Comparative Economic Research, Volume 21, Number 1, 2018
10.2478/cer–2018–0007

ELŻBIETA CZARNY*, MAŁGORZATA ŻMUDA**

Competitiveness as the Ability to Adjust: the EU–10 Exports Structure and Its Convergence to the German Pattern[1]

Abstract

Competitiveness of a nation is associated with a set of characteristics that enable structural adjustment to global technological trends, and as a consequence, a rise in the living standard of its citizens. For catching-up economies, GDP convergence towards the most developed economies, constituting their developmental goal, relies upon its ability to shift production and exports structure towards specialization based on knowledge and innovation. Thus, in this paper, competitiveness is evaluated through structural adjustments of exports, and for catching-up economies (the EU–10 states) it may be understood as the ability to close the structural gap to the most developed countries (here: the strongest EU member economy: Germany). We analyse the evolution of the EU–10 nations' exports specialization in the years 2000 and 2014, checking whether the convergence towards the German exports pattern can be observed, and which of the analysed economies shows the best ability to shift its exports structure towards high-tech specialization. We look additionally at exports structures in 2004 (the year of EU-accession of eight out of 10 countries in the sample) and in 2009 (world trade collapse during the economic crisis). The analysis is based on the Revealed Comparative Advantage (RCA) concept by Balassa (1965). We use the UN Trade Statistics data in the Standard International Trade Classification (SITC), Rev. 4. Commodity groups are classified following the methodology developed by Wysokińska (1997, p. 18).

* Professor, Warsaw School of Economics, e-mail: eczary@gmail.com
** Ph.D., Professor Cologne Business School, e-mail: m.zmuda@cbs.de

[1] This project is funded by National Science Centre, Poland (project: 2015/17/B/HS4/02075). This paper was presented at the 19th Annual European Trade Study Group (ETSG) Conference in Florence in September 2017. Following the conference requirements, the draft version of the paper has been made available online as Cologne Business School Working Paper 2017 No. 4 (Żmuda, Czarny, 2017).

***Keywords**: catching-up economy, exports specialization convergence, macro competitiveness, EU–10*

***JEL**: F14, F43, F63*

1. Introduction

Over the years, competitiveness has emerged as one of the most broadly discussed research areas at the edge of international business and economics. In the modern discourse competitiveness is associated with a set of self-enforcing characteristics of a country, which enable structural adjustment to global technological trends, and as a consequence, lead to a rise in the living standard of its citizens (Lonska & Boronenko 2015; Reinert 1995, pp. 23–24). For catching-up economies, GDP convergence towards the most developed economies, constituting their developmental goal, relies upon the ability to shift production and exports structure towards specialization based on knowledge and innovation (Lollar, Beheshti, & Whitlow 2010; Peretto 1990). Thus, in this paper, competitiveness is evaluated through structural adjustments of exports and as a relative, qualitative category relies on the specification of benchmark indicators together with a set of characteristics of a "competitive economy" as a pattern. In this sense, for catching-up economies (in this paper: the EU–10 states, further named as well "the sample" or "NMS–10"), competitiveness may be understood as the ability to close the structural gap to the most developed countries (here: the strongest EU member economy: Germany). We analyse the evolution of the EU–10 states exports specialization in the years 2000 and 2014, checking whether the convergence towards the German exports pattern can be observed, and which of the analysed catching-up economies shows the best ability to shift their trade structure towards high-tech specialization. We look additionally at exports structures in 2004 (the year of EU-accession of eight out of 10 countries in the sample) and in 2009 (world trade collapse during the economic crisis).

The analysis is based on the concept of Revealed Comparative Advantage (RCA) by Balassa (1965), and data stem from the UN Trade Statistics in the Standard International Trade Classification (SITC), Rev. 4. Classification of the commodity groups, compatible with the SITC (Rev. 3), follows methodology by Wysokińska (1997, p. 18). According to this classification, we group the commodities along the factor-intensities into resource-intensive, labour-intensive, capital-intensive, technology-intensive easy-to-imitate and technology-intensive difficult-to-imitate. Resource-intensive and labour-intensive goods have been labelled as less technologically advanced. The other three commodity groups have been clustered as tech-

nologically advanced (with the difficult-to-imitate goods being the most technologically advanced).

The paper is divided into eight sections. After an introduction, in the second section we discuss the concept of national competitiveness and its meaning in the context of developmental constraints of a catching-up economy. In the third section, the research methodology is explained. In sections four to seven, we analyse the exports structure evolution of the EU–10 countries and assess their relative ability to close the structural gap to the German economy in the years 2000–2014. The eighth section concludes the main findings.

2. Defining international competitiveness[2]

There is a general consensus among scholars that international competitiveness is an interdisciplinary category and as a multidimensional term, it should be analysed on three aggregation levels, namely micro (firm/product), mezzo (sector/cluster) and macro (whole economy) (Martin 2005). We can analyse each of these dimensions through a static (competitive position at a given moment) and a dynamic prism (ability to compete, understood as an ability to improve competitive position in an analysed period). Competitiveness should be assessed in relative terms, thus denoting how well a subject of analysis performs in relation to its peers within a defined area (Ezalea-Harrison 2005, p. 84). In this context, competitiveness can be understood as an ability to reach developmental goals (different at each aggregation level – for more see Żmuda 2017). A subject, showing better results than its peers in an attempt to achieve a defined goal, can be seen as more competitive.

At the micro-level, according to the theory of competitive advantage, the goal of a company is to achieve above-average returns in the international markets, through its ability to offer products that competitors find too costly to imitate (cost-leadership strategies) or impossible to duplicate (differentiation strategies) (Porter 1985).

Cumulated successes of single companies lead to the emergence of competitive industries/sectors (mezzo competitiveness). The ability to compete with foreign counterparts (Castellacci 2008) can be reflected in growing shares of domestic industries in the world exports (Cohen & Zysman, 1988), as well as through increasing levels of their technological advancements and productivity (Castellacci 2008).

Cumulative shifts in industrial productivity and long-term evolution of specialization patterns, reflected in the structural ability to adjust to the global tech-

[2] This section bases on the international competitiveness taxonomy presented in Żmuda (2017).

nological advancements, enable achieving the ultimate goal of a competitive economy (macro competitiveness): obtaining high and sustained living standards for its citizens (Porter 1990). In this view national competitiveness becomes a qualitative and dynamic phenomenon, understood as the ability to reach developmental goals (Reinert 1995, Cho & Moon 2008).

For the proper evaluation of competitiveness, a point of reference has to be chosen to enable meaningful performance benchmarking. Research shows that catching-up economies are contextually different from the developed countries and generally tend to have weaker institutions, as well as underdeveloped physical and technological infrastructure (Abramowitz 1986). The contextual characteristics of a catching-up economy affect the profitability of business conducted within its borders (relative to the developed economies), offering opportunities for above-average returns on invested capital. This encourages inflows of mobile factors of production, thus closing the technological gap, and stimulating the socio-economic convergence within the regions.

The notion of competitiveness of a catching-up economy, departing from the trade perspective, is thus understood in this paper in the context of growth-theory (Reinert 1995, pp. 23–24) as the ability to increase the level of national productivity and close the technological gap in an attempt to reach the levels of the most developed countries. This fact is reflected in the evolution of exports patterns towards high-tech specialization and in the closure of the gap towards the most developed countries. We follow this line of argumentation to define competitiveness as the ability of an economy to adjust exports structures to the changes in the global technology, and thus converging with the most developed partners.

3. Research method

The analysis has been based on a commonly accepted measure of exports specialization – Revealed Comparative Advantage (RCA) by Balassa (1965). It allows us to determine whether and to what extent the export share of the commodity group *j* in the exports of country *i* differs from those of the commodity group *j* in total global exports.

To calculate RCA we use the formula by Balassa (1965):

$$RCA = Eij/Eit \,/\, (Enj/Ent)$$

where: *E*: exports; *i*: country index; *n*: set of countries; *j*: commodity index; *t*: set of commodities.

When the RCA value exceeds 1, it proves a competitive advantage of the country *i* in the exports of commodity group *j*. Using RCA as a measurement of competitive advantage, we assume that the specialization in exports of goods from the high-tech groups, which are characterized by high technological intensity, is a determinant of the competitiveness of the national economy (similar to Bieńkowski et al. 2008, p. 21). In dynamic terms, the RCA can be used to show the evolution of exports towards specialization based on knowledge and innovation, we do so by comparing the RCA indexes from different years.

We use the UN Trade Statistics in the International Trade Classification (SITC), Rev. 3, classified according to Wysokińska (1997, p. 18). Following her exports classification system, the exported goods have been grouped along factor-intensities into: resource-intensive (food, live animals; inedible resources (except textile fibres); mineral fuels (except electric current); animal and vegetable oils; fertilisers), labour-intensive (textile fibres; manufactured goods classified by material (except rubber, steel and iron, and non-metallic products); miscellaneous manufactured articles (except scientific instruments and optical goods), capital-intensive (beverages and tobacco; electric current; dyeing, tanning, and colouring materials; essential oils and perfume materials; rubber products; steel and iron; non-metallic goods; road vehicles), technology-intensive easy-to-imitate (organic and inorganic chemicals; pharmaceuticals; plastics in non-primary forms; chemical materials and products (except explosive materials); office and automatic data-processing machines; telecommunications and sound-recording and reproducing apparatus) and technology-intensive difficult-to-imitate (explosive materials; plastics in primary forms; machinery and transport equipment (except office and automatic data-processing machines, telecommunications and sound-recording and reproducing apparatus, road vehicles); professional scientific and controlling instruments and apparatus; photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks). We label the resource-intensive and labour-intensive products as the least technologically advanced (in our paper they are also referred to as "less technologically advanced"). The other groups are being considered as technologically advanced, with the most advanced products being the technology-intensive difficult-to-imitate products.

The RCA in each of the analysed product groups has been measured in a dynamic perspective for the years 2000–2014 and benchmarked to the German pattern to prove the exports specialization convergence hypothesis. To control the research outcomes in the year of the EU-accession of 8 countries from the sample we additionally analyse the data for 2004. To analyse the effects of global trade collapse during the recent economic and financial crisis (Czarny & Śledziewska 2012, pp. 20–38), the data from 2009 serve as the foundation for our analysis.

Germany is set as a benchmark due to its superior position in the EU economy as a result of its stability and high level of development. We therefore expect

that its comparative advantages are concentrated on high-tech products. Furthermore, Germany has been the world's largest exporter for years, which confirms its strong competitive position globally.

4. Starting point of the analysis: year 2000

As expected, in 2000, which marks the beginning of the analysed period, Germany had a different specialization structure than the EU–10 group. At this moment (as in all the following analysed years) the highest German RCA was recorded by capital-intensive goods (RCA = 1,43 – see Figure 1). The second category, in which Germany had a strong comparative advantage, were technology-intensive difficult-to-imitate goods (RCA = 1,22). Thus, German advantages were concentrated in the exports of two out of three commodity groups at the highest level of technological advancement.

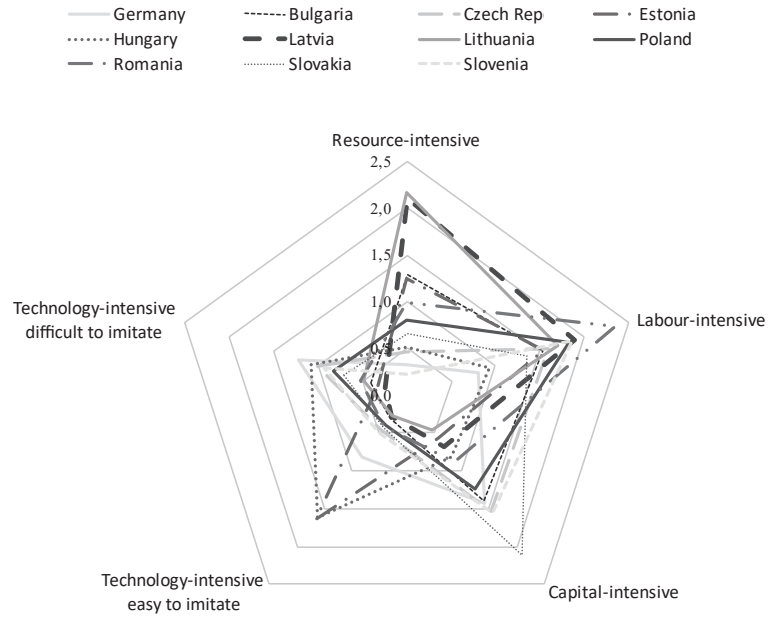

Figure 1. RCA of the EU–10 and Germany in 2000

Source: own analysis based on UN COMTRADE data, access date: January 2017.

Except for Hungary, all EU–10 countries had comparative advantages in the exports of labour-intensive goods (the highest: Romania with RCA = 2,35, the lowest: Slovakia with RCA = 1,35). Hence, as many as 90% of the NMS–10 showed

comparative advantage in the exports of labour-intensive goods, which (after Wysokińska 1997) were categorised as less technologically advanced. In addition, the Baltic States and Bulgaria recorded comparative advantage in the exports of resource-intensive goods (Figure 1).

As far as high-tech industries are concerned, Slovakia, Slovenia, the Czech Republic, Bulgaria, and Poland had comparative advantages in exporting capital-intensive goods, while Estonia and Hungary specialized in technology-intensive easy-to-imitate goods. Additionally, Hungary and the Czech Republic recorded comparative advantages in exporting technology-intensive difficult-to-imitate products (the Czech Republic's advantage was however marginal with RCA = 1,01). Thus, RCA > 1 in the exports of capital-intensive goods has been displayed by 5 out of 10 NMS countries. Amongst them, there were three states (Slovakia, Slovenia, and the Czech Republic), which had a greater advantage in this export category than Germany. Specialization in exports of technology-intensive easy–to-imitate goods has been represented by two countries (20% of EU–10 nations). It is worth noting that while the comparative advantages in exporting technology-intensive easy–to-imitate goods were quite high (RCA = 1,65 for Estonia and RCA = 1,63 for Hungary), specialization in exports of goods difficult-to-imitate was significantly lower. At the same time, Hungary was the only country in the EU–10 group, which did not specialize in exporting either less technologically advanced (labour- and resource-intensive) or capital-intensive goods. Instead, Hungary had a comparative advantage in both groups of technology-intensive goods (easy- and difficult-to-imitate).

Before their accession to the EU, all the NMS–10 group members could therefore be considered as catching-up economies, considerably less developed than Germany. However, among this group one can point out the leaders and the states that were lagging behind. The leaders' group was composed of Hungary, the Czech Republic, and Estonia. Lithuania, Latvia, and Romania lagged behind, recording comparative advantages in the exports of labour- and resource-intensive goods (relatively unprocessed, at a low level of technological advancement – usually the specialization domain of developing countries).

5. The accession year: 2004

In 2004, eight states from our sample became members of the EU. Thus, they fulfilled the conditions of accession and made the necessary institutional adjustments. It could be expected that changes in their economies should result in modernization and convergence to the German specialization pattern. The EU–10 technological development should be reflected in the improvement of their RCA structure, when compared to 2000.

The analysis shows, that both the Czech Republic and Hungary had increased their comparative advantages in exports of technology-intensive difficult-to-imitate products (see Figure 2). Slovenia had also gained advantage in the exports of this goods category. Moreover, Hungary had increased its comparative advantage in the exports of technology-intensive easy-to-imitate goods.

In the exports of capital-intensive goods, five countries which recorded comparative advantages in 2000 retained it, however Poland was the only one able to increase its comparative advantage in this product category. The Czech Republic and Slovenia had clearly moved to higher levels of exports specialization, as the Czech Republic has increased, and Slovenia had gained advantage in exporting technology-intensive easy-to-imitate goods. Moreover, Slovakia's development was also positive, as despite of a slight decrease in its RCA, it maintained the highest RCA in capital-intensive goods among all the members of the analysed group.

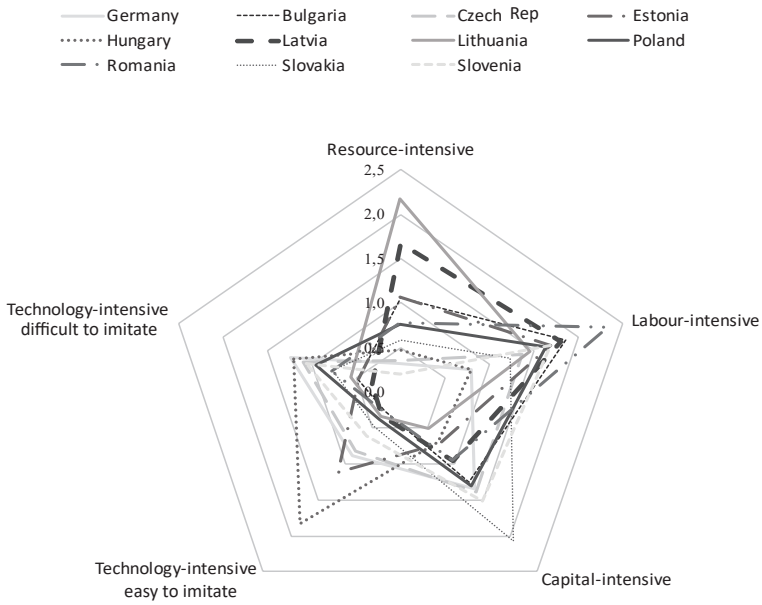

Figure 2. RCA of the EU–10 and Germany in 2004

Source: own analysis based on UN COMTRADE data, access date: January 2017.

The remaining NMS countries did not conquer foreign markets with their high-tech products. Furthermore, a vast majority of them recorded decreased levels of comparative advantages in exports of less technologically advanced products, which in 2000 constituted the major strength of their export position. This indicates that the EU-accession of eight states and the accession adjustments of Bulgaria and Romania have not brought any technological impetus, despite the indisputable modernization of their economies due to for example the introduction

of EU standards and the inflow of foreign capital. In 2004 most of the EU–10 countries reduced their comparative advantages in exports of goods at the lower level of technological advancement without gaining strength in the exports of more technologically advanced products.

6. Decline of global trade: year 2009

The year 2009 is the first year in our analysis with the whole group of 10 states as Members of the European Union (until 2007 Bulgaria and Romania stayed outside). We are interested in determining whether the EU accession significantly influenced their competitive position. Simultaneously, we are aware of the fact that it is difficult to evaluate progress in turbulent times when world trade had collapsed.

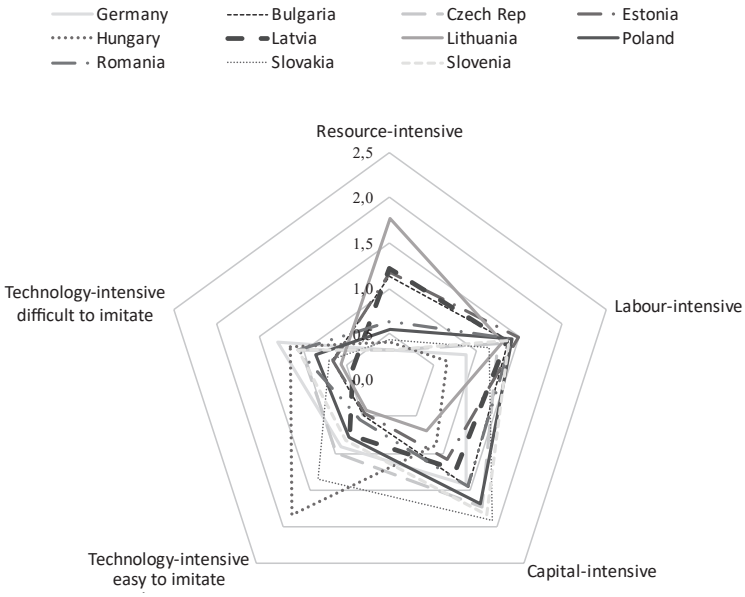

Figure 3. RCA of the EU–10 and Germany in 2009

Source: own analysis based on UN COMTRADE data, access date: January 2017.

As shown in Figure 3, the economic crisis did not harm German exports in 2009, and it was able to maintain its comparative advantages in both key export categories (capital-intensive and technology-intensive difficult-to-imitate goods). In addition, its RCA had increased in the exports of difficult-to-imitate goods, which are being considered as the most technologically advanced (from RCA = 1,24 in 2004 to RCA = 1,3 in 2009).

The EU–10 nations also managed to survive the crisis relatively unharmed. The Czech Republic and Hungarian RCAs recorded a decline in the category of technology-intensive difficult-to-imitate goods, but they still managed to maintain their comparative advantage. Slovenia's RCA index for exports of these goods did not change either. In addition, Romania with a RCA of 1,05 emerged (amongst the analysed countries) with a comparative advantage in exporting these most technologically advanced goods. In this context, the situation in Poland was troubled. In 2004, the country was one step away from gaining a comparative advantage in the export of these goods (RCA = 0,95), while in 2009 with RCA = 0,86 it drifted further away from the perspective of a quick catch-up with the leading EU states.

In the category of technology-intensive easy-to-imitate goods, invariably as little as two EU–10 countries had recorded comparative advantages, but only Hungary had defended its position. While in 2004, Estonia recorded RCA > 1 (RCA = 1,12), in 2009 Slovakia overtook Estonia's competitive position in this product category with RCA = 1,35.

In the exports of capital-intensive goods, the situation of EU–10 looked better. The number of countries with comparative advantages had increased, as Estonia, Latvia, and Romania had been accompanied by Bulgaria, the Czech Republic, Poland, Slovakia, and Slovenia. Hence, in 2009 in the category of capital-intensive goods, 80% of EU–10 states already showed comparative advantages. Especially, Slovakia had improved its competitive position, as it not only maintained a strong specialization in the capital-intensive goods, but additionally gained comparative advantage in the category of technology-intensive easy-to-imitate goods.

The technological advancement of the EU–10 nations is also reflected in the analysis of their RCA in the category of labour-intensive goods. None of the countries from the group that had a comparative advantage in 2004 had lost it, however all of the analysed countries had shown a slight decrease in the RCA levels in this product category.

Despite the collapse in world trade, EU–10 states not only maintained but improved their positions in exports of high-tech goods. This may be, on one hand, evidence of progress in catching up with the strongest economies, and, on the other, the ability to profit from a relatively good price-quality ratio to maintain strong export position even in difficult times.

7. The final year of investigation: 2014

In the last year of the analysed period, most of the comparative advantages that the EU–10 countries recorded in 2009 were maintained, but the RCA had only increased in a few cases. This meant that the EU–10 states discontinued in the process of catching up with Germany.

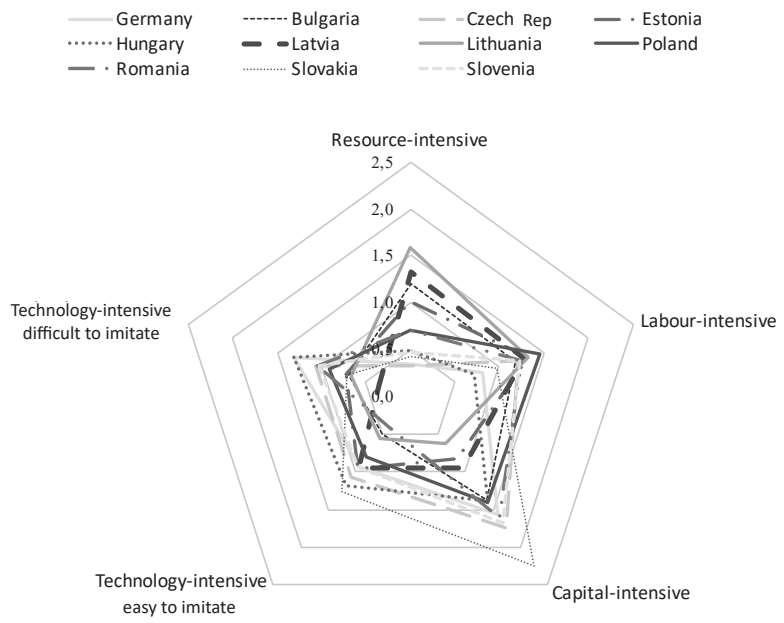

Figure 4. RCA of the EU–10 and Germany in 2014

Source: own analysis based on UN COMTRADE data, access date: January 2017.

Hungary had confirmed its position as the undisputed innovation leader of the group. First, its comparative advantage in exports of technology-intensive difficult-to-imitate products grew to reach the German level (RCA = 1,3). Second, for the first time, it also obtained a comparative advantage in the exports of capital-intensive goods, combining advantages in the all three high-tech industries. The Czech Republic had a similar range of specialization (additionally with the RCA of 1,2 in exports of labour-intensive goods), however Hungary has shown higher RCA levels in the exports of the most technologically advanced goods – both easy- and difficult-to-imitate.

In general, in the case of the Czech Republic and Slovakia a catching-up process is clearly visible. The Czech Republic is the most versatile exporter among the NMS–10, as it maintained comparative advantages in the exports of various goods: labour-intensive and capital-intensive, as well as both groups of the most technologically advanced products. Slovakia, despite not yet achieving comparative advantage in exports of technology-intensive difficult-to-imitate goods, already went through the process of adjustments within the European Monetary Union (EMU). This has not prevented Slovakia's ability to maintain comparative advantages in exports of capital-intensive and technology-intensive easy-to-imitate products.

In the whole group, more countries (three in 2014 compared to two in 2009) had comparative advantages in exports of technology-intensive easy-to-imitate goods, and two further countries had recorded RCA levels equal or close to 1.

While benchmarking the comparative advantages recorded in 2000 and 2014, it becomes evident that countries belonging to the EU–10 group had increased their advantages in the exports of resource-, labour-, and capital-intensive goods. Interestingly, even though more countries could sustain advantages in the easy-to-imitate category, the countries recording these advantages in 2000 had decreased them. Hungary intensified their advantages in the technology-intensive difficult-to-imitate goods category, while other countries merely sustained their advantages. It may be concluded that the direction of development seems right, convergence is visible, and export specialization gets closer to the German pattern. However, the dynamics of the changes differ considerably among the analysed countries.

In 2014, the Czech Republic appears to be the "master of exports diversity", due to its comparative advantages in all categories except for resource-intensive goods. The Hungarian economy remains the innovation leader, maintaining comparative advantages in all three categories of the most technologically advanced products, with higher RCA levels than the ones reported for the Czech Republic. Poland looks rather pale, when benchmarked to its peers. It is even worse off than Romania, which was much weaker economically at the starting point of the analysed period. It is worth noting that the countries listed as the leaders of the EU–10 group have not yet entered the EMU. This means, that they might be confronted with difficult adjustment processes on their way to Euro. In this context, a relative competitive success of Slovakia and Slovenia becomes even more evident, as these countries have already adopted the common European currency and continue to perform well.

8. Conclusions

The analysis has shown that prior to the EU-accession, the EU–10 countries could have been undoubtedly regarded as catching-up economies, considerably less developed than Germany. In 2000, as much as 90% of the EU–10 states recorded comparative advantages in the exports of labour-intensive goods (the only exception was Hungary). However, amongst this group one can point out the leaders and the states lagging behind. The leader's group comprises of Hungary, the Czech Republic, and Estonia (the exporters of technologically advanced goods), while the latter group is composed of Lithuania, Latvia, and Romania that had comparative advantages in the exports of labour- and resource-intensive goods, thus relatively unprocessed and at a low level of technological advancement, being usually the specialization domain of developing countries. Poland, Slovakia, and Slovenia with their comparative advantages in the exports of labour- and capital-intensive

goods can be categorized as the moderate group performers, together with Bulgaria recording additionally RCA > 1 in the exports of resource-intensive goods.

The 2004 EU-accession of eight countries from the sample didn't have a significant influence on their performance. In 2004, most of the EU–10 countries decreased the levels of their specialization in the exports of relatively less technologically advanced goods in comparison to 2000, however without gaining advantages in the exports of more advanced products.

Despite the collapse in world trade in 2009, the EU–10 not only maintained but even improved their position in the exports of technologically advanced goods. This may be, on one hand, evidence of progress in catching up with the strongest economies while, on the other, the ability to profit from a relatively good price-quality ratio, particularly valuable in difficult times.

During the whole analysed period (2000–2014), the EU–10 countries have evolved towards knowledge-based economies, but not all of them with the same intensity and for the same commodity groups. The competitive position of these countries in the exports of low-tech goods (i.e., resource- and labour-intensive) has not changed. The number of countries recording advantages in these product categories remained unchanged as the advantage-holders were able to keep them.

The results of the analysis show that the exports structure of the EU–10 has been on the evolutionary path since 2000, however the timing, pace, and scale of adjustment differs greatly across the studied economies. The hypothesis that the countries most lagging behind Germany at the beginning of the analysed period have undergone a continuous and the largest adjustment (exports specialization convergence) appears true only in the case of Romania. In 2014, its exports position is better than Poland, having much better starting conditions. The transformation of the exports specialization of the V4 countries was on the evolutionary track until 2009 but afterwards the structure froze, and no further changes could be observed.

An empirical study confirmed that choosing Germany as a point of reference while analysing the process of catching-up of the EU–10 was the right decision. The analysis has confirmed that the German economy is based on solid foundations: specialization in exports of technology-intensive difficult-to-imitate goods.

References

Abramowitz M. (1986), *Catching Up, Forging Ahead, and Falling Behind*, 'The Journal of Economic History', 46(2), 385–406.

Balassa B. (1965), *Trade Liberalisation and 'Revealed' Comparative Advantage*. The Manchester School, *33*(2), 99–123. doi.org

Bieńkowski W., Weresa M., Czajkowski Z., Gomułka M., Brocka-Palacz B., Latoszek E., Misala J. (Eds.). (2008). *Czynniki i miary międzynarodowej konkurencyjności konkurencyjności gospodarek w kontekście globalizacji – wstępne wyniki badań* (Vol. 284). Szkoła Główna Handlowa.

Castellacci F. (2008). *Innovation and the competitiveness of industries: Comparing the mainstream and the evolutionary approaches*, 'Technological Forecasting and Social Change', *75*(7), 984–1006. doi.org

Cho D.S., & Moon H.C. (2008). *From Adam Smith to Michael Porter: evolution of competitiveness theory* (Reprinted). New Jersey: World Scientific.

Cohen S.S., & Zysman J. (1988). *Manufacturing Innovation and American Industrial Competitiveness*, 'Science', 239(4844), 1110–1115.

Czarny E., & Śledziewska K. (2012). *Międzynarodowa współpraca gospodarcza w warunkach kryzysu. Wnioski dla Polski*. Warszawa: PWE Polskie Wydawnictwo Ekonomiczne.

Ezalea-Harrison. (2005), *On the Competing Notion of International Competitiveness*, 'Advances in Competitiveness Research', 13(1), 80–87.

Lollar J.G., Beheshti H.M. & Whitlow B.J. (2010). *The role of integrative technology in competitiveness*, 'Competitiveness Review', 20(5), 423–433. doi.org 10595421011080797

Lonska J., & Boronenko V. (2015), *Rethinking Competitiveness and Human Development in Global Comparative Researches*, 'Procedia Economics and Finance', 23, 1030–1036. doi.org)00475-X

Martin R. (2005). *A Study on the Factors of Regional Competitiveness*. Final Report for the Euoropean Commission.

Peretto P. (1990). *Technology, learning opportunity and international competitiveness: some empirical evidence with panel data*, 'Giornale Degli Economisti E Annali Di Economia', 219–244.

Porter M.E. (1985). *Competitive Advantage*. New York: The Free Press.

Porter M.E. (1990). *What Is National Competitiveness?,* 'Harvard Business Review', 68(2), 84–85.

Reinert E. (1995). *Competitiveness and its predecessors – a 500-year cross-national perspective*, 'Structural Change and Economic Dynamics', 6, 23–42.

Wysokińska Z. (1997). *Aspekty technologiczne konkurencyjności międzynarodowej Unii Europejskiej oraz Polski,* 'Studia Europejskie', (2).

Żmuda M. (2017), *Taxonomy of International Competitiveness*, 'Journal of Management and Business Administration. Central Europe', 25(3), 97–116.

Żmuda M., Czarny E. (2017), *Competitiveness of a catching-up economy as ability to close technological gap: Evolution of the EU–10 exports specialization towards the German pattern*, 'CBS Working Paper', (4), https://cbs.de/en/wp-content/uploads/sites/3/2018/02/Working-Paper–2017-No.–4-Catching-Up-Economy-to-close-technoclogical-gap-Zmuda-Czarny.pdf

Streszczenie

KONKURENCYJNOŚĆ JAKO ZDOLNOŚĆ DOSTOSOWANIA: STRUKTURA EKSPORTU KRAJÓW UE–10 I JEJ EWOLUCJA W KIERUNKU NIEMIECKIEGO WZORCA

Konkurencyjność gospodarki wiąże się z zestawem cech, które umożliwiają strukturalne dostosowanie do globalnych trendów technologicznych, i dzięki temu, wzrost standardu życia jej obywateli. Dla gospodarki doganiającej, zbliżenie poziomu PKB do najbardziej rozwiniętych krajów świata, stanowiące jej główny cel rozwojowy, ma swoje źródło w zdolności do ewolucji struktury produkcji i eksportu w kierunku specjalizacji opartej na wiedzy i innowacji. W niniejszym artykule konkurencyjność oceniamy poprzez strukturalne dostosowania eksportu, które dla gospodarek doganiających (w tym artykule: kraje UE–10) można rozumieć jako zdolność domknięcia luki do krajów najbardziej rozwiniętych (tutaj: jako najsilniejsza gospodarka w UE: Niemcy). Analizujemy ewolucję specjalizacji eksportowej UE–10 w latach 2000 i 2014, sprawdzając, czy można zaobserwować konwergencję do niemieckiego wzorca eksportowego, oraz które z analizowanych krajów wykazują największą zdolność do zmiany struktury eksportu w kierunku specjalizacji w obszarze zaawansowanych technologii. Analizujemy ponadto struktury eksportowe w 2004 r. (przystąpienie do UE 8 z 10 krajów próby) oraz w 2009 r. (załamanie światowej gospodarki podczas kryzysu gospodarczego). Analiza opiera się na koncepcji ujawnionej przewagi komparatywnej (RCA) B. Balassy (1965). Używamy danych statystycznych UN COMTRADE według Standardowej Klasyfikacji Handlu Międzynarodowego (SITC), Rev. 4. Poszczególne grupy towarowe klasyfikujemy według metodologii opracowanej przez Z. Wysokińską (1997, s. 18).

***Słowa kluczowe**: konwergencja specjalizacji eksportowej, konkurencyjność gospodarki, EU–10, gospodarki doganiające*