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THE RESOURCES-DEPENDENT COMPETITIVE PROFILE OF KAZAKHSTAN AND ITS CONSEQUENCES FOR THE COUNTRY'S FUTURE DEVELOPMENT

SUROWCOWY PROFIL KONKURENCYJNY KAZACHSTANU I JEGO KONSEKWENCJE DLA PRZYSZŁEGO ROZWOJU KRAJU

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Summary: The purpose of this study is: (i) to determine the competitiveness of Kazakhstan in contemporary international trade, with particular regard to the mineral resources possessed by the country; (ii) to show the consequences of Kazakhstan's resources-dependent competitive profile for the economic development of the country; (iii) to look at measures taken by Kazakh authorities to facilitate future development. To this end, the methodology of analysing revealed comparative advantages was applied. The analysis has shown that the competitive profile of Kazakhstan in international trade is low. The country does not possess any comparative advantages in trade in the categories of high-technology and medium-high-technology goods while its strongest advantages are in exports of mineral resources and their derivatives, which determines the resources-based character of the entire economy and makes its future development heavily dependent on developments in international resources markets.

Keywords: international competitiveness, competitive advantages, resources-dependent competitive profile, Kazakhstan.

Streszczenie: Celem artykułu jest: (i) określenie pozycji konkurencyjnej Kazachstanu we współczesnym handlu międzynarodowym, ze szczególnym uwzględnieniem znaczenia posiadanych przez ten kraj surowców mineralnych, (ii) pokazanie konsekwencji surowcowego profilu konkurencyjnego dla rozwoju gospodarczego tego kraju oraz (iii) w tym kontekście podejmowanych przez kazachskie władze działań na rzecz przyszłego rozwoju. W artykule zastosowano metodę analizy ujawnionych przewag komparatywnych B. Balassy. Z przeprowadzonej analizy wynika, iż ogólny poziom konkurencyjności Kazachstanu w handlu międzynarodowym jest niski. Kraj ten nie posiada żadnych przewag komparatywnych w handlu grupą towarów wysokiej oraz średniowysokiej techniki, najsilniejsze zaś przewagi występują w eksporcie surowców mineralnych i ich pochodnych, co w decydujący sposób determinuje surowcowy charakter całej gospodarki i silnie uzależnia jej dalszy rozwój od sytuacji na międzynarodowych rynkach tych surowców.

Słowa kluczowe: konkurencyjność międzynarodowa, przewagi konkurencyjne, surowcowy profil konkurencyjny, Kazachstan.

1. Introduction

From the beginning of the 21st century, Kazakhstan started to be perceived as the clear economic leader in Central Asia. Its rich energy resource base, favourable geographic location (direct borders with both Russia and China, also access to the Caspian Sea) and the consistently implemented strategy of economic development focused on improving the investment climate and thus attracting more and more foreign investment, mainly to the most lucrative mining sector, have all contributed to the country's dynamic economic development. Suffice to say that, over the years 2000–2013, Kazakh GDP has surged almost 13-fold, from USD 18.3 bn in 2000 to USD 236.6 bn in 2013, securing Kazakhstan's place in the group of upper middle income countries. In the following years 2014–2015, mostly owing to the falling prices of oil in international markets, Kazakh's GDP significantly contracted to reach USD 184.4 bn in 2015 [World Bank 2017].

In view of the foregoing, a very important and interesting research question arises as to the competitiveness of Kazakh economy in the international arena, in particular in contemporary international trade. The question seems even more relevant as just as much as the current also the future development of the country depends very heavily on how competitive its economy can be, not only with respect to its resource base but also in the area of technologically advanced goods manufactured in industries intensively using modern production factors and characterized by high innovativeness, the latter being particularly desirable in the contemporary world economy [Wu et al. 2017].

The overarching aim of this study is to verify the thesis according to which the overall competitiveness of Kazakh economy in international trade is dramatically low, and especially so with regard to high-technology and medium-high-technology goods whereas the strongest revealed comparative advantages possessed by the country lie in exports of mineral resources and their derivatives (from the medium-low technology category). This hugely determines the resources-based character of the entire economy, making its further development heavily reliant on international markets of these resources and thus making Kazakh economy more susceptible to external shocks.

The analysis of Kazakhstan's competitiveness in international trade will be conducted by identifying these categories of goods in which the country enjoys revealed comparative advantages and is therefore competitive in international markets, and those in which Kazakhstan does not possess any and is therefore uncompetitive.

To this end, the method of analysing revealed comparative advantages (RCAs) developed by B. Balassa [1965, 1989] was applied, in particular, the logarithmic version of its original formula, which is as follows:

$$\mathrm{RCA}_i = \ln\left(\frac{X_{ij}}{X_j} \div \frac{X_i}{X}\right),$$

where: RCA_i – the revealed comparative advantages index of the given country in the *i* goods category,
x_{ij} – exports of the *i* goods category from the given country to the *j* country or category of *j* countries,
x_j – total exports from the given country to the *j* country or category of *j* countries,
x_i – global total exports of the *i* goods category,
x – global total exports.

The logarithmic formula ensures that the symmetry of positive and negative values of the RCA_i index is achieved in the range close to 0, which facilitates their interpretation [Vollrath 1991]. A relative comparative advantage in trade in the given goods category is recorded if the value of the index for that category is higher than 0 ($RCA_i > 0$).

A detailed analysis of the issue under investigation was carried out according to the OECD classification of basic categories of goods based on their technological advancement [Hatzichronoglou 1997; OECD 2011]. In this classification, OECD has identified 4 basic categories of goods, i.e. high-technology, medium-high-technology, medium-low-technology and low-technology goods.[1] In addition, to show the dominant role of oil and its derivatives (refined oil products) and natural gas in Kazakhstan's competitive profile and also, indirectly, in the processes of the country's economic growth and development, these goods were singled out from the medium-low-technology category to be included in the analysis separately.

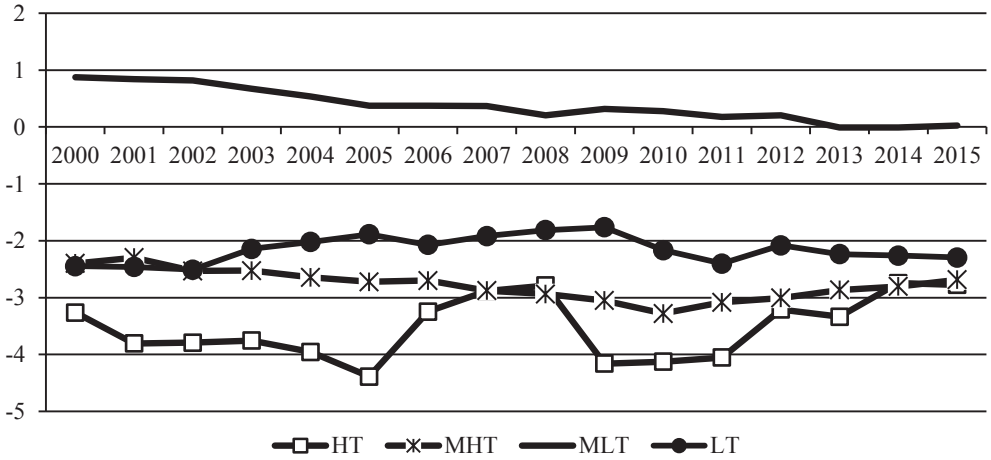
All statistical data used for the analysis were derived from the United Nations Commodity Trade Statistics Database.

2. Kazakhstan's competitive profile in contemporary international trade – the role of mineral resources

The detailed analysis of the dynamics of Kazakhstan's revealed comparative advantages in its exports in the years 2000–2015 clearly shows that, in general, its actual international competitiveness is very low and that, *de facto*, only Kazakh

[1] According to the OECD classification, the high-technology category encompasses: Aircraft and spacecraft; Pharmaceuticals; Office, accounting and computing machinery; Radio, TV and telecommunications equipment; Medical, precision and optical instruments; and Clocks and watches. Electrical machinery and apparatus; Motor vehicles, trailers and semi-trailers; Chemicals excluding pharmaceuticals; Railroad equipment (locomotives and trams) and transport equipment (motorcycles and bicycles); and Machinery and equipment, all form the medium-high-technology category. In the medium-low-technology category, there are: Building and repairing of ships and boats; Coke, refined oil products and nuclear fuel; Rubber and plastics products; Basic metals and fabricated metal products; and Other non-metallic mineral products. And the final category, i.e. low-technology goods, includes: Food products and beverages; Tobacco; Textile, textile products, leather and footwear; Wood and pulp; Paper, paper products, printing and publishing; and Furniture. Based on [OECD 2011].

mineral resources and their derivatives can be competitive in international markets. This is proved by the positive, albeit diminishing over the entire period of analysis, values of the RCA index for the medium-low-technology category overall (Fig. 1).



HT – high-technology goods, MHT – medium-high-technology goods, MLT – medium-low-technology goods, LT – low-technology goods.

Fig. 1. Kazakhstan's Revealed Comparative Advantages (RCA) in exports in goods categories according to their technological advancement in 2000–2015

Source: own elaboration based on data from the United Nations Commodity Trade Statistics Database.

Within this category, Kazakhstan has traditionally possessed the strongest revealed comparative advantages in trade in non-ferrous metals and non-metallic mineral resources, and in ferrous metals. In particular, by far the strongest (RCA > 2), and also very stable throughout the analysed period, were the country's revealed comparative advantages in trade in oil and oil products (Fig. 2) but a clear improvement in comparative advantages (RCA = 1.54 in 2015) was also recorded in exports of natural gas. It should, therefore, be stressed that, with respect to this main and dynamically expanding sector of its industry, i.e. the oil and gas sector, Kazakhstan enjoys not only very strong but also growing comparative advantages in international trade, which has a great impact on the profile of its entire economy; on the other hand, however, it also makes Kazakh economy increasingly susceptible to external shocks from international resources markets. Moreover, it should be noted here that the identified advantages are determined by geographical distribution of resources around the world, which means that countries with big mineral resource bases are naturally more competitive in trading them internationally.

In all remaining goods categories, i.e. high-technology, medium-high-technology and also, interestingly, low-technology, Kazakhstan did not possess any comparative advantages in exports over the analysed period. Particularly unfavourable, from the

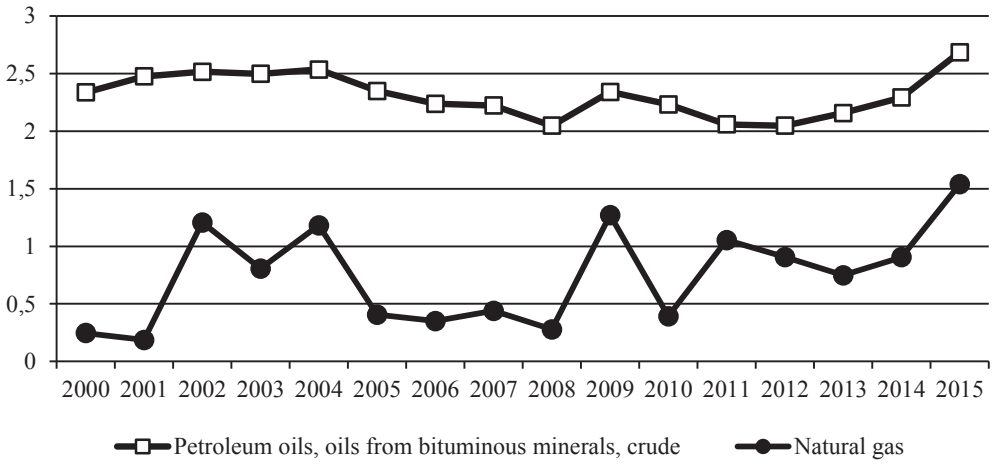


Fig. 2. Kazakhstan's Revealed Comparative Advantages (RCA) in exports in oil and its derivatives and in natural gas in 2000–2015

Source: own elaboration based on data from the United Nations Commodity Trade Statistics Database.

point of view of the currently most desirable model of economic development based on knowledge and high technology, was the lack of any advantages in the high-technology and the medium-high-technology goods category overall. Regrettably, Kazakhstan cannot offer any goods from these two categories which would be internationally competitive and would give it any comparative advantages. By far the worst, if not dramatic, was the situation in the following goods categories: *Office, accounting and computing machinery*; *Pharmaceuticals*; *Medical, precision and optical instruments*; and *Radio, TV and telecommunications equipment* (high-technology), and *Electrical machinery and apparatus, n.e.c.* and *Motor vehicles, trailers and semi-trailers* (medium-high-technology).

Interestingly, for many years Kazakhstan has not possessed any comparative advantages whatsoever also in the low-technology goods category. The most uncompetitive Kazakh goods from this category are: *Manufacturing, n.e.c.*; *Textiles, textile products, leather and footwear*; and *Wood, pulp, paper, paper products, printing and publishing*.

Based on a more detailed analysis of the dynamics of revealed comparative advantages in Kazakh exports, individual goods in which the country enjoys the strongest comparative advantages (i.e. with the highest values of the RCA index) can be identified. The list of top 10 goods in which Kazakhstan is most competitive internationally is presented in Table 1.

As data presented in Table 1 show, the most internationally competitive in Kazakhstan's exports are low-processed, low-value-added and capital-intensive goods characterized by low technological advancement and produced by medium and low qualified workers – i.e. *Basic metals and fabricated metal products*.

Table 1. Top 10 most competitive goods in Kazakhstan's exports in 2014 (with the highest values of the RCA index)

No.	Category	Name	Value of RCA index
1	MLT	Beryllium, unwrought, waste or scrap/powders	5.32
2	MLT	Ferro-silico-chromium	4.90
3	MLT	Ferro-tungsten and ferro-silico-tungsten	4.82
4	MLT	Natural uranium, its compounds, mixtures	4.68
5	MHT	Chromium oxides, hydroxides except chromium trioxide	4.47
6	MHT	Phosphorus	4.46
7	MLT	Flat rolled products (not in coils) < 3m	4.31
8	LT	Cotton-seed oil crude	4.06
9	MLT	Ferro-chromium, > 4% carbon	3.78
10	MLT	Flat rolled products (not in coils) > 3mm	3.55

HT – high-technology goods, MHT – medium-high-technology goods, MLT – medium-low-technology goods, LT – low-technology goods

Source: own elaboration based on data from the United Nations Commodity Trade Statistics Database.

Moreover, 7 out of top 10 most competitive goods come from the medium-low-technology category and 1 – from the low-technology category. This, inevitably, leads to the high dependence of Kazakh economy and its exports on cheap mineral resources possessed.

On the other hand, only 2 out of Top 10 most competitive goods represent medium-high-technology category. These are *Chromium oxides, hydroxides except chromium trioxide* (5) and *Phosphorus* (6). No goods from the high-technology category made it to the top 10. This clearly testifies to the strong resource-dependent competitive profile of Kazakh economy.

3. Selected effects of Kazakhstan's high competitiveness in oil exports for the country's economic development

Kazakh economy is very heavily dependent on exports of mineral resources, especially oil, i.e. the goods in which Kazakhstan can boast very strong comparative advantages in international trade (as was shown in the first part of this study). The dynamic growth of the country's economy observed throughout 2000–2015 would not have been possible without the revenues from oil exports. It goes without saying that the high competitiveness of Kazakh oil determines, to a large extent, the country's economic growth, making it extremely susceptible to all kinds of price turbulence in international resources markets. Note that such a state of affairs is also emphasized by, i.a. Farra, Burgio and Cernoy [2011], Macerinskiene and Sakhanova [2011], and Matveev [2011].

The huge importance of oil exports for the Kazakh economy is shown in Fig. 3. Without oil revenues, which have markedly increased over the 2000–2015 period (in 2000, they accounted for 3.7% of GDP and, in the record-breaking year of 2011, as much as 14.4%), Kazakhstan would experience a permanent budget deficit (negative overall balance). However, thanks to these revenues, an actual budget deficit was recorded only in 2000, 2009 and 2015, when oil prices fell sharply (Fig. 4).

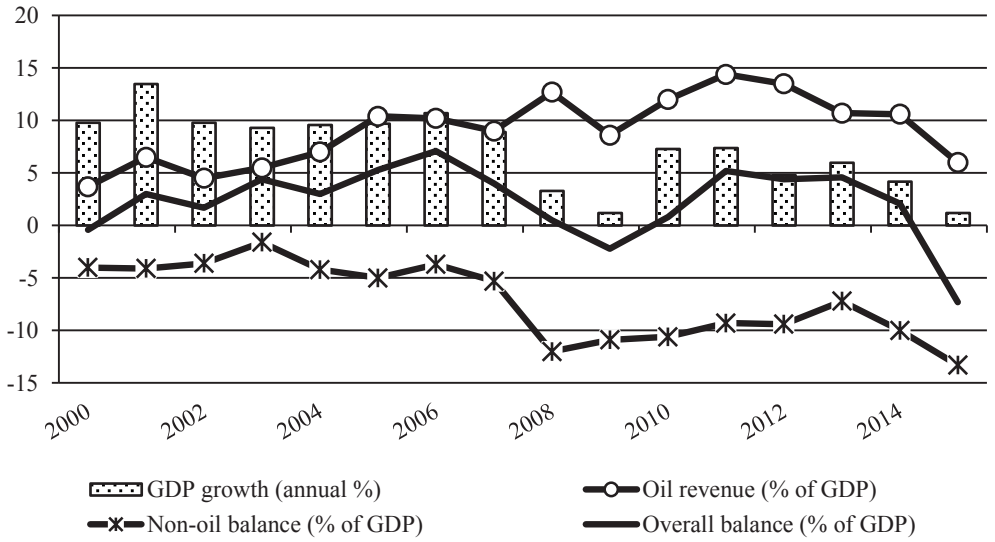


Fig. 3. Oil revenue and fiscal balances versus GDP growth in Kazakhstan in 2000–2015

Source: [IMF 2017; World Bank 2017].

Speaking of the key importance of oil exports for the Kazakh economy, one must also bear in mind the fact that the value of these exports strongly correlates with the price of this resource in the international markets. As can be very clearly observed (Fig. 4), the increase in oil prices between 2000–2008 and 2010–2011 immediately translated into an increase in the value of Kazakh oil revenues (as % of GDP). On the other hand, a very significant fall in world oil prices in 2009 and 2011, and especially in 2015 (the average annual price of Brent crude oil in 2015 was just USD 52.35 against the record price of USD 111.63 in 2012 [Statista 2017]), led to a significant decrease in oil revenues and a worsening of Kazakhstan's macroeconomic situation. Suffice to say that the value of oil revenues, expressed as % of GDP, has fallen by as much as 8pp over the years 2011–2015 (from 14.2% in 2011 to 6.2% in 2015).

The high international competitiveness of the Kazakh oil and gas sector, as well as the high rate of return on investment makes this sector a very attractive investment area. So it is hardly surprising that, in the years 2000–2013, a total of USD 134.5bn was invested in this sector, including USD 16.8bn for geological exploration in search of new oil and gas fields in Kazakhstan (60% of the total value of these

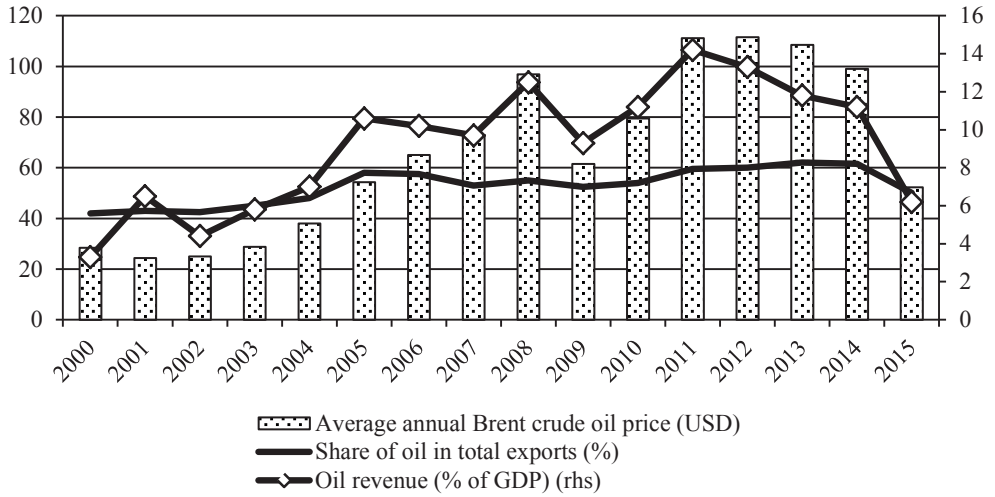


Fig. 4. Share of oil in Kazakhstan's exports and oil revenue as % of GDP versus average annual Brent crude oil price in 2000–2015

Source: [IMF 2017; Statista 2017].

investments were by corporations from USA, Russia, China and EU). Over that period, the value of investments in the Kazakh oil and gas sector increased more than fivefold, reaching just over USD 15 bn in 2013 (of which approximately USD 1.2 bn was allocated to geological research). In relative terms, almost 70% out of total investment in the development of the mineral resources sector in Kazakhstan was in hydrocarbons [Dzhantureyeva 2013]. What it mostly means for the Kazakh economy is that this sector naturally sucks investment capital from other sectors of the economy. This automatically increases the role of state and state financing in supporting the sustainable development of the Kazakh economy, which is the strategic goal of the country's authorities for the future.

4. Selected measures taken by Kazakh authorities in the context of the resources-dependent competitive profile of the Kazakh economy

Kazakh authorities are aware of the strong dependence of the country's economic development on its mineral resources and the risks that are directly connected to it. Therefore, various measures are being undertaken to diversify the sources of economic growth in the country.

It is precisely for this reason that in December 2015 a special "Anti-crisis Action Plan for 2016–2018" was adopted. It lays down the guidelines for the new investment policy aimed at improving the investment climate (in line with OECD standards). Ultimately, Kazakh authorities are aiming for the production of multinational

corporations to be relocated from China to Kazakhstan. The key aspect of this plan is also its connection with development of infrastructure under the state program "Nurly Zhol – State Program for Infrastructure Development for 2015–2019" [Nurly Zhol 2014]. Moreover, the rules for financing state loans to SMEs have been changed to stimulate their development by raising their innovativeness and competitiveness. Also, the country's industrial and innovation policy will be adapted so that the economy is based on both services and industry. This is meant to contribute to the growth of innovation and, consequently, of productivity in the economy. At the same time, however, due to the large budget revenues from the energy resource extraction sector, the implementation of large investment projects in this area was continued in 2016, and it was announced that by the end of 2017 the reconstruction and modernization of oil refineries in Atyrau and Pavlodar would be completed [Ministry of National Economy of the Republic of Kazakhstan 2015].

Another thing worth noting is the attempt to diversify the structure of GDP production in Kazakhstan. In the aforementioned action plan, it is clearly stated that one of the main drivers of future economic growth in Kazakhstan should be the agri-food sector. For the years 2016–2020, the GDP growth in agriculture is assumed to average 3.3% [Ministry of National Economy... 2015]. The recently observed growing interest in the Kazakh agri-food sector from China can effectively improve its productivity and increase the importance of this sector of the economy in Kazakh GDP. In 2016, China invested USD 1.9bn in the Kazakh agri-food industry, which went to tomato processing plants and to poultry farmers and slaughterhouses [Xinhuanet 2016]. Thanks to these investments, China is counting on improving the quality of Kazakh products exported to China.

Moreover, recognizing the need to improve the international competitive position of the Kazakh economy as crucial for the future development of Kazakhstan, a special Competitiveness Council reporting to the government of Kazakhstan was set up in 2012 and a dedicated "Procedure for a comprehensive monitoring and analysis of the country's competitiveness" was created, whose main objective is to "elaborate recommendations to improve the competitiveness of Kazakhstan and their implementation into practical and strategic activities of public bodies so that to enter the 30 most developed countries of the world" [*Procedure of a comprehensive*… 2015]. The adopted procedures apply to all state institutions whose activities are directly or indirectly related to competitiveness issues, in particular in five main areas: Human capital development; Improvement of institutional environment; Development of knowledge intensive economic industries; Boosted building of infrastructure and innovation development; and Deepening of integration into the system of international relations and business development.

The decisive focus on the necessity of changes in the structure of the economy was also reflected, i.a. in "The State program of forced industrialization and innovative development", created by a presidential decree in 2010, whose main objective is to secure stable and well-balanced economic growth through

diversification and improvement of Kazakh economy's competitiveness, and in "The strategic plan for development of the Republic of Kazakhstan until the year 2020" adopted also in 2010, in which it is written that "in 2020 Kazakhstan will become a country that came out of the world crisis stronger and more competitive, with diversified economy and population actively involved in new Economy" [*The strategic plan...* 2010].

5. Conclusions

Kazakhstan's impressive economic growth over the past two decades has proved to have been based on weak foundations and depend mostly on its natural resources, in particular mineral energy resources. The analysis conducted in this paper shows that the country's overall competitiveness in international trade is very low. Kazakhstan is not able to compete effectively in international markets in high-technology and medium-high-technology goods trade but it possesses revealed comparative advantages in exports of low-technology goods, especially mineral resources and their derivatives. Kazakhstan's resources-dependent competitive profile, however, should be seen as a major threat to the country's continued stable economic growth, given its strong dependence on prices in international resources markets. Aware of this, Kazakh authorities are taking proactive measures to diversify the sources of future economic growth, which, according to the assumptions adopted, are aimed to try to effectively reorient Kazakhstan's economy towards an economy based on knowledge and innovation, which are two qualitative growth factors. Undoubtedly, such measures should be assessed very positively but the success of the country's strategy will depend to a large extent on the determination of Kazakh authorities in its implementation, which they have not lacked hitherto.

References

Balassa B., 1965, *Trade liberalization and 'revealed' comparative advantage*, The Manchester School of Economic and Social Studies, vol. 33, no. 2, pp. 99–123.

Balassa B., 1989, *'Revealed' comparative advantage revisited*, [in:] Balassa B. (ed.), *Comparative Advantage, Trade Policy and Economic Development*, New York University Press, New York.

Dzhantureyeva E., 2013, *Kazakhstan's oil & gas industry. Reserves, production, investment*, Kazakhstan. The International Business Magazine, 5, http://www.investkz.com/en/journals/88/749.html (2.06.2017).

Farra F., Burgio C., Cernoy M., 2011, *The Competitiveness Potential of Central Asia*, Central Asia Competitiveness Outlook, OECD.

Hatzichronoglou T., 1997, *Revision of the High Technology Sector and Product Classification*, STI Working Papers 1997/2, OECD/GD 97(216), Organisation for Economic Co-operation and Development, Paris.

IMF, 2017, *Republic of Kazakhstan. Selected Issues*, Country Report No. 17/109, IMF Publication Services, Washington, DC.

Macerinskiene I., Sakhanova G., 2011, *National economy competitiveness of Kazakhstan Republic*, Engineering Economics, vol. 22, no. 3, pp. 292–299.

Matveev M., 2011, *Economic priorities of Kazakhstan during global crisis waves*, Creative Economy, vol. 5, no. 5, pp. 3–8.

Ministry of National Economy of the Republic of Kazakhstan, 2015, http://economy.gov.kz/ru/news/detail.php?ELEMENT_ID=68774.

Nurly Zhol, 2014, *Nurly Zhol – State Program for Infrastructural Development for 2015–2019*, http://www.baiterek.gov.kz/en/activities/state-programs/nurly-zhol/ (4.06.2017).

OECD, 2011, *ISIC Rev. 3 Technology Intensity Definition. Classification of Manufacturing Industries into Categories Based on R&D Intensities*, http://www.oecd.org/sti/ind/48350231.pdf (21.05.2017).

Procedure of a comprehensive monitoring and analysis of the country's competitiveness, 2015, http://competitiveness.kz/en/competitiveness/31/ (5.06.2017).

Statista, 2017, *Average Annual Brent Crude Oil Price*, https://www.statista.com/statistics/262860/uk-brent-crude-oil-price-changes-since-1976/ (6.06.2017).

The strategic plan for development of the Republic of Kazakhstan until the year 2020, 2010, http://www.amu.kz/en/helpful/Kazakhstan_s_strategic_development_plan-2020.PDF (2.06.2017).

Vollrath T., 1991, *A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage*, Weltwirtschaftliches Archiv, vol. 127, no. 2, pp. 265–280.

World Bank, 2017, *Kazakhstan. GDP Growth (annual %)*, World Bank Database, http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2015&locations=KZ&start=2000 (6.06.2017).

Wu J., Ma Z., Zhuo S., 2017, *Enhancing national innovative capacity: The impact of high-tech international trade and inward foreign direct investment*, International Business Review, vol. 26, no. 3, pp. 502–514.

Xinhuanet, 2016, http://www.xinhuanet.com/english/ (10.06.2017).