitive on the EU market.¹⁹

In April 1994 Poland presented a formal application for membership into the EU and in 1994 the European Council also presented a strategy to help all the candidate countries to prepare for the accession. In 1997 the EU stated that Poland had achieved so much progress in terms of the Copenhagen criteria that negotiations regarding an admission to the EU could begin. In the 2002 Copenhagen summit the EU confirmed that Poland together with 10 other applicant countries would enter the European Union in May 2004.²⁰

The membership in the EU in 2004 meant a deepening of the previous free trade Association Agreement and Poland becoming a member of the European Single market. Only products that met European norms and standards had access to the markets of other member countries and if companies did not meet these requirements they were now unable to sell them on the Polish domestic market. When joining the EU that also included the adoption of the common external EU tariff. In the case of Poland this meant a decrease in customs duties with third country.²¹ All tariffs were removed on both industrial and agricultural products and the Single Market stipulated the abolishment of non-tariff barriers.²²

2.4 Export Patterns

During the CMEA time period until 1989, more than half of the Polish exports went to the fellow countries of the CMEA. The export consisted mainly of manufactured goods which were exchanged for import of raw materials and energy from the USSR.²³ Consumer goods and light industry was marginalized and the trade pattern exhibited Polish production focus on processing raw materials to export in semi-finished or finished form.²⁴

¹⁹ Senior Nello (2005) pp. 418-419

²⁰ Ibid, European Commission (1997)

²¹ See European Commission (1997) and Zukrowska (2000) on EU regulations.

²² Senior Nello (2005)

²³ Ławniczak (1992) pp. 92-94

²⁴ Lipton & Sachs, (1990) p. 82

What could be observed as a consequence of the concentration of export and production to a few sectors was the low product coverage in markets outside the CMEA.²⁵ The ratio of product coverage gives an indication of potential exploitation opportunities and additional background facts to the actual export structure. In Poland 1995 the average coverage of export to the EU-15 was 15% although the numbers differed considerably between markets of different countries in the EU. The coverage in the German market was 51% compared to markets such as Austria, Finland and Spain where levels were around 10%.²⁶

In the beginning of the 1990s a very high domestic consumer demand, following the years of shortage, increased both Polish production and imports significantly. During this period Poland experienced a much higher growth in imports than in exports from the EU countries which led to an increased deficit in the trade balance between Poland and the EU.

Since the first measures taken by Poland to liberalize trade with the EU, there have been significant structural changes of the commodities exported. As mentioned before, the structure of the Polish trade began to converge towards the internal trade within the EU at an early stage. The domestic production and export became more concentrated on more advanced production and higher processed goods. The specialization increased in the manufacturing industries and was dominated by machinery, both electrical and non electrical, and the automotive sector. Primary goods such as fuel products, crude materials and live animals and food started to decrease.²⁷

During the period 1995-2007 exports to the EU accounted for 66% of the total Polish export volume. The EU-market was by far the most important market for Polish exports during this period. Because of increasing FDIs, due to the liberalization of capital flows, and high dynamics in trade volumes in general, this led to structural changes in the Polish economy. Already before the admission into the European Union in 2004 the Polish trade patterns showed a convergence towards a structure more similar to trade within the EU.²⁸

²⁵ The product coverage is defined as the ratio between the actual number of bilateral trade flows and the potential bilateral trade flows. Estimations are made using OECD statistics converted into disaggregated bilateral trade flows. See Appendix 1.

²⁶ See Appendix 1.

²⁷ Mroczek & Rubaszek (2004) and Kancs (2007)

²⁸ Mroczek & Rubaszek (2004) pp. 13-14

The facts presented in this section shows the transformation in the Polish economy which has occurred during and after the Polish transition into a market economy. An important aspect of this is of course the integration into the European Union. In order to investigate how much this actually has affected trade, the next section will provide a theoretical framework on the trade effects of economic integration.

3. Trade Creation – Theoretical Framework

This part will put forward the theoretical standpoints this thesis is built upon. It starts with a brief summary of traditional trade theory and the forces behind international economic integration, followed by a presentation of more modern models of intra-industry trade and decomposition theory.

International economic integration movement experienced a renewal in the 1950s. The removal of trade barriers was referred to as *negative integration* whereas the creation of common policies and instruments was referred to as *positive integration*. The best example from today of both a successful negative and positive integration is the EU with its single market. In order to analyze the effects of the Polish path to economic integration with the EU both negative and positive integration is of relevance but to underpin the empirical part of this study the negative integration will primarily be the focus.

3.1 Trade Creating Effects of Integration

Regarding the effects of economic integration one could talk about both costs and benefits. Of primary importance in trade studies of regional integration is the division of trade effects into *trade creation* and *trade diversion*. Jacob Viner explained *trade creation* as a shift of imports from an inefficient source to an efficient and the opposite with *trade diversion* i.e. a shift of imports from an efficient source to an inefficient. The analysis Viner presented was also extended to examine the purpose and effect of a customs union and how the sources of supply would shift depending on circumstances. There are not only positive effects of a customs union which, according to Viner, was previously the general idea of economists. Viner showed that within the concept of trade creation and trade diversion, an economic integration also could suffer from negative consequences.²⁹

When Viner described his theories he described a preferential trading agreement (PTA) in the form of a customs union. Another type of economic integration is a free trade area (FTA). The main features of a FTA are to remove all trade barriers between the member countries but to retain their own tariffs on imports from the rest of the world. To prevent the country with the

²⁹ Bhagwati, Krishna, & Panagariya (1999) pp. 13-17

lowest tariffs to exploit the tariff differential or so-called *trade deflection*, FTAs are bound to be equipped with *rules of origin* which means that imported input goods need a certain specific level of domestic transformation before being exported to the other members of the free trade area.

A customs union is similar to a FTA in its basic theory; the idea is to eliminate tariffs on imports from member countries. The difference is that the members in a customs union also adopt a common external tariff towards the rest of the world and because of that there is no need for *rules of origin*.³⁰

The trade creation can also be divided into how integration affects the trade within different industries. The standard trade theory explains what we today refer to as the comparative advantage theory. The theory describes that each country will specialize in which area it has a comparative advantage, i.e. produces the most efficient product, compared to all the other goods. It does not necessarily need to be a specific explanation for comparative advantages but the outcome is that the market as a whole will gain from integration as each producer can focus on what it does best. The theory of comparative advantages, also developed by Heckscher and Ohlin, is a part of the neoclassical theory of international trade which further reflects advantages of free trade. When input becomes mobile between regions this will benefit all countries and give positive effects such as elevated factor returns and living standards.

In the *Heckscher-Ohlin* model the differences among countries in terms of relative endowments of the factors of production is described as the reason for international trade. When a country exports the product in which it has comparative advantages and best suited factor endowments it generates trade flows between different types of industry that enjoys prevalence within their sectors. This is often referred to as *inter-industry trade*.

In the 1960s and 1970s the traditional theory, as the sole explanation to trade flows, was questioned and theories such as the *preference similarity hypothesis* were developed. These theories, which put more concern into the consumption side instead of the production side for explaining trade flows, were later on referred to as *intra-industry trade*. The main differences between these theories and the prior theories were the inclusion of determinants such as

³⁰ Robson (1998) p. 31

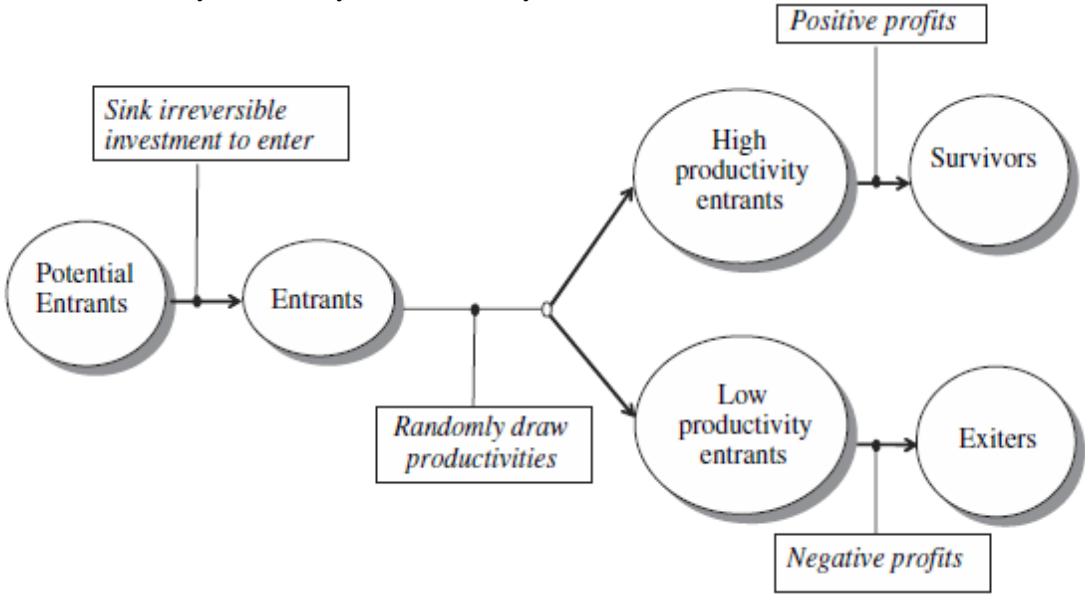
technology, product variety and economies of scale. Intra-industry trade signifies trade flows within industries of mostly similar goods. This type of trade stimulates innovation and it has a tendency to occur more frequently between developed countries with high GDP.³¹

The last 30 years Intra-industry trade has been growing and between industrial countries today it accounts for the major part, in EU the intra-industry represents 60% of all trade flows.³²

3.2 Firm Heterogeneity and Trade

An emerging approach of analyzing the effects of trade liberalisation on resource allocation within an industry is the model of heterogeneous firms. The model presents how aggregated productivity increases when the least productive firms exit the market because of loss in market share and benefits.³³

Figure 3.1 Productivity uncertainty and Firm Entry/Exit



Source: Greenaway & Kneller (2007) p. F137

In figure 1.3 the theory is illustrated with the high productivity firms as the survivors on the market and the reason for the total increased productivity.

³¹ See Markusen et. al. (1995) on the Hecksher-Ohlin model and Intra-industry trade.
³² Ruffin (1999) p. 6
³³ See Melitz (2003) on the model of Hetrogenous firms.

The primary cost when the potential entrant decides to operate in an industry is a fixed sunk cost. This cost includes for example new research which has to be done and new distribution networks that has to be established. This requires a high productivity level already before the firm enters the market. The sunk cost is an endogenously determined threshold level and decides which firm that will export.

Export is the way for firms to increase productivity as the firm will be able to expand. If the firm is engaged in exporting activities this will also increase the expected profit and result in an increased threshold level in the specific industry. As a result the least efficient firms will not survive and leave the market, this is what raises the total productivity in this industry.³⁴

Firm heterogeneity is further involved in a model where the effect on trade caused by removed trade barriers will have different consequences depending on the structure of the traded goods. The intra-industry trade between countries of equal or very similar possibilities is constituted mainly by differentiated goods and results in specialization of firms. At a high level of differentiated goods, firms who attempt to export new goods into a market will be more sensitive to trade barriers than if the traded products are already established on the market. In this way, the entry of new products into a market or when a firm introduces its export to a new market is called export at the *extensive margin* and an expansion of already existing products on existing markets is called the *intensive margin*. As the theory above states, the extensive and intensive margins are affected in different directions when it comes to sensitivity to changes in trade barriers. When trade on the other hand is performed with homogenous goods it is the intensive margin that shows to be more sensitive to trade barriers i.e. the already established trade flows.³⁵

3.3 The Extensive versus the Intensive Margins of Trade

The literature that contributes to the area of intensive and extensive margin in trade theory is referred to as decomposition literature. The decomposition of the trade flows are as mentioned divided into an intensive and an extensive margin. The intensive margin as pointed out before consists of “old” trade flows which represents either increasing or decreasing exports of existing products to already existing markets. The classification of the extensive margin varies and can be divided into two groups; new exports of new products to existing markets

³⁴ Greenaway & Kneller (2007) pp. F136-F139

³⁵ Chaney (2008)

and new exports to new markets. In previous literature concerning decomposition of export growth, examinations have been made decomposing flows both by product line and destination.

A number of papers examine the general tendencies and effects of trade liberalization and the extent to which the extensive and intensive margin have an impact. Previous results have both been showing increases at the intensive margin as well as at the extensive margin. When it comes to developing countries the outcome of trade liberalization often consists of entries of new flows and an increase at the extensive margin. Unfortunately many developing countries lack the capability of successfully maintaining these new established relationships. The evidence concerning developed countries often suggests the opposite result, showing longer relationships and higher growth at the intensive margin.

Several papers suggest that trade liberalization mainly leads to increases at the extensive margin but that country and industry specific factors rather than the specific tariff reduction is the determining factors for these changes in the extensive margin. Examples from the experience of NAFTA and CUSFTA show the opposite effect with an increase at the intensive margin rather than in the extensive margin which also would be the case in most FTAs.³⁶

Another study examining exports of 99 developing countries to 102 developed and developing countries during 1995-2004 show a significant dominance of the intensive margin, contributing to 80 percent of the total export growth. All geographic regions observed unanimously show that the intensification of existing export flows, i.e. the intensive margin, is the largest contributor to export growth. A paper from 2002 using a smaller sample shows similar results, finding that the intensive margin contributes to 60 percent of the total export growth whereas the “new product” part of the extensive margin account for only 10 percent.³⁷

There is relatively little theoretical research that examines how the range of products and the division into intensive and extensive margin are determined. How these margins come to be and how trade liberalization influences the division are due to many different factors. As

³⁶See Debaere & Mostashari (2005), Ruhl (2005) and Besedeš & Prusa (2006) on the extensive margins effect on trade patterns and Romalis (2005) on the rising role of intensive margin.

³⁷ See Brenton & Newfarmer (2007) and Evenett & Venables (2002)

mentioned before factors such as sunk-costs, productivity, technology and of course tariff levels all matters.

4. Intensifying or Diversifying Polish Exports

Poland has been rather successful in promoting trade with Western Europe during the transition. This paper will continue with a more detailed look into the features of trade created during this period. Recent studies have put into attention the measuring of trade at aggregated as well as disaggregated levels. The breakdown of bilateral trade flows into disaggregated elements enables an examination of the respective role of intensification and diversification.

4.1 Data

All the data in this section is collected from the official statistics of the OECD database, SITC –revision 3.³⁸ The statistics used in the first section are presented in an aggregated form under a 1-digit and 2-digit level showing different sections and divisions of Polish trade. This part is used to illustrate the overall Polish export pattern. In the second part of this chapter the statistics are used at the 5-digit level, which correspond to an "item-level". Most of the numbers presented in the text in this section are illustrated in tables and figures. The results which are not found in those tables and figures are based on our estimations of material from the OECD database.

To evaluate the Polish exports to the EU-15 and to assure the quality of the data all the numbers in this section are gathered from the import statistics of the partner countries as these flows are considered to be more reliable. To ensure comparability and also in order to eliminate insignificant exports a threshold level of \$100 000 is primarily applied. Flows smaller than \$100 000, on a cut off level of \$50 000 and \$1000, have also been gathered to enable some additional comparisons.

4.2 Method and Estimation

In this study Poland's trade will first be studied at an aggregated level which is necessary to support the findings in the disaggregated material. To examine the total Polish export growth, the study concentrates on a period starting in 1995, the year after the ratification of the

³⁸ SITC is the Standard International Trade Classification which is a statistical classification of the commodities entering external trade.

Association Agreement, and ending in 2007. One decomposition is also made in 2003 just one year before the adhesion of Poland to the European Union. The lack of consistency with different time-span between the two comparable time-periods is of no importance as all results are presented as percentage shares.

The extensive margin in this paper is referred to as new positive bilateral flows which did not exist in the previous observation year or flows which existed in the previous observation but was completely extinct in the following observation. In the case of the intensive margin there is no creation or extinction of trade flows, instead change consists of either flows that are decreasing but surviving or else growing and deepening.

Empirically, the extensive margin is measured by taking each new export in the second observation given that the same product category was not exported in the observation before. The number of changes are counted and summed up to the total export growth in this margin. On the negative side of the extensive margin are flows that die. The intensive margin is measured by the same principles, starting with already existing flows from the previous observation, adding or subtracting flows which then sums up in either a positive or negative change in the intensive margin.

If X is the value of products exported, k is the nation and i is the traded good from SITC level 5 (the year of the observation in the brackets) the extensive and intensive margin is calculated as shown in table 4.1.

Table 4.1 Definition of the bilateral flows at the Extensive and the Intensive margin

Margin \ Change	Extensive	Intensive
Increase	$(X_i^k(03) > 0 | X_i^k(95) = 0)$	$(X_i^k(03) > 0 | X_i^k(95) > 0) | X_i^k(03) > X_i^k(95)$
Decrease	$(X_i^k(03) = 0 | X_i^k(95) > 0)$	$(X_i^k(03) > 0 | X_i^k(95) > 0) | X_i^k(03) < X_i^k(95)$

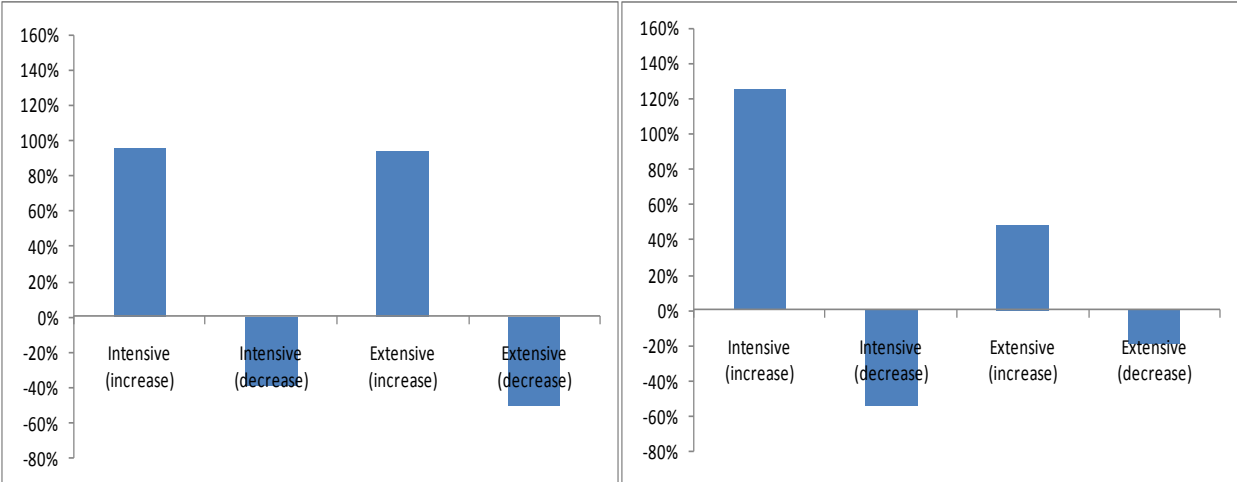
Source: Own calculations

A difficulty in using disaggregated trade flows, in this case at an “item level”, is the risk of generating results which are irrelevant for the intended analysis. Numerous flows at a 5-digit level are very moderate and considered, in the context of extensive-intensive margin,

economically unimportant. Flows at lower levels could in many cases be experimental trade attempts on a trial and error basis. The barriers for exporters entering a new market are often high and the failure rates of these attempts likewise are high. Some companies that are uncertain of the potential on a new market are making test investments which also contribute to temporary flows that appear one year just to disappear the following year. A consequence of this difficulty is that trade flows in this study under the threshold level of \$100 000 are treated as if no trade existed.

However, what is cut-off from the main analysis when using the lower limitation of \$100 000 could be interesting in another context when observing the extensive margin. Comparing the data from a cut-off level of \$1000 with \$100 000 points out a significant change in both positive and negative extensive flows, see figure 4.1 extensive margin and extinction of exports. When the calculations are performed at the \$1000 level there is a notable difference in the outcome compared to the threshold level of \$100 000. At a lower cut-off level the extensive margin take much greater proportions and in the case of positive flows even over-perform the intensive margin.

Figure 4.1 Comparison at cut-off level \$1000 (left) and \$100 000 (right) 1995-2003



Source: Own calculations based on OECD data.

The implications of these results depending on different cut-off levels are not of key importance to the main analysis and are not included in the study.

4.3 Empirical Results

Since the beginning of the Polish integration process with the EU new product groups for Polish exports has emerged. As pointed out before, Poland is exporting more highly processed products. The structural change in Polish exports has undergone two main phases. The trend in the first phase of the integration process was that industry grew at the expense of especially agriculture and mineral fuels. In the second phase additional impacts of the Polish integration process has lead to higher dynamics in trade volumes. Evidently the consequences of trade creation have lead to both boosted intensification in flows and a structural transformation. The structural transformation will here be further examined by looking at both cross-national and cross-industry results using the same observation years as in the disaggregated section.

In order to analyze the decomposition of the Polish export, initially a brief breakdown in the polish export at an aggregated level is presented below.

4.3.1 Trade patterns at an aggregated level

The overall trend of Polish export to the EU-15 has been an increase at an aggregated level. The total increase of aggregated export was more than 400 % between 1995 and 2007. The main increase in exports at an aggregated level has been constituted by Machinery and Equipment (SITC 71-77) and Road Vehicles (SITC 78). An important contribution to this has been the result of major foreign investments in these sectors and mainly in the car industry and electrical machinery. The Polish car industry was privatized in the beginning of the 1990s and the customs duties were almost totally abolished as early as March 1st 1992. Since then it has attracted a substantial amount of FDI. Foreign investors as for example Fiat, GM, Volkswagen, Toyota etc established operations in Poland.³⁹ Furthermore the performance in the subcomponents sector including engines, rubber parts, car seats, auto electronics etc has been very strong.⁴⁰ As seen in table 4.1 the share of exports to the EU from the automotive sector increased from 6.8 % in 1995 to 14.3 % in 2007.

³⁹ One probable and contributing factor why many foreign companies invested in the Polish automotive industry was high import restrictions which were not fully eliminated until 2002

⁴⁰ ACEA (European Automobile Manufacturers Association) (2010)

Table 4.2 Top 10 commodities exported to the EU-15 on a SITC 2 level in 1995, 2003 and 2007

SITC	Commodity division	Share 1995	SITC	Commodity division	Share 2003	SITC	Commodity division	Share 2007
84	Articles of apparel & clothing accessories	13.4	78	Road vehicles	12.7	78	Road vehicles	14.3
82	Furniture and parts thereof	7.1	82	Furniture and parts thereof	9.2	77	Electrical machinery and apparatus	9.1
68	Non-ferrous metals	7.1	77	Electrical machinery and apparatus	8.4	93	Special trans. & goods not classified	8.1
78	Road vehicles	6.8	71	Power generating machinery and eq.	7.8	76	Telecom and sound recording apparatus	6.2
32	Coal. coke and briquettes	6.4	69	Manufactures of metal. n.e.s	5.2	82	Furniture and parts thereof	6.2
69	Manufactures of metal. n.e.s.	5.1	84	Articles of apparel & clothing accessories	4.8	71	Power generating machinery and eq.	5.4
67	Iron and steel	5.0	76	Telecom and sound recording apparatus	4.2	69	Manufactures of metal. n.e.s	4.3
77	Electrical machinery and apparatus	4.9	32	Coal. coke and briquettes	3.2	74	Other industrial machinery and parts	3.5
63	Cork and wood manufactures	3.8	89	Miscellaneous manufactured articles	3.1	68	Non-ferrous metals	3.0
66	Non metallic mineral manufactures. n.e.s.	3.2	74	Other industrial machinery and parts	3.0	67	Iron and steel	3.0

Source: Own calculations based on OECD data

During 1995-2007 the most significant decline in the structure of Polish exports to the EU has been the considerable change in Articles of Apparel and Clothing Accessories (SITC 84). This group, which in 1995 accounted for 13.4 % of the export to the EU, decreased to modest 1.7 % in 2007. Another major fall has concerned Mineral Fuels (SITC 3), mainly due to the diminishing exports of Coal (SITC 32). An interesting finding is that all underperforming groups also are groups that experienced a slow reduction of custom duties (See chapter 2). The limited access to the EU market together with increasing costs of labour and limited entry of foreign investors are most likely all factors of the decline of importance of these products.

The agricultural sector did however differ from the pattern of decreased export even though custom duties in this sector were not entirely lifted until the accession to the EU. The exports of agricultural commodities increased drastically when Poland became a member of the Single market and benefited from the CAP.⁴¹ Modernization similar to the one taking place in high-income European countries took place in Poland in the beginning of the 21th century. Projects concerned with securing the quality of polish agricultural products soon lead to international recognition.⁴² The food sector (SITC 0) is the only one of the Polish primary

⁴¹ The Common Agricultural Policy (CAP)

⁴² "Restructuring and Modernization of the Food Sector and the Development of Rural Areas from 2004 to 2006" was a part of the Sapard Programme leading to over 22 700 projects in Polish agriculture and a sum of PLN 44.5 billion paid out to Polish beneficiaries. See Polish Market Online (2009)

product goods sectors that actually increased its share since the beginning of the integration process.

Table 4.3 Value and share of export divided into primary and manufactured goods 1995. 2003 and 2007

Commodity division (SITC)	Value (USD million)			Share (%)		
	95	03	07	95	03	07
Total (0-9)	15.923	35.343	80.429	100	100	100
Primary goods (0-4)	3.298	4.691	11.242	20.7	13.2	14
Food and live animals (0+1)	1.155	2.147	6.664	7.2	6.0	8.3
Crude Materials (2+4)	826	1.060	2.214	5.2	3.0	2.8
Fuel products (3)	1.317	1.485	2.365	8.3	4.2	2.9
Manufactured goods (5-8)	12.506	30.507	62.674	78.4	86.2	77.9
Chemical products (5)	909	1.496	3.834	5.7	4.2	4.8
Machinery. transport eq. (7)	2.985	14.181	33.482	18.7	40.1	41.6
Other Manufactured articles (6+8)	8.612	14.830	25.358	54.0	41.9	31.5
Other (9)	143	198	6.513	0.9	0.6	8.1

Source: Own calculations based on OECD data

What follows from these tendencies brought up above and what could be seen in table 4.2, is that an increasing part of Polish exports is coming from more processed goods and first and foremost from Machinery and Transport Equipment (SITC 7). The export groups which represented the key part of Polish exports in 1995, such as chemical products, wood manufactures, textiles, clothing and metallurgical products, has shown a large reduction. Together these groups have decreased from 45 % of total export to the EU in 1995 to 22 % in 2007. As seen in table 4.2 the shift in Machinery and transport equipment (SITC 7) towards a leading position in Polish exports to the EU has been of great proportions, increasing during 1995-2007 from 18.7 % to 41.6 %.

The contribution of increased flows of FDIs and the implementation of the European Agreement must in this framework be regarded as decisive. The huge inflow of foreign direct investments has lead to a composition of more and more foreign trade coming from the same product groups and the growing importance of more processed goods.

Table 4.4 Share of export divided into the countries of EU15 1995, 2003 and 2007 (% of total export each year)

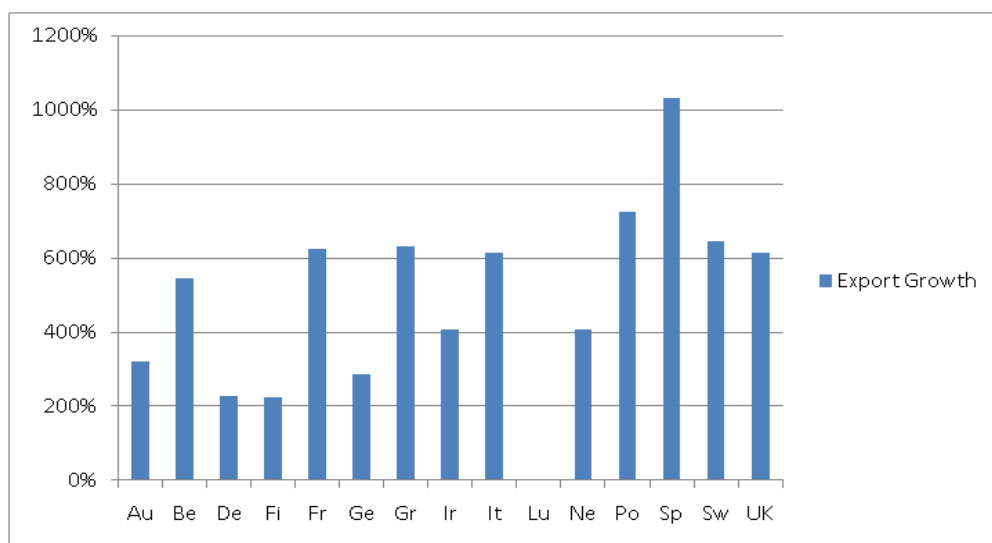
Year	1995	2003	2007
Country			
Austria	3.5	3.0	3.0
Belgium	3.5	4.3	4.6
Denmark	4.6	2.8	3.0
Finland	2.0	1.1	1.3
France	6.4	8.5	9.3
Germany	53.3	48.8	41.2
Greece	0.4	0.4	0.6
Ireland	0.5	0.5	0.5
Italy	7.7	8.4	11.0
Luxemburg	0.0	0.1	0.2
Netherlands	5.8	5.1	5.9
Portugal	0.2	1.0	0.4
Spain	2.0	3.8	4.6
Sweden	3.7	5.4	5.5
U.K.	6.3	6.7	9.0

Source: Own calculations based on OECD data

The major destination of Polish exports is Germany as illustrated in table 4.3. Notably is that the share actually has shrunk from 1995 to 2007 in favour of countries like Spain, France and Sweden. Polish exports to the EU have become more geographically diversified as a result of Polish accession to the Union.

The effect of export diversification within the countries of the EU-15 is also illustrated in figure 4.1 where it is evident that most countries have a higher export growth than Germany. Spain has the significantly highest growth with over 1000% followed by Portugal and Sweden.

Figure 4.2 The aggregated Polish export growth to the countries in EU-15 1995-2007



Source: Own calculations based on OECD data

Economic integration and the removal of trade barriers are expected to boost trade. In the case of Poland there is no doubt that transition to market economy has created many new export opportunities and that the Association Agreement with the EU made the export grow further. However, there are other features of the trade creation which also are important to examine and could be better performed at a disaggregated level.

4.3.2 Decomposing trade patterns

Export growth in Poland, since the start of the transition to a market economy, has been remarkable. Since 1995 the total Polish exports have increased fourfold and exports to the EU-15 represent the major part of this rapid expansion. With the decomposition of this section, this study aims to examine if this positive export performance has been the result of an increase in already existing export products or of the exports of new products.

The examination of Polish export growth structure will be observed through the division into the intensive and the extensive margin. This gives the opportunity to compare the characteristics in different sectional and country wise settings. Doing this means that one can easily follow how the export pattern has changed to different markets and what product groups that have undergone the biggest change.

4.3.2.1 Country observations

The literature on export decomposition has emphasized the importance of the extensive margin in the success of export growth in developing countries.⁴³ The more developed the observed country becomes the more important the intensive margin gets. In the case of Poland the trend has been of similar disposition with the extensive margin decreasing from 28 % to 21.7 % between the first (1995-2003) and the second (2003-2007) observation period.

As shown in table 4.4, of the total export growth to each country, the Polish export to Germany had the relatively highest intensive margin with 91 %. In the years 1995-2003 the highest share of total export at an aggregated level also went to Germany. Another interesting aspect is looking at product coverage, exports especially to Germany exhibit large coverage with over 50 %. This indicates that the market already is well exploited and the best way of boosting trade is to further intensify the export.

There are rather few countries (1/3) with an intensive margin above the average level in this margin. Since the percentage level in the intensive margin is not drastically higher than to the countries below the average this could indicate that these few countries represent a large share of trade flows at an aggregated level.

The Polish export growth to almost all countries in the EU-15 was larger at the intensive margin than extensive. That is. Poland has intensified old trade patterns to a larger extent than establishing new ones. During 1995-2003 only export to Ireland, Greece, Portugal and Luxembourg had an intensive margin below 50 %. In 1995 the aggregated export share for Ireland, Greece and Portugal was negligible and there were no exports at all to Luxembourg. In 1995 the export to Ireland, Greece and Portugal consisted of low levels of diversification and market penetration levels of approximately 3 %. The potential to further exploit these markets and increase the export at the extensive margin was rather obvious.

⁴³See Besedeš & Prusa (2006) on the extensive margin

Table 4.5 Contribution of the Intensive and Extensive Margins to Export Growth, by country (% of total export to the specific country)

Year Margin Country	1995-2003		2003-2007		$\Delta\%$ <i>Extensive</i>
	Intensive	Extensive	Intensive	Extensive	
Austria	72.35	27.65	81.23	18.77	-32.12
Belgium	67.81	32.19	74.06	25.94	-19.43
Denmark	67.80	32.20	77.78	22.22	-30.98
Finland	65.96	34.04	76.56	23.44	-31.13
France	70.48	29.52	81.61	18.39	-37.71
Germany	90.64	9.36	90.89	9.11	-2.74
Greece	41.90	58.10	47.32	52.68	-9.32
Ireland	42.77	57.23	57.51	42.49	-25.76
Italy	74.83	25.17	80.54	19.46	-22.70
Luxembourg	0.00	100.00	47.54	52.46	-47.54
Netherlands	80.78	19.22	78.63	21.37	11.16
Portugal	31.03	68.97	57.05	42.95	-37.72
Spain	53.87	46.13	74.23	25.77	-44.15
Sweden	78.65	21.35	87.70	12.30	-42.39
United Kingdom	64.81	35.19	72.90	27.10	-22.98
Total	72.00	28.00	78.31	21.69	-22.54

Source: Own calculations based on OECD data

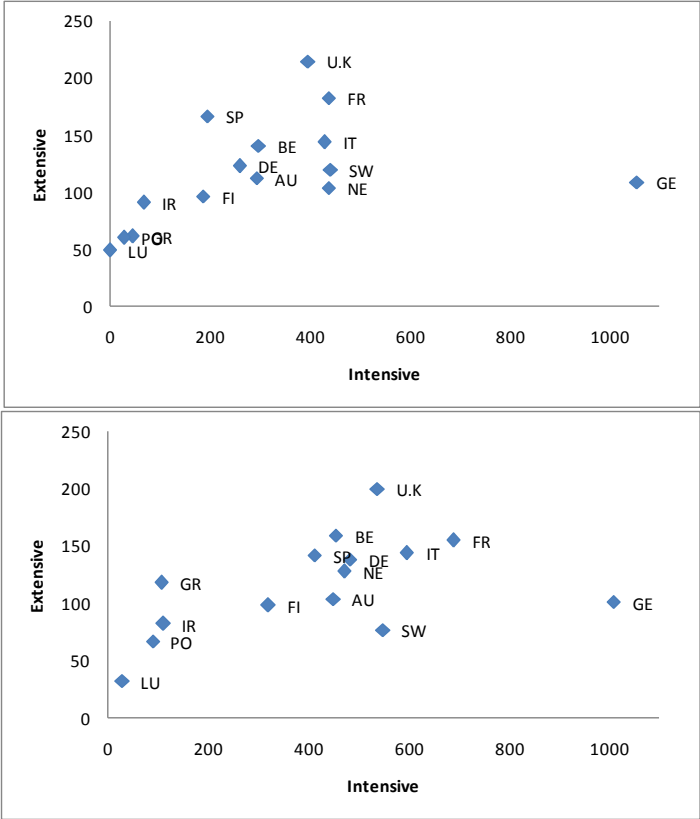
As also illustrated in table 4.4 the development in the next period (2003-2007) was that almost the entire Polish export growth to the different EU-15 countries consists of intensified flows at the intensive margin. Germany still exhibits the same distribution between the intensive and the extensive margin which is further evidence that trade potential between Poland and Germany already is well-exploited and development at the extensive margin difficult. Only the Netherlands take a turn in the other direction and shows an increasing share at the extensive margin. Luxembourg and Greece has still extensive margin greater than 50 % which indicates further high levels of diversification.

The three countries with the biggest decrease of the extensive margin share, with Luxemburg disregarded, are in order of importance; Spain, Sweden and Portugal, all three with a decrease of around 40 %. The most significant change in the relationship intensive-extensive margin can be seen in the case of Spain where the share of the extensive margin almost halved. In comparison with the aggregated trade flows it is notable that the highest increase of Polish exports also went to these three countries. According to these figures, an increasing share of intensive margin seems to follow by increased export levels in general or vice-versa.

A comparison between the results presented in the tables above shows that the trend of the decomposition of export growth from Poland to most countries in the EU-15 became more

concentrated at the intensive margin. This is a result of the deepening of the Polish integration with the EU. Since the extensive margin could be seen as a way of diversifying the export (new exports to existing markets) these results shows that when trade became more developed it first became more diversified. In the next step (2003-2007) Poland concentrated more in intensifying the already existing export.

Figure 4.3 The change of the relationship extensive/intensive margin 1995-2003 to 2003-2007



Source: Own calculations based on OECD data

Polish export growth reflects more increases in the intensive margin. This is illustrated in figure 4.3. Due to the nature of the material the result shown in this figure is slightly misleading as the two periodical observations are done including a different number of years. The overall trend in the extensive/intensive marginal relationship despite of this fact is still well illustrated by this figure.

In the first period there is only Germany that distinguishes itself from the rest of the countries with a high level of export at the intensive margin. UK, France, Italy, Sweden and the Netherlands are all placed at a similar level. As a comparison with the export growth share in 1995-2003 all of the five countries were placed around average when it came to the intensive

margin. What can be observed in the next period is that all countries have moved towards higher intensive flows confirming the trend of intensified export.

4.3.2.2 Sectional wise observations

Of special interest in the decomposition analysis is the shift away from basic goods (SITC 0-4) towards more developed and processed goods (SITC 5-8). As in the country observation the total share of extensive in relation to the intensive margin is the same. A further examination of the differences between products illustrates the structural transformation of Polish exports.

As earlier explained, an increase of export at the extensive margin could be seen as a way of diversification and an intensive increase more as an increase in existing export products. The largest fall in extensive margin is made in Machinery and Transport Equipment (SITC 7), which as shown earlier, also has become the most influential section of Polish exports on aggregated level. After the accession to the EU that number declined to only 14 % (table 4.5). This explains what was already suggested about the statistics at aggregated level that trade, especially in the car industry, has been intensified. In accordance with the arguments presented stating that a high intensive margin represents a very well-developed trade sector, the Miscellaneous Manufactured Articles (SITC 8) with the highest intensive margin shows similar evidence

Notable is that while the developed and processed goods group show a sharp decrease in its extensive margin from 26.8 % to 17.8 % the prior group of basic goods group increases its extensive margin from 36.3 % to 38.3 %. As can be seen in table 4.5 the products in SITC 0-2 all show a positive trend with an increase in all three groups. a trend suggesting an expansion of exports into new product groups. The increased levels of product coverage in at least Food and Live Animals (SITC 0) and Beverages and Tobacco (SITC 1) strengthen this assumption.⁴⁴

These results suggests that export growth in the higher processed product sections has been the result of intensified flows and that diversified flows have been the main contributor of export growth in the primary goods sector.

⁴⁴ See Appendix 1

Table 4.6 Contribution of the Intensive and Extensive Margins to Export Growth, by sections (% of total export within each commodity group)

SITC \ Year Margin	1995-2003		2003-2007		$\Delta\%$ <i>Extensive</i>
	Intensive	Extensive	Intensive	Extensive	
0:Food and live animals	60.47	39.53	59.58	40.42	2.19
1:Beverages and tobacco	65.22	34.78	55.42	44.58	21.97
2: Crude materials. inedible. except fuels	70.93	29.07	70.61	29.39	1.11
3:Mineral fuels. lubricants and related materials	55.56	44.44	65.45	34.55	-28.65
4:Animal and vegetable oils. fats and waxes	0.00	100.00	37.04	62.96	-58.82
5:Chemicals and related products. n.e.s.	61.21	38.79	73.67	26.33	-47.30
6:Manufactured goods	71.81	28.19	78.67	21.33	-32.18
7:Machinery and transport equipment	72.02	27.98	85.56	14.44	-93.75
8:Miscellaneous manufactured articles	82.54	17.46	90.08	9.92	-76.01
9:Commodities and transactions. n.e.s.	100.00	0.00	70.59	29.41	100.00
TOTAL	72.00	28.00	78.31	21.69	-22.54

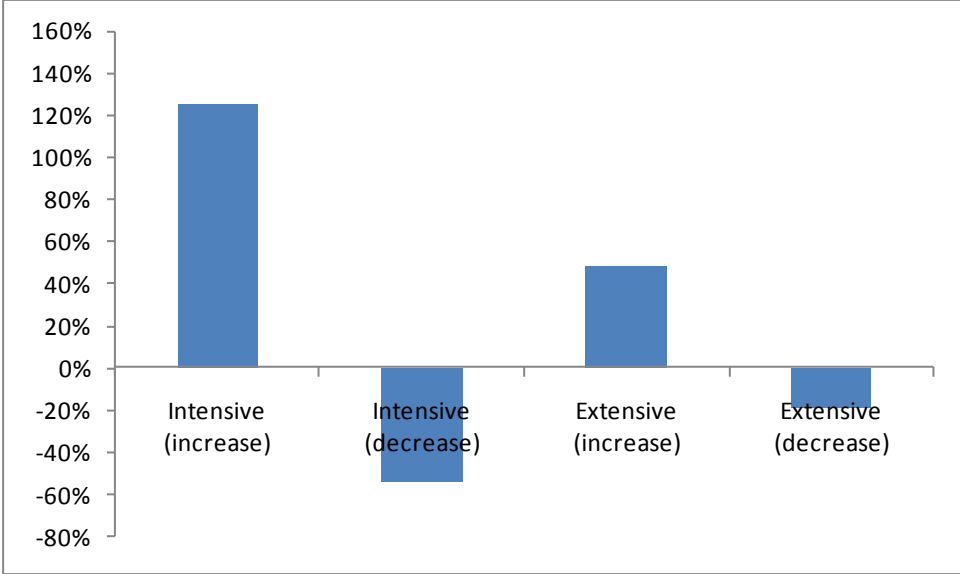
Source: Own calculations based on OECD data

In table 4.6 the 100 % extensive export in Animal and Vegetable Oils, Fats and Waxes (SITC 4) can be more or less disregarded since its share is less than 1 % at an aggregated level.

4.3.2.3 The overall decomposition

In the examination of the growth of export from Poland to the EU-15 from 1995 until 2003, the year before the membership into the European Union there was an increase of export at the intensive margin of 125 % and 49 % at the extensive margin. The main contribution to these increases has come from increased flows in Machinery and Transport Equipment (SITC 7). At the extensive margin flows in new product groups exceed the number of flows that actually have died. Flows in product divisions Iron and Steel (SITC 67) and Non-Ferrous Metals (SITC 68) represent most of the extinction.

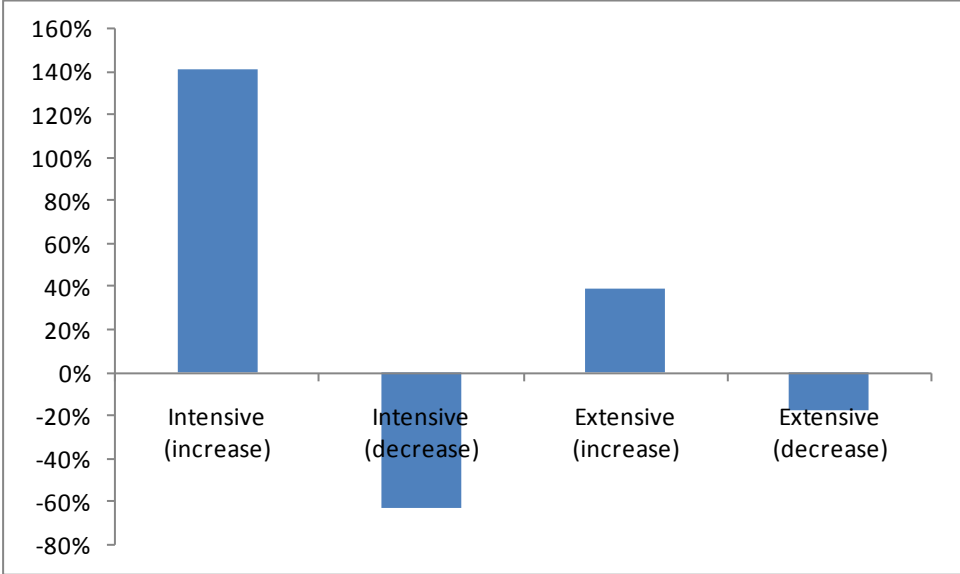
Figure 4.4 Decomposition of total Export Growth from Poland to EU15 1995-2003



Source: Own calculations based on OECD data

Mainly as a result of a sharp increase at the intensive margin, the total share of decomposed export flows was higher during 2003-2007. The increase of export at the intensive margin was 142 % and 39 % at the extensive margin. This implies a divergence between the two types of trade decomposition after the EU accession. Already established flows in Machinery and Transport Equipment (SITC 7) are one of the key sources of a decreased positive extensive margin. A slight offset to this trend came from Food and Live Animals (SITC 0) which is the result of the boost in agriculture after the introduction of CAP.

Figure 4.5 Decomposition of total Export Growth from Poland to EU15 2003-2007



Source: Own calculations based on OECD data

5. Summary and conclusions

The main purpose of this paper was to investigate whether it was an intensification or a diversification of exports that contributed to trade creation and export growth following the Polish integration into the EU.

Our empirical findings show that the overall trend of Polish export growth has been a decrease at the extensive margin. Instead the intensive margin has shown an increase, mainly because of the intensification in Machinery and Transport (SITC 7). In a cross-country comparison export growth to most of the EU-15 countries also reflects a higher share at the intensive margin.

At the aggregated level, exports to all the EU-countries after 1995 increased as a result of the establishment of a free trade area. It is evident that the largest part of this increase came from an intensification of already existing flows. The intensification of existing export is considered to be greater when it comes to already explored markets where the product coverage is relatively high.

The increase at the intensive margin mainly applies to Manufactured Goods (SITC 5-8) at a decomposed product level. This sector has historically been the primary focus for Polish export and the area which benefited greatly from liberalized trade already at the beginning of the integration process. Primary goods have increased at the extensive margin in the majority of the sectors, which suggests that there has been room for further diversification.

The decreased threshold levels for Polish exporting firms, as a result of the integration, could initially enable additional firms to enter the market. However, increased export revenues within an expanding sector make it harder for low-productive firms to survive the competition. This shows that the extensive margin will decrease on behalf of the intensive margin when there in the long run will mainly be room for already established firms.

The empirical result shows that there is a clear relationship between the intensive margin and the aggregated increase in export. Although, it is evident that the first step in increasing export at the intensive margin is to exploit the market and diversify flows. When a diversification has been successful, flows start to intensify and this is when aggregated export

seems to reach its peak. When the trade links develop there will become fewer opportunities to increase the extensive margin and this automatically pushes growth in exports towards intensifying already existing flows.

It is not necessary true that intensification in itself will result in high export growth. As it seems there will be a point where export growth slows down. An example from the disaggregated estimations in the cross-sectional section is Miscellaneous Manufactured articles (SITC 8) which despite high intensification shows moderate growth in exports. This is also applicable in the cross-country study regarding flows to Germany which also shows very high levels of intensification but relatively low levels of export growth. What this suggests is that high level of product coverage, high aggregated export and high share of intensification in export growth are not enough to reach the highest levels of export growth.

Countries and product sectors with the highest aggregated export growth also shows the most significant shifts away from further diversification. However, this apparently does not mean it is actually necessary to reach high flows at the intensive margin. According to this higher aggregation comes from flows at the intensive margin which appears in circumstances where trade not already is fully developed. Examples are found in the cross-country observations in the case of Portugal, Spain and Sweden and in the cross-sectional observations in the case of Machinery and Transport (SITC 7).

To conclude, there is evidence that the trade creating effect mainly consists of increasing flows at the intensive margin. This implies the importance of intensified and deepened export. Furthermore there is of great importance that the successful intensification is preceded by a recent diversification as a catalyser in order to reach higher levels of export growth.

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Appendix 1

Definition of “product coverage”:

$$\frac{\sum(X_i^k(02) > 0 | X_i^k(01) = 0) + \sum(X_i^k(02) > 0 | X_i^k(01) > 0) | X_i^k(02) > X_i^k(01) + \sum(X_i^k(02) > 0 | X_i^k(03) < X_i^k(05)) /$$

Total potential 100% export coverage

Country	Polish Penetration 100K-lvl (in %)	Market Penetration 1995 100K-lvl (in %)	Polish Penetration 2007 100K-lvl (in %)	Market Penetration 2007 1K-lvl (in %)	Polish Penetration 1995 1K-lvl (in %)	Market Penetration 2007 1K-lvl (in %)
Austria	13.35		19.03		26.90	40.64
Belgium	14.92		26.13		27.80	45.97
Denmark	15.59		25.46		27.54	42.81
Finland	9.33		16.87		20.99	32.84
France	22.52		34.54		36.36	52.91
Germany	51.01		53.99		68.82	67.64
Greece	2.72		8.59		9.52	27.44
Ireland	3.71		7.99		9.46	20.73
Italy	21.09		31.92		34.89	49.49
Luxembourg	0.00		2.62		0.06	7.70
Netherlands	23.48		27.96		41.25	43.83
Portugal	1.69		6.29		5.21	16.39
Spain	9.55		22.40		21.12	39.01
Sweden	21.18		27.16		38.37	41.31
U.K	21.53		31.66		34.60	48.18
Total	15.45		23.10		26.86	38.46

Source: Own calculations based on OECD data

Commodity Sector SITC:	Polish Penetration 1995 100K-lvl (in %)	Market Penetration 1995 100K-lvl (in %)	Polish Penetration 2007 100K-lvl (in %)	Market Penetration 2007 100K-lvl (in %)	Polish Penetration 1995 1K-lvl (in %)	Market Penetration 2007 1K-lvl (in %)
0:Food. and live animals	9.14		22.51		15.46	37.20
1:Beverages and tobacco	8.18		26.67		15.45	37.27
2: Crude materials. inedible. no fuels	8.96		11.22		16.14	18.98
3:Mineral fuels. lubricants etc	14.02		12.48		18.29	15.90
4:Animal and vegetable oils. etc	1.63		4.59		3.70	11.56
5:Chemicals and related products	10.23		16.88		17.97	31.38
6:Manufactured goods	17.10		25.05		30.09	42.01
7:Machinery and transport equip.	19.63		28.90		33.26	44.08
8:Miscellaneous manufactured art.	22.51		27.91		39.91	48.84
9:Commodities and transactions.n.e.s.	12.38		17.14		21.90	21.90
All Sectors Average	15.45		23.10		26.86	38.46

Source: Own calculations based on OECD data

Appendix 2

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Total	15923033645	15416006369	1602897281	18017740612	1863603579	2143504657	2375373991	26586125018	35342912939	4338968674	47737220915	6233931553	80425933169
0	1144222620	1116104466	1118017166	1157831596	1170005406	1148678746	1324900542	1445307183	2108903080	2802417138	3695652543	4611548644	6142282816
00: Live animals other	173956822	177227477	161532901	159885618	136087338	101273719	96461735	100878471	137528170	1850562218	224560748	159353824	159353824
01: Meat and meat	157336002	162080009	142494698	159976425	154770151	161693621	191460133	210293951	379840838	479158022	775975247	107074666	1528111782
02: Dairy products and	37005242	43959407	54785722	33077349	41216618	31740983	68987891	71807890	112478133	328576533	572337852.1	617628688.6	843080972.1
03: Fish, crustaceans,	178232744	134165019	118290000	155890308	183156414	153281451	168440656	15823986	220186894	225215350	334626397.1	532994042.3	695341524.5
04: Cereals and cereal	7860982	6652032	4238096	555047	11752576	13637589	22797865	53433577	67274403	121047187	286892113.9	347992417	467551332.9
05: Vegetables and fruits	488479907	459528916	492929712	528811550	522653407	534796613	587689750	628118039	898849308	85934198	927259061.6	1144955900	158284838
06: Sugar, sugar	47752959	63256369	65811801	44059407	38076771	33129115	39481864	54928907	61432208	165704632	148741857.7	106609018.4	14787211.8
07: Coffee, tea, cocoa,	9364707	16612950	15895694	21912550	28958954	56742915	61150119	63242941	90960312	143260335	156995753.5	219133392.3	275415441.2
08: Feedstuff for animals	38417008	47734730	56911571	46563397	47166320	40006495	72194951	78986075	89566152	102784180	126018780.9	128655502.5	137898073.7
09: Miscellaneous edible	4797387	3525383	3104311	2368860	5326965	10361306	13690546	27334488	50461967	125253933	175659257.8	218102694.6	305050387
CONFIDENTIAL TRADE	..	..	..	..	..	..	..	..	..	..	..	..	..
1	11235298	10626908	13629253	14801564	16533755	25481218	16906589	22493562	37966071	118534350	147912543.3	250386608	52123275.6
11: Beverages	8214383	9169786	11763041	13861430	15500995	21918939	15971744	21028894	33848391	44040430	58247272.17	94235689.37	116433010.1
12: Tobacco and tobacco	3020915	1458122	1857142	1133408	1026365	3507788	923202	1464678	4115418	74462829	89866271.15	156150993.6	404799747.6
2	810963679	67502770	632642941	619971839	593771039	662761912	636402775	71696088	1056186774	1220095599	1125886281	1549273374	2009087347
21: Hides, skins and	15884972	16629447	24379687	24877796	22967332	21153627	29821371	36749689	40799015	54297175	60402344.6	98224766.89	109969785.1
22: Oil seeds and	65366036	16283001	1917234	15245611	11579918	6694284	24823325	5529769	3800527	50172484	4236435.19	52750376.3	186132489.5
23: Crude rubber	52928815	4932741	38916105	36726450	28357741	35549771	35516640	3682461	49740027	64891837	90200297.78	97701224.26	130789184.5
24: Cork and wood	293160887	21957493	231513636	236873716	233037170	226708994	184880553	218234077	321029937	308183986	306515082.3	365742446.5	469010501.9
25: Pulp and waste paper	30354259	27539081	28052157	19227576	16060541	22306178	15675594	14320017	22149898	27384170	39912897.15	43448874.4	4797807.66
26: Textiles fibres and	46520930	29374376	34708621	31739903	27284232	31129530	28451629	3177961	38931612	63537093	57902280.19	60189912.64	66392993.2
27: Crude fertilizers other	129461483	104274151	78265462	55465898	45882889	52214922	40200626	48875679	63034711	39658610	27973102.32	43190161.07	51723636.75
28: Metalliferous ores	92124216	66109161	106806590	104855359	118736514	117674377	189903713	225838712	361551809	401171104	340647790.8	57768812.8	709729324.9
29: Crude animal and	76163424	81671351	83199557	92572848	88334571	88451078	87252460	98139964	154124896	174738900	180796070.6	20939899.5	249891533.2
CONFIDENTIAL TRADE	9845755	6426130	5103176	1873318	963484	391375	375382	5120277	312245	..	..	..	..
3	131674249	1087482633	1048094246	1142282273	951791377	1093300290	1388890036	139086646	1484755238	194929088	2304422313	2432932476	2364523533
32: Coal, coke and	102200893	934766842	898872003	984953832	787100761	864684470	108534840	104746690	1113317889	1476824874	161229433	148372778	1428015400
33: Petroleum, petroleum	119992198	85817290	86705227	80646843	82563265	199465072	261791860	281705619	21990681	305150296	645517178.5	858193208.5	921045925.8
34: Gas, natural and	450980	81218	2288	23542	379425	5145015	2146876	631903	74853	667347	640392.15	623337.55	3197290.5
35: Electric current	16665460	66817283	61251709	75962989	81746980	23095733	38682520	61032234	148524560	101542275	47969810.04	90388652.49	1226915.97
CONFIDENTIAL TRADE	7639218	..	..	..	..	..	..	..	..	..	..	..	..
4	15169942	15019041	13791384	15062776	17429029	6787304	4771014	3941626	3414210	18886612	79667067.96	152323546.6	204430963.9
41: Animal oils and fats	886276	322335	630386	452915	365569	28890	63104	175549	270323	603970	1824461.89	2355864.4	5927368.17
42: Fixed vegetable oils	1115034	1233503	397959	855381	6516301	1524688	709728	25840	110649	15714849	75579393.61	145661978.1	192601404.4
43: Processed Animal and	13168632	13322340	12763039	13751117	10545027	5194390	3998830	3734081	3003038	2307160	2263212.76	4105704.1	6442191.37
CONFIDENTIAL TRADE	..	140963	..	3363	2132	39336	1382	6156	..	..	..	..	..

The numbers in Appendix 2 are collected from the OECD database rev.3 on 2 digit level. All numbers are presented in USD. The numbers presented in % refers to the concerned SITC-sections share of total Polish exports to the EU-15 in 1995, 2003 and 2007.

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Total	1592333645	1602897281	18017740612	18636023579	21436047657	23753773991	26596129018	30342912939	4389568674	47737220915	62339381353	80429433169	4.77%	
5	909 67 631	839 30 371	8104 7 2912	8857 08 325	1018 33 475	9666 59 283	10815 2 4071	14857 90 142	17086 67 831	20212 67 989	28817 59 152	383 38 50 387	4.77%	
51. Organic chemicals	257 87 014	127 94 844	198 65 025	148 65 855	167 02 504	170 9 964	121 80 998	237 38 147	2019 49 875	236 67 196	230 71 444	53 96 67 94	0.67%	
52. Inorganic chemicals	181 53 801	44 73 868	208 55 021	169 33 169	137 41 820	148 83 107	130 74 805	128 22 098	2019 49 875	236 67 196	230 71 444	53 96 67 94	0.36%	
53. Dyeing, tanning and	24 09 218	21 70 430	23 41 726	28 76 323	28 80 407	32 43 058	47 14 367	51 91 641	52 9 209	58 86 729	37 70 822	101 25 551	0.13%	
54. Medicinal and	14 47 132	22 65 482	20 12 586	24 62 434	18 81 389	18 46 931	21 66 046	26 32 305	52 74 151	79 76 504	31 20 974	37 68 453	0.47%	
55. Essential oils for	25 01 467	30 47 470	28 88 412	40 51 565	50 32 349	16 20 748	18 68 011	28 29 016	33 33 263	40 04 361	11 91 775	76 88 771	0.98%	
56. Fertilizers other than	21 33 425	13 42 971	20 65 151	15 82 037	21 65 281	16 20 748	18 68 011	28 29 016	22 67 652	27 79 447	24 48 917	32 80 611	0.41%	
57. Plastics in primary	13 04 627	10 51 808	11 770 409	12 21 406	23 60 199	20 63 1 895	20 33 454	25 15 720	25 86 898	34 37 604	31 68 163	79 44 274	0.99%	
58. Plastics in non-	1 79 724	23 55 086	27 61 380	32 19 181	44 32 493	63 71 587	77 89 585	11 68 210	16 67 510	21 09 157	8 31 815	44 00 425	0.55%	
59. Chemical materials	39 24 071	41 48 278	40 87 434	44 53 746	39 31 185	39 06 817	44 86 522	57 42 145	10 02 372	8 729 06 15	11 33 881	17 45 820	0.22%	
CONFIDENTIAL TRADE	57 11 112	78 61 678	90 5 1022	108 49 773	78 12 314	64 16 517	13 26 11	29 94 67	0.00%	..	..	..	..
6	47 01 544 121	40 98 44 380	42 66 02 960	48 04 9 128 5	47 23 94 359	52 97 36 589	56 39 74 977	62 00 43 119	80 04 14 308	87 48 17 143	93 84 43 756	123 49 87 188	19.25%	
61. Leather, leather	9 68 67 616	8 82 51 302	8 05 7 824	8 81 4 082	7 60 34 170	9 67 27 655	12 89 2 891	13 92 3 089	17 06 7 829	14 86 0 458	16 94 8 246	14 82 1 301	0.16%	
62. Rubber	14 53 37 308	16 42 80 53	17 28 9 035	22 52 16 319	28 07 98 063	32 10 08 144	40 1 88 946	52 22 2 481	78 61 41 144	92 56 67 588	11 30 4 651	13 36 4 82	2.29%	
63. Cork and wood	60 16 8 249	57 39 2 342	60 51 2 593	70 46 7 228	75 44 3 183	74 65 5 251	79 46 7 087	10 65 2 84 609	10 22 6 023	10 18 6 270	12 30 1 678	15 83 7 903	1.97%	
64. Paper and paper	27 68 97 026	24 59 74 712	27 40 2 481	31 54 1 697	37 41 97 049	46 4 0 589	60 98 2 232	77 12 31 310	98 32 1 856	86 59 14 764	87 79 2 386	101 72 47 972	1.62%	
65. Textile yarn and	33 02 3 410	34 04 4 542	37 99 3 067	49 29 6 976	48 34 3 62 37	54 37 41 133	58 89 0 468	62 80 5 421	73 81 3 249	84 17 2 216	84 75 4 226	9 25 9 162	1.37%	
66. Non metallic mineral	50 69 9 518	49 22 14 645	46 46 4 458	47 92 2 905	46 51 16 464	50 58 9 587	54 09 3 145	71 34 81 150	69 86 7 987	73 08 9 599	87 93 8 058	12 08 1 616	1.52%	
67. Iron and steel	80 19 67 585	54 98 6 960	61 44 7 063	70 70 6 581	54 80 2 90 30	71 40 6 783	69 13 5 986	57 98 1 534	81 57 0 525	11 48 7 692	12 15 9 849	17 16 14 431	3.01%	
68. Non-ferrous metals	11 28 17 632	7 96 21 336	8 81 9 29 196	8 41 9 29 196	75 42 0 48 2	82 30 6 565	70 60 4 198	78 07 5 262	10 20 1 50 57	11 74 9 14 82	12 51 6 44 6	24 30 6 833	3.01%	
69. Manufactures of	81 61 5 231	84 62 2 954	81 38 0 989	93 02 0 304	100 20 30 044	11 29 8 1 933	12 78 6 435	14 56 6 536	18 31 20 6 342	19 12 6 90 09	21 17 6 1 398	26 83 7 96 1	4.31%	
CONFIDENTIAL TRADE	7 58 17	21 57 4	11 34	0.00%	..	..	..	..	..	..	..	..	..
7	298 50 7 582	398 25 9 280	48 50 3 243	57 04 7 97 4	75 82 2 202 5	87 32 6 580	102 33 6 444	14 18 1 35 67 5	40.13%	18 17 48 01 92	18 58 9 4 966	25 50 7 85 187	33 48 1 51 58 9	41.63%
71. Power generating	19 78 1 764	22 22 67 849	21 920 54 8	23 51 2 28 9	36 73 2 36 6	38 75 3 94 6	41 51 10 927	67 27 34 9 50	7.83%	33 840 34 769	31 21 07 1 684	37 63 6 52 033	43 63 7 9 123	5.43%
72. Specialised	23 04 4 219	2 51 1 59 94	2 893 1 29 6	2 91 7 42 08 5	3 34 1 0 72 3	3 78 5 32 9	4 24 6 1 30 7	4 60 2 20 2 86	1.71%	7 111 6 520	8 65 1 15 96 9	9 61 7 4 691 3 2	12 59 97 1 23	1.57%
73. Metal working	4 23 1 127	5 65 6 90 44	5 480 3 97	7 94 3 3 22	7 51 4 84 94	9 33 8 6 136	11 50 1 5 245	14 70 9 6 522	0.42%	12 51 6 67 5	14 40 2 82 17 5	17 94 31 5 22	22 35 9 8 44 1	0.28%
74. Other industrial	2 86 5 4 384	3 38 2 5 26 6	3 61 11 0 26	4 42 3 87 7 99	4 97 6 89 1 63	5 91 0 6 29 2	7 27 1 0 47 3	8 48 1 6 90 7	3.02%	11 19 5 34 054	13 37 3 6 535	15 69 9 1 385	281 38 11 137	3.50%
75. Electric machines and	1 77 9 084	2 44 7 0 92	2 46 2 44 3	3 65 5 94 7	4 1 91 9 9 1	4 52 3 1 134	4 90 6 0 4 6	6 83 1 6 34	0.16%	10 21 9 5 5 6	12 74 3 8 6 1 8	13 34 0 7 24 9	46 4 97 9 6 6 3	0.58%
76. Telecommunication	1 50 14 5 151	2 14 2 9 7 5	4 46 2 8 30 9	6 29 0 4 1 350	6 52 7 9 5 0 4 5	9 120 9 4 3 3	9 120 9 4 3 3	11 58 9 4 1 33	4.24%	18 81 7 6 0 7 8	20 5 14 4 2 4	40 81 1 6 2 2 82	49 7 4 8 1 20 5	6.19%
77. Electrical machinery,	7 86 8 97 007	9 18 6 5 2 6 2	10 50 5 6 2 6 2	13 16 0 7 0 7 9	14 8 6 4 7 4 6 1	15 57 4 3 1 30	17 52 4 6 4 1 7	21 13 2 4 1 70 9	8.37%	3 86 7 0 3 6 3 1	4 22 6 1 9 7 8 0 8	5 0 6 1 4 10 0 8 5	7 77 9 3 2 4 4 9	9.05%
78. Road vehicles	10 80 31 9 32 9	12 74 0 8 4 9 1	14 57 9 4 3 0 7	17 27 8 1 4 6 6 3	19 04 6 5 9 6 80	24 71 8 1 6 5 8	26 26 0 9 8 2 2	29 6 2 2 8 2 8 2	12.72%	6 34 1 6 8 6 0 0 9	6 34 2 0 3 5 6 1 5	8 6 4 7 9 2 2 6 1 5	11 4 8 4 5 8 8 5 9 9	14.28%
79. Other transport	19 76 3 2 74 9	20 14 1 8 9 5 3	39 03 4 2 7	7 64 7 4 4 1	34 5 6 1 1 34	37 8 5 0 8 7 5	46 4 3 0 7 20 8	61 6 6 1 3 9 80	1.47%	7 0 2 1 7 3 8 0 8	3 74 7 6 5 4 8 4	6 2 7 7 2 1 0 6 1 3	61 8 2 8 5 9 30 3	0.77%
CONFIDENTIAL TRADE	5 6 8 6 3	..	4 2 3 3 5 6 0	14 2 8 2 5 1	7 9 2 9 5	2 9 5 7 5 0	3 0 7 9 6 6 4	6 9 8 6 3 7 8	0.02%	..	..	..	..	..
8	39 10 0 8 0 8 0 9	40 5 9 7 2 3 2	44 2 5 9 7 8 9 8	4 5 3 9 6 7 4 9 1 7	4 5 2 2 4 5 9 9 4	4 8 8 2 0 8 3 7 9	5 3 7 2 9 9 7 6 5	6 2 5 8 5 4 8 0 3	19.31%	9 9 5 7 4 6 1 3 7 5	6 7 7 8 4 7 4 1 2	7 8 7 30 4 8 9 8 5	9 8 7 2 7 5 8 8 5	12.28%
81. Prefabricated	10 54 0 5 6 0	11 98 7 4 4 0 9	13 84 7 3 4 1	16 54 0 5 4 8	19 36 4 2 0 0 5	21 5 4 7 8 0 1 5	22 81 1 9 3 5 2	28 20 6 4 5 7 6	1.03%	3 5 7 5 3 8 5 1 7	3 9 5 6 7 7 6 5 9	4 9 0 7 7 3 1 4 9	5 6 4 6 7 4 9 3 3	0.70%
82. Furniture and parts	11 31 8 0 0 3 9 4	12 28 9 7 3 5 4 7	12 7 6 8 1 0 8 30	14 8 2 7 6 8 7 50	16 22 2 34 9 9 6	17 8 9 1 0 9 9 5	20 0 9 6 0 4 2 2	23 6 2 9 4 5 4 11	9.17%	3 4 2 9 5 6 1 7 3	3 5 5 5 1 7 6 7 9	4 0 6 0 0 2 7 5 4 1	4 9 6 9 3 6 2 1 7 4	6.18%
83. Travel goods,	2 4 7 8 6 2 8	2 3 3 8 4 5 5	1 9 20 9 2 5 3	1 6 7 1 5 2 44	1 7 6 0 8 1 8	1 7 3 5 0 0 8 4	1 2 3 8 6 7 3 9	9 8 9 4 4 4 8	0.04%	1 2 8 9 6 8 9	1 3 2 3 2 0 2 5 8	1 4 2 2 8 9 8 2 0 8	21 04 0 4 2 7 1	0.03%
84. Articles of apparel &	21 27 0 0 3 3 50	17 29 8 6 0 710	18 20 2 2 5 8 8 6	19 30 0 9 0 9 0 5	19 30 6 9 0 5 6	17 13 3 8 6 7 4	16 37 0 8 3 3 3	18 8 6 0 8 9 7 4	4.77%	14 1 5 5 3 0 9 1 3	13 7 3 6 5 9 7 8 5	11 33 14 4 1 1 2 7	14 0 0 4 7 8 7 67	1.74%
85. Footwear	1 7 2 1 7 3 1 44	2 0 9 5 9 0 0 9	1 5 4 6 1 9 2 1	1 6 8 9 9 0 6 5	1 4 4 5 5 9 7 4	1 4 5 7 3 9 6 8	1 3 5 7 7 7 5 9 1	2 3 0 5 5 9 9 4	0.41%	1 4 5 1 7 7 9 8 1	1 3 7 3 6 7 4 5 5	1 4 3 5 5 1 0 1 8	1 8 6 0 4 5 4 3 3	0.23%
87. Professional and	6 0 2 0 5 6 5 7	6 3 7 0 5 9 0 9	6 7 7 0 8 8 5 3	8 7 1 7 8 7 2	10 7 4 2 3 14	12 0 5 6 9 5 9	13 9 6 7 8 0 3	15 2 6 5 6 6 7 1	0.65%	3 5 3 2 2 8 6 2 3	3 2 4 4 3 0 3 5 7 3	4 3 7 3 7 6 2 9 4	5 5 6 6 0 3 6 4 2	0.69%
88. Photo apparatus,	6 7 7 9 0 8 8	11 0 2 2 9 8 4	14 5 9 1 3 8 6	17 0 9 8 6 5 5	14 8 3 2 7 4 1	10 1 7 6 1 00	13 5 7 6 3 6 7	14 3 8 0 9 8 2	0.07%	8 6 3 8 3 3 8 8	10 1 7 7 3 1 5 8 7	8 3 3 4 8 7 1 7 14	9 0 0 8 1 2 11 8 7	0.11%
89. Miscellaneous	2 8 1 8 7 0 6 8 8	3 1 7 3 1 9 9 1 3	3 4 6 3 2 7 1 9	4 0 3 6 5 3 1 5	4 8 0 2 5 4 0 1	5 2 2 9 8 9 3 8	5 7 6 7 2 6 0 9 2	7 5 6 6 7 9 6 3	0.03%	10 6 5 6 3 1 14 3	11 1 6 4 3 0 8 2 6	1 5 10 5 9 3 5 9 1	20 8 50 4 9 3 9 8	2.59%
CONFIDENTIAL TRADE	3 2 6 80	..	1 5 1 9 2 8	2 2 4 2	1 7 0 5 3	6 6 2 5 8	..	3 6 3 2 1	0.00%	..	..	..	..	..
9	14 3 2 9 1 5 5 2	10 8 7 6 6 5 3 6	2 5 1 8 8 3 2 3 3	1 2 3 2 0 0 6 4 6	1 6 0 7 6 1 0 1 2	1 2 4 2 0 6 8 3 8	1 9 10 20 2 1 9	1 3 7 2 3 9 2 2 6	0.56%	11 3 2 9 1 2 7	3 6 3 6 0 3 7 3 4 3	4 7 30 3 7 1 9 3	6 5 1 3 8 2 6 2 7	8.10%
91. Postal packages not	10 7 3 2 0 2	13 4 3 9 0 8	14 2 2 9 0 4	19 6 2 7 7	28 1 3 7 13	4 2 6 1 7 3 1	4 4 9 2 3 7 3	5 7 6 8 6 4 3	0.03%	..	..	..	..	..
93. Special transactions	1 3 2 8 2 8 0 5	9 9 5 5 0 7 9 8	2 3 9 8 4 1 5 8	11 6 3 3 0 6 6	1 5 3 3 5 4 7 6 6	11 7 3 1 5 6 54	18 4 7 1 9 3 7	1 2 9 2 7 5 3 2	0.52%	..	..	..	..	..
96. Coin (other than gold	11 2 4 1 8	10 6 3 3 0	3 5 1 4 7	2 3 5 4 3	..	..	..	..	0.00%	21 0 5	..	..	..	..
97. Gold, non-monetary	9 21 4 3 8 2	7 7 6 6 5 00	10 41 6 10 1	4 8 6 9 9 5 4	4 4 40 1 2 3	2 5 9 3 7 3 7	1 2 1 9 1 8 9	20 4 5 2 6 6	0.01%	11 3 0 8 0 2 2	2 8 8 3 7 4 1 2 6	2 40 8 50 5 9		