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Identification of the Competitive Advantages of New Member States of the European Union on the European Market by Intensity of Production Factors Endowment

Abstract

The aim of the paper is to present results of the economic analysis related to competitive advantage of Poland as the New Member of the EU in the European Internal Market in comparison to other Central and Eastern European New Members of the EU: Czech Republic, Hungary, Slovakia, Slovenia, Lithuania, Latvia and Estonia. Major success following accession to the European Union expressed as the achievement of an indicator level of RCA>1 for technology–intensive goods based on implemented product and process innovations, which is the result of both incurred investment outlay, including companies with the participation of foreign capital, and the awarding to Poland of structural funds from the European Union intended for the improvement of the competitiveness and innovativeness of companies.

1. Competitive Advantage in International Trade

In international trade theory, attention is called to the need to differentiate between the concept of *competitiveness* and that of *comparative benefits* (Person, Salenbier 1983; Wysokińska 2001).

Comparative benefits are defined as the capacity of an economy to produce specific goods more efficiently than is the case in other economies, which is expressed as the direction of a country's import and export specialization. Such capacity is defined by the relative equipping in production means and technology, the structure of production costs of goods in various countries, the demand structure, the advantages of scale, the potential for goods diversification, etc.

Competitive benefits, for their part, stem from the relative strength of a defined economy or industry with respect to foreign competitors as suppliers of defined products on the domestic and international market.

Competitiveness is determined by both macro- and micro-factors. The former include the government's economic, industrial, trade, monetary, fiscal, and tax policies, the functioning of capital markets, social and economic surroundings, the system of legal regulations, the educational system, and work ethic. Micro–economic factors include company production capacity, availability of means of production, company management, marketing strategy, and component elements such as market mix, production costs, advantages of scale, innovation, and labor relations.

Any evaluation of macro–economic competitiveness is tied with research into the position of the given national economy or industry on international markets measured as the market share, for example.

Changes (growth or falls) in a country's or industry's competitive position on the international market are generally linked with achieving benefits or suffering losses as well as increasing dependence of the given country as a result of changes in the distribution of forces to date and sensitivity to the situation as it develops in the international surroundings. Most approaches to competitiveness are coupled with the conducting of analyses of export competitiveness indicators.

Competitiveness is defined as the ability to withstand international competition and maintain a high level of domestic demand without worsening the current account balance. On the international market it is expressed as acceptance of the products of a given country and growth in its share on export

markets (Report on the Competitiveness… 1983, p. 56). Country competitiveness is also dependent on the capacity to maintain balance between imports and national production on the domestic market ("European Economy" 1985, p. 11).

The presented definitions stress the short–term dimension of competitiveness, accepting current account balance changes and an *ex post* analysis of market shares. These definitions lack notice of the broader dimension of competitiveness, which speaks of the efficient use of resources inherent in means of production and of directions of structural change in the economy as well as management efficiency. A successive definition calls attention to this aspect, but takes it into account in a very narrow meaning – i.e. underscoring that for a country as such to be competitive it must utilize domestic resources, especially the domestic labor force (Scott, Lodge 1989, pp.14–15).

A second, broader, dynamic, albeit difficult to measure, approach to the question of competitiveness makes reference to what is known as a country's ability to compete. It encompasses the following factors: natural resources, economic infrastructure, capital, technologies, human capital, the efficient allocation of resources capable of generating innovation, the capacity to adapt to changing domestic and international conditions, and the ability to influence the international economic environment.

According to the OECD definition, competitiveness means the capacity of companies, industries, regions, nations, and supra–national groups to withstand international competition as well as to guaranty a relatively high rate of return on production means and a relatively high level of employment on a permanent basis. In the long term, increased competitiveness leads to growth in global productivity. The growth of productivity is especially important in improving competitiveness on markets open to international competition in order to bring about long–term improvement in the quality of life and the creation of new jobs. Ultimately, growth in productivity leads to better utilization of competitive advantage that will no longer be restricted to the presence of natural resources in the economy and world competition ("Industrial Structure Statistics" 1996, pp. 17–19). In a later definition, the OECD stresses that competitiveness is the ability to generate relatively high revenues from production factors as well as high employment on a permanent basis as a result of facing international competition ("Globalization and Competitiveness: Relevant…" 1996).

The definition proposed by Laura d'Andrea Tysson deserves special attention due to its synthetic approach. According to her, a country's competitiveness means its ability to produce goods and services that prove themselves on the international market, while its citizens achieve growth and

permanent improvement in living standards (Tyson 1992; Krugman 1996, pp.3–102).

As can be seen in the above–presented approaches, competitiveness is a multi–dimensional and variable concept, especially in this age of growing economic globalization. This applies to both the capacity to occupy a high position on an increasingly demanding international market, which is mainly tied to meeting competitive pressure in both costs and prices, and in meeting growing quality requirements through mandatory standards, certificates, and international standards, for the entities active on it.

Conditions for improving international competitiveness also stem from:

- The creation of a fostering business environment facilitating active operations by companies on the international market by central and regional administration institutions—legal regulations that are favorable for companies, limiting administrative barriers, especially for small and medium enterprises, growth in outlay on education and technology, guarantying protection of intellectual property, and the rapid commercialization of new technologies as well as scientific research results into the economy.
- Guarantying outlay for the development of human resources, the quality of which is dependent on worker qualifications, motivation, labor relations, and the quality of life of workers.
- Internationalization of companies—actions aimed at growth in an ability to operate on international markets through the export of goods and services as well as the undertaking of production in other countries and the establishing divisions of parent companies there.
- Development of high–quality economic infrastructure, including mainly roads, rapid and comfortable public transit, including rail transportation in cities and between cities, cheap and quick telecommunication links, and large networks of quality hotels and restaurants, as well as schools, including offerings of English language courses.
- Activities on the part of financial institutions-mainly banks and insurance companies—fostering the development of entrepreneurship and improved innovativeness.
- High quality methods of company management and management culture.
- Growth in the role of business responsibility – co–responsibility for regional development, offers of collaboration with regional authorities, responsibility for employees, and an absence of corruption, which warps the allocation of resources and production means as well as dissuades major companies and investors from partnerships in the region.

- Guarantied access to natural resources.

The above–presented integrated approach to competitiveness and the factors that mold it are tied with the achievement of high productivity through production factors, mainly labor, capital, and technology, that form an opportunity for improving product and process innovativeness in companies[1].

2. The Impact of Foreign Direct Investments on Competitiveness through the Shaping of Comparative Advantage

Economic literature treats foreign direct investment as a key factor influencing the competitiveness of the economy, especially its changes over the long term aimed at improving competitiveness indicators and the country's competitive position in international trade. Observations of changes taking place in the structure of exports and the shaping of indicators depicting revealed comparative advantage (RCA) allow the defining of a country's level of economic development, depending on the share in that structure of merchandise groups based on raw materials or simple, low–skill labor, material capital making up the core of investment goods, or innovation, based on advanced technologies and a high share of human capital.[2]

T. Ozawa formulated a comprehensive theory presenting ties between economic development and the shaping of competitive advantage in foreign trade from a dynamic point of view as well as the impact of foreign direct investment on these processes.[3] Thus, he filled a gap that had existed to date in international economic theory that bore witness to a lack of dynamic approach to the mutual links among these phenomena.[4]

The basis for the formulation of this theory by T. Ozawa was M. Porter's concept (Porter 1990) that maintained that in spite of diversity, most economies can be defined with respect to their economic development phase by examining

[1] More on this topic may be found in (Wysokińska 1995; Wysokińska 2001; Wysokińska 2005).

[2] The set of definitions found in this section is derived from (Wysokińska 2001, pp. 34–48).

[3] This theory is described in detail in (Wysokińska 2001, pp. 41–61 and 142–155), inclusive of its verification as conducted by the author for Ireland, Spain, Portugal, and Greece, as well as for the countries of Central and Eastern Europe – Poland, the Czech Republic, Hungary, and Slovakia.

[4] J. Dunning called attention to this gap stating that it is a shortage in international economic and business literature of a dynamic approach to its role in economic development. After all, there are few systematic studies on the impact of transnational corporations on dynamic comparative advantage (Ozawa 1992, pp. 27–54).

the competitive advantage model and how it changes with time. Porter identified four basic development phases:

1. The factor–driven stage, where production factors such as labor and raw materials are primary.
2. The investment–driven stage.
3. The innovation–driven stage.
4. The wealth–driven stage (Ozawa 1992, pp. 545–546).

The first three phases are tied to the development of competitive advantage, complete with the production factors characteristic of it (tangible capital – labor – human capital – technology). Porter is of the view that on the evolutionary path of development, each country starts from a phase based on the utilization of simple work and tangible raw materials, producing goods that are labor–intensive and/or raw material intensive. They subsequently move towards growth in the share of capital–intensive goods, while on a higher phase of development they concentrate on the production of goods involving a high share of skilled labor and technology. The symptom of change in this whole process is the shift in the competitive advantage model from labor– and raw material–intensive goods characteristic of the first phase to capital–intensive goods (e.g. heavy chemical industry linked with phases of industrialization and the building of industrial infrastructure). The third stage is coupled with innovation and appears when a country is equipped in highly–skilled human capital and conducts active policies in the area of research and development. It is in this phase that competitive advantage in exports "shifts" to goods with a high level of innovativeness and modern technology. Porter also calls attention to the fact that most developing countries find themselves in the first stage of development and gain competitive advantage in labor– and raw material–intensive goods. Some are already in the second stage where the deciding role is played by investment in capital–intensive fields.

T. Ozawa, using M. Porter's theory as a basis, applies the assumption that economic growth and the transformation of the economy are tied to changes in the competitive advantage model (Ozawa 1992, p. 35).

T. Ozawa additionally introduces the foreign direct investment factor—both inflowing and outflowing-into M. Porter's theory. At the same time, he is of the view that both the model and directions of flow of foreign capital change in line with phases of the structural transformation of the economy. Thus, for the first stage (according to M. Porter's theory) involving production of labor– and raw material–intensive goods, it is the inward movement of foreign direct investment that is characteristic. In this case, foreign investors seek cheap sources of raw materials and labor costs that are lower than in their own country.

Passage to the stage based on investment is tied with the outward movement of investment from the developing country in question to countries with lower wages in labor-intensive industries or in raw-material-intensive industries (mining, timber, etc.).

A given country specializing in capital–intensive products in this phase of development will tend to attract foreign capital into fields tied with industries that are based on key investments in such industries as machine, electro-machine, transportation and automotive, chemical, as well as linked with construction and the development of economic infrastructure (the building of roads and highways). For its part, the switch to the successive development stage, where the decisive role is played by innovation and technology, results in the outflow of investments to capital–intensive fields in other countries (that are on a lower development stage). At the same time there is an inflow in the given country to areas requiring highly–skilled workers, innovation, and highly advanced technologies. This is coupled with greater requirements with respect to the educational system in that country, which should meet them in order to create conditions for passage to a higher development level.

T. Ozawa formulates the following premise in connection with economic development phases: The higher the per capita GNP, the higher the outlay in per capita physical and human capital in terms of raw materials, and subsequently the higher the outlay of human capital with respect to physical capital (Ozawa 1992, p. 16). Economic development stages are related to the evolution of the comparative advantage model by "shifting" the advantage from less technologically advanced low productivity fields to more diversified products with greater input of human capital and technology (Wysokińska 2001, pp. 34–48).

Changes in the Comparative Advantage Model in Exports from Poland and Other New Member States (Czech Republic, Hungary, Slovakia, Slovenia, Lithuania, Latvia, and Estonia) to the Unified European Market over the 1995–2005 Decade: Analysis by Intensity of Utilization of Production Factors—Raw Materials, Labor, Capital, and Technology

Results of analyses of changes in the comparative advantage model in exports from Poland and the remaining New Member States, which entered into the European Union in 2004 (the Czech Republic, Hungary, Slovakia, Slovenia, Lithuania, Latvia, and Estonia), to the Unified European Market over the 1995–2005 decade (analysis by intensity of utilization of production factors such as raw materials, labor, capital, and technology) are presented in Table 2.

These results point to an overall positive direction of changes that occurred in the Polish comparative advantage model in foreign trade with the "Fifteen" over the investigated period (1995–2005). That direction involves:

- A clear worsening of the relative advantage indicator in the raw material–intensive group of goods, up to and including the total loss of this advantage (an indicator value of less than 1) in the year 2005.
- The maintaining of a relatively stable and high (over 1) level of the RCA indicator for the labor–intensive group of goods.
- A clear growth tendency in the RCA indicator for the capital–intensive group of goods that are mainly based on investment, including foreign direct investments, and the exceeding of a level of 1 as early as the year 2000, followed by a steady upward tendency (up to 1.30 in 2005).
- A certain improvement in the RCA indicator and its growth tendency over the whole of the investigated period, up to the achievement of a level of overt comparative advantage at a level of 1.24 in 2005, which is an indisputable success of Poland following accession to the European Union (compare with Table No. 1 and the graphs).

The following conclusions may be drawn from a comparison of the RCA indicators for Poland and the remaining New Member States of the European Union:

1. All New Member States of the fourth expansion of the European Union (2004) note a worsening of RCA indicators for raw material–intensive goods, where by the year 2005 indicators at a level of >1 characterized only the Baltic states—Lithuania, Latvia, and Estonia.
2. All of the examined New Member States had a relatively high level of RCA indicators for labor–intensive goods over the investigated period due to the continued differences in wage level between Western Europe and Central and Eastern Europe.

3. The greater than 1 level of the disclosed comparative advantage indicator for the group of goods based on investments with a relatively high share of capital–intensiveness was achieved during development by such countries as Slovakia, Slovenia, Poland, and the Czech Republic, which to a great extent was preconditioned by the inflow of foreign direct investment to those countries, but also growing outlay on domestic investment, especially following accession to the European Union.
4. A >1 level of the RCA indicator demonstrating a comparative advantage in the technology–based group of goods was only achieved by Slovenia, Poland, the Czech Republic, and Hungary over the final years of the examined decade (see Table 1 and the graphs).

In line with the M. Porter and T. Ozawa theory, there are three main stages observable in each country prior to reaching prosperity. They are:

1. A phase controlled by production factors such as labor and raw materials (the factor–driven stage).
2. An investment–controlled phase (investment–driven stage).
3. The innovation–controlled phase (innovation–driven stage).
4. The prosperous phase (wealth–driven stage).

All of these phases are tied with the evolution of a held – i.e. revealed-comparative advantage in exports, starting with goods involving raw materials and simple, cheap labor, followed by more advanced production factors such as tangible capital, human capital, as well as technology and technology-based innovation.

Foreign direct investments are of key importance in any acceleration of the economic development of a country. They play a very major role in the rapid "shifting" in a pro-development direction of the discussed model of competitive advantage. In the case of Poland and other European Union New Member States, this effect is univocal and noticeable.[5]

[5] Z. Wysokińskiej, Expert Report for the Department of Economic Development of the Ministry of the Economy, see also (Wysokińska 2001).

3. Analysis of the Comparative Advantage of Poland and Other New Member States (from the 2004 European Union Expansion) on the Unified European Market

Detailed measurement results of revealed comparative advantage by intensity of utilization of production factors by the remaining New Member States of the European Union from among the countries of Central and Eastern Europe whose accession took place in 2004 are presented in Table 1. The achievement of an indicator value of RCA>1 signifies the achievement of relative advantage in the given group of goods.

Table 1. Revealed Comparative Advantage Indicator (RCA) for Poland, the Czech Republic, Hungary, Slovenia, Lithuania, Latvia, and Estonia Achieved on a Unified European Market (the Countries of the "Fifteen") over the 1995–2005 Decade

SITC Goods Group Classification by Production Factor Application	Years			
a) Raw material–intensive goods				
	1995	**2000**	**2004**	**2005**
Poland	1.70	1.27	1.25	0.72
Czech Republic	1.06	0.73	0.58	0.56
Slovakia	1.13	1.05	0.92	0.58
Hungary	1.99	0.84	0.77	0.62
Slovenia	0.41	0.37	0.32	0.28
Estonia	2.56	1.99	1.65	1.02
Latvia	2.80	3.36	2.71	1.74
Lithuania	3.20	3.46	3.52	2.09
b) Labor–intensive goods				
	1995	**2000**	**2004**	**2005**
Poland	1.66	1.78	1.61	1.61
Czech Republic	1.50	1.55	1.35	1.36
Slovakia	1.33	1.31	1.22	1.20
Hungary	1.16	0.91	0.78	0.75
Slovenia	1.82	1.82	1.67	1.59
Estonia	1.56	1.49	1.87	1.71
Latvia	1.40	1.83	1.78	1.62
Lithuania	1.17	1.65	1.42	1.36

c) Capital–intensive goods				
	1995	**2000**	**2004**	**2005**
Poland	0.93	1.04	1.10	1.30
Czech Republic	1.04	1.29	1.17	1.26
Slovakia	1.35	1.78	1.78	1.78
Hungary	0.75	0.69	0.59	0.61
Slovenia	1.17	1.32	1.27	1.65
Estonia	0.61	0.48	0.54	0.68
Latvia	0.62	0.58	0.81	0.88
Lithuania	0.49	0.39	0.46	0.54
d) Technology–intensive easy to imitate goods				
	1995	**2000**	**2004**	**2005**
Poland	0.37	0.38	0.36	0.39
Czech Republic	0.51	0.45	0.75	0.69
Slovakia	0.66	0.46	0.47	0.65
Hungary	0.89	1.50	1.64	1.40
Slovenia	0.56	0.48	0.58	0.52
Estonia	0.75	1.40	1.02	0.95
Latvia	0.39	0.25	0.29	0.33
Lithuania	0.62	0.26	0.30	0.34
e) Technology–intensive difficult to imitate goods				
	1995	**2000**	**2004**	**2005**
Poland	0.63	0.84	0.96	1.24
Czech Republic	0.86	1.01	1.09	1.08
Slovakia	0.57	0.66	0.71	0.95
Hungary	0.70	1.06	1.18	1.17
Slovenia	0.84	0.94	1.03	1.27
Estonia	0.28	0.34	0.51	0.77
Latvia	0.45	0.26	0.32	0.49
Lithuania	0.46	0.49	0.56	0.65

Source: Z. Wysokińska, Expert Report for the Department of Economic Development of the Ministry of the Economy, own calculations based on Central Statistical Office (GUS) and Eurostat data.

The results of an analysis of indicators found in Table 1 are presented in Graphs *a*, *b*, *c*, and *d*, below.

Conclusions for Poland Drawn from the Analysis of RCA Indicators

As can be seen from the analyses of RCA indicators studied by intensity of utilization of production factors in Polish trade on the Unified European Market over the past ten years, the following changes have been noted:

- A systematic loss of comparative advantage for raw material–intensive goods.
- An initial growth in comparative advantage for labor–intensive goods over the nineteen–nineties, systematically falling to where the comparative advantage indicator worsens significantly for this group of goods on the European market after the year 2000.
- A clear increase in comparative advantage at the end of the nineteen-nineties for capital–intensive goods that are based on investment, including mainly companies with the participation of foreign capital.
- Major success following accession to the European Union expressed as the achievement of an indicator level of RCA > 1 for technology–intensive goods based on implemented product and process innovations, which is the result of both incurred investment outlay, including companies with the participation of foreign capital, and the awarding to Poland of structural funds from the European Union intended for the improvement of the competitiveness and innovativeness of companies (compare with graphs below).

Graphs *A*, *B*, *C*, and *D*. Revealed Comparative Advantage Indicator (RCA) in Polish, Czech, Slovakian, Slovenian, Hungarian, Lithuanian, Latvian, and Estonian Trading with Members States of the European Union (Fifteen) over the Years 1995–2005

a) Raw Material–Intensive Goods

Poland
Czech Republic
Slovakia
Hungary
Slovenia
Estonia
Latvia
Lithuania

b) Labor–Intensive Goods

Poland
Czech Republic
Slovakia
Hungary
Slovenia
Estonia
Latvia
Lithuania

c) Capital–Intensive Goods

Poland
Czech Republic
Slovakia
Hungary
Slovenia
Estonia
Latvia
Lithuania

d) Technology–Intensive Easy to Imitate Goods

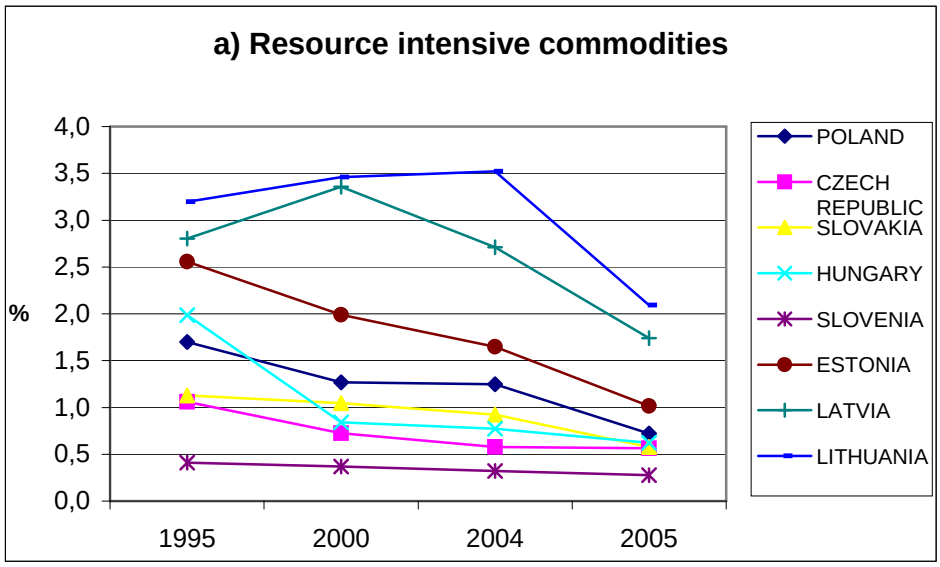
Poland
Czech Republic
Slovakia
Hungary
Slovenia
Estonia
Latvia
Lithuania

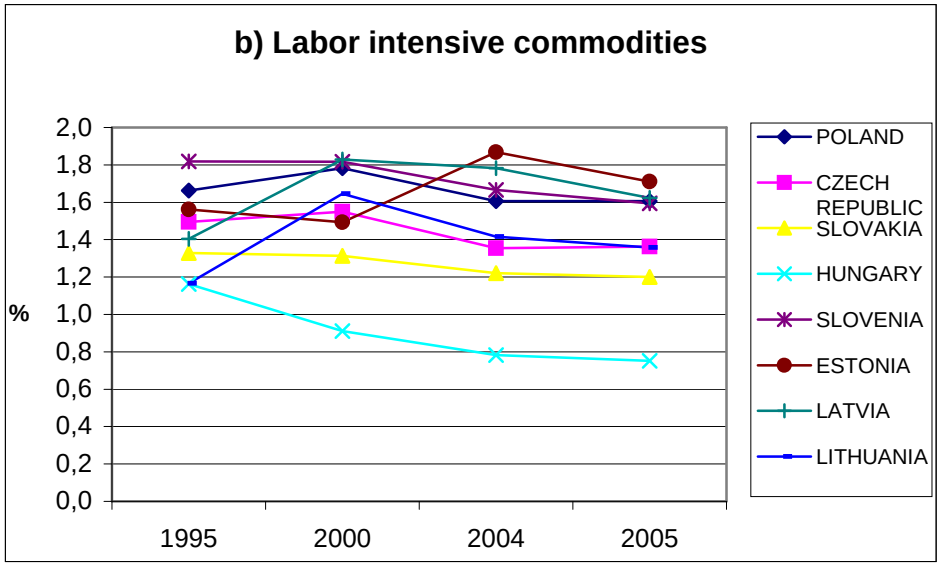
e) Technology–Intensive Difficult to Imitate Goods

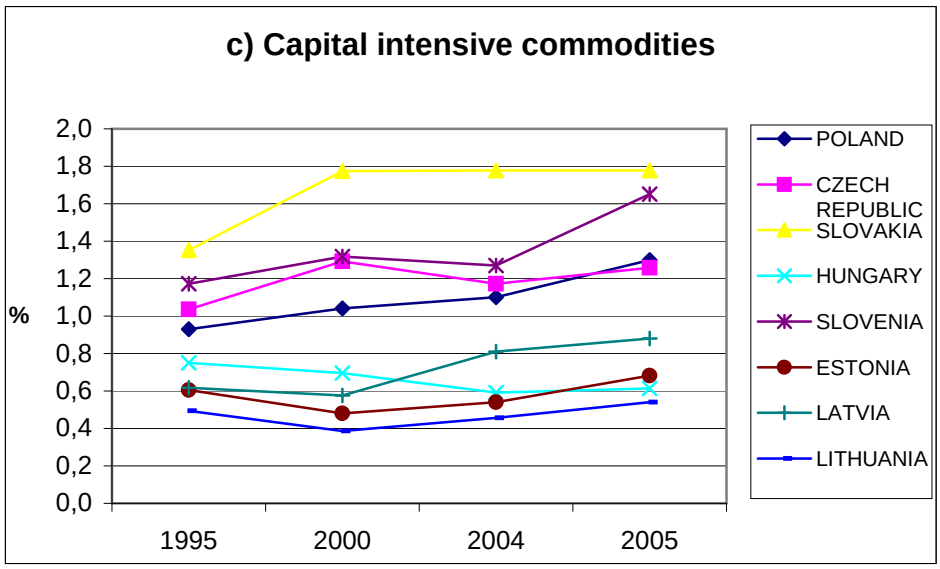
Poland
Czech Republic
Slovakia
Hungary
Slovenia
Estonia
Latvia
Lithuania

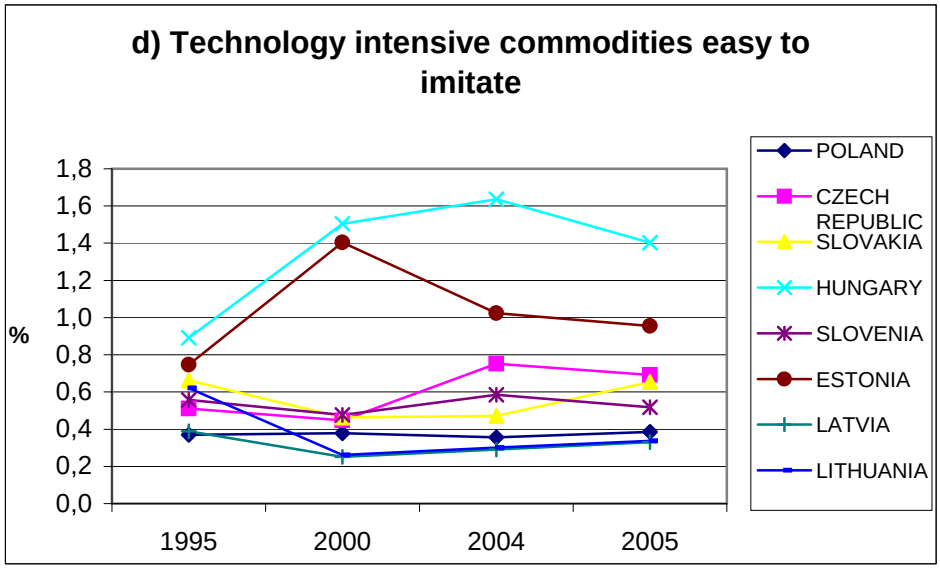
Source: Z. Wysokińska, own calculations based on Eurostat data.

GRAPHS:
Revealed Comparative advantage (RCA) index of 5 groups of products calculated by factors endowment in foreign trade of New Member States in the European Union/15/ Internal Market




b) Labor intensive commodities
%
2,0
1,8
1,6
1,4
1,2
1,0
0,8
0,6
0,4
0,2
0,0
1995
2000
2004
2005
POLAND
CZECH REPUBLIC
SLOVAKIA
HUNGARY
SLOVENIA
ESTONIA
LATVIA
LITHUANIA


c) Capital intensive commodities
%
2,0
1,8
1,6
1,4
1,2
1,0
0,8
0,6
0,4
0,2
0,0
1995
2000
2004
2005
POLAND
CZECH REPUBLIC
SLOVAKIA
HUNGARY
SLOVENIA
ESTONIA
LATVIA
LITHUANIA



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