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Importance of exports of energy materials to the economy of the Russian Federation in 2000–2015*

Introduction

The effects of endowment with natural resources on economic growth and development have been discussed in a great number of scientific studies and for several decades they have been traditionally shown in the form of econometric models, determining with precision the strength of impact and the ensuing consequences to national economies. Most researchers have been rather negative about the importance of raw materials, with the literature quite frequently referring to expressions such as the ‘resource curse’ or ‘Dutch disease’.

The political breakthrough of the 1980s and the 1990s as well as the subsequent transition in the Central and Eastern European countries (CEECs) created specific economic conditions. In this context, therefore, it seemed an interesting research issue to analyse the effects of exports of raw materials on Russia’s economic growth, especially that the adoption of an economic growth strategy relying on the use of natural resources boosted the country’s economic growth measured by the annual average GDP growth rate, at approx. 7% for 7 consecutive years. That impressive outcome seemed to undermine the established view of the researchers of economic growth determinants.

In consideration of the above, this article primarily aims to present the most important results of the analysis seeking an answer to the question to what degree the Russian policy based on exports of natural gas constitutes a direct driver of economic growth. The analysis presented

* The article draws on certain fragments of the doctoral dissertation entitled *Znaczenie eksportu gazu ziemnego w polityce gospodarczej Federacji Rosyjskiej* (‘The importance of exports of natural gas in the economic policy of the Russian Federation’).

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also attempts to formulate conclusions from the adoption of such a strategy for Russia, but also for Poland, a major recipient of Russian gas.

Based on the assumption that the process of Russia's transition caused the emergence of specific conditions for economic development in that country and drawing on rich literature on the subject, the authors also attempted to verify the main elements of the export-led growth theory and their application to the economic strategy of Russia in the 21st century. The article ends with a summary of the most important conclusions from the analysis presented.

1. The role of raw material exports in modern economic theories: export-led growth, peak oil

Export as a driver of economic growth gained in importance in the 1970s. Previously, after World War II, particularly in the Latin American countries, the import substitution paradigm had prevailed.

Export-led growth – ELG – is a development strategy aiming to increase output through orientation towards foreign markets. It is a product of three elements supporting the opening-up of economies: the comparative advantage (Hecksher-Ohlin-Samuelson) theory, related to benefits of trade between economies with different endowments with capital and labour; the benefits of open trade in the process of controlling the rent-seeking phenomenon;¹ and the later developed effect of open trade on growth.²

The ELG theory was based on the argument that conscious policies oriented towards external markets helped developing countries benefit through incentives to absorb best practices, the promotion of product development and exposure of enterprises to competition. The success of the

¹ The issue having raised strong criticism of the import substitution theory. Cf. A.O. Krueger, *The Political Economy of Rent-seeking Society*, "American Economic Review" 1974, Vol. 64, pp. 291–303.

² G.M. Grossman, E. Helpman, *Trade, Knowledge Spillovers and Growth*, "European Economic Review" 1991, Vol. 35 (May), pp. 517–526; T.I. Palley, *The Rise and Fall of Export-led Growth*, Levy Economics Institute, New America Foundation, Working Paper 2011, No. 675, July, p. 4.

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countries referred to as the Four Asian Tigers seemed to corroborate the assumptions of the new paradigm of economic growth. Furthermore, as economists argued, such an approach generated a win-win situation for advanced economies which benefited even from exports subsidised by developing countries in order to increase their share in international trade. It was due to the fact that developed countries, as recipients, were the beneficiaries of subsidised products. That approach played an important role in the process of economic integration of countries, particularly with regard to the expansion of corporations and globalisation as well as the subsequent development of the World Trade Organisation (WTO).³

The export-led growth theory raised criticism in 4 areas. One concerns potential pathologies in the process of trade liberalisation, i.e.: deterioration in the terms of trade, immiserising growth,⁴ irregularities in income distribution⁵ or unintended adverse effects of trade liberalisation stemming from market failures.⁶

Another, 'Keynesian' area of criticism results from the criticism of comparative advantage by J. M. Keynes. According to that economist, shrinking demand from foreign partners may decrease domestic demand, thus leading to a decline in production and falling welfare. A major role is also played here by exchange rates since an undervalued exchange rate may seriously affect demand, changing prices of imported and exported goods.⁷

Thirdly, critical judgements directly refer to the import substitution theory and assume that successful development depends on trade

³ T.I. Palley, *op. cit.*, p. 5.

⁴ A situation where excessive exports lead to a decline in the terms of trade of the country concerned. As a consequence, the costs of growth exceed its benefits and the economy affected is worse off than before the growth; cf. J. Bhagwati, *Immiserizing growth. A Geometrical Note*, "Review of Economic Studies" 1958, Vol. 58, pp. 201–205.

⁵ R.G. Lipsey, K. Lancaster, *The General Theory of the Second Best*, "Review of Economic Studies" 1956, Vol. 24, pp. 1–32.

⁶ A. Brewer, *Trade with Fixed Real Wages and Mobile Capital*, "Journal of International Economics" 1985, Vol. 18, pp. 177–186.

⁷ T.I. Palley, *op. cit.*, p. 6.

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protection, industrial policy and the ability to pursue macroeconomic policy.⁸

Finally, some of the criticism directly concerns the ELG theory: in the event of the lack of demand, extensive exports of a country will be detrimental to the neighbouring countries, leading to products exported by individual countries squeezing out one another.⁹

An equally important problem is the quality of growth generated in that way. According to critics of the ELG strategy, it cannot guarantee true well-being since, in its essence, it is oriented towards the foreign sector, with the goods traded being low-processed and not involving innovation or advanced technology. Furthermore, a situation where individual countries compete for increasing their exports will deteriorate working conditions in those countries. As a consequence, it will be the so-called *race to the bottom*.¹⁰

The first countries to adopt ELG strategies were Germany and Japan in the 1950s and the 1960s. In the 1970s and the 1980s the theory was also adapted by the Four Asian Tigers. In the 1990s it was implemented by Thailand, Malaysia, Indonesia and Mexico. In the 2000s an ELG strategy was pursued by China. The ELG assumptions were always adapted to the needs of specific economies. They were sometimes supported by undervalued exchange rates or combined with active involvement of transnational corporations.¹¹

The analysis of the attainments of the modern economic theories suggests that the development model based on the ELG strategy has been exhausting slowly. T.I. Palley gives at least five arguments to support this. Their generalised sense is that growth always has its limits and if all the countries start to compete with each other through ELG strategies, it will result in permanent deterioration of working conditions,

⁸ H.-J. Chang, *Kicking Away the Ladder: Development Strategy in Historical Perspective*, Anthem Press, London 2002.

⁹ R.A. Blecker, A. Razmi, *Export-led Growth, Real Exchange Rates and the Fallacy of Composition*, in: *Handbook of Alternative Theories of Economic Growth*, ed. M. Setterfield, Edward Elgar, Cheltenham 2010, pp. 19–20.

¹⁰ T.I. Palley, *op. cit.*, p. 8.

¹¹ *Ibidem*, p. 9.

environmental standards, etc. From such a situation can only benefit transnational corporations.¹²

1.1. The peak oil theory

Peak oil literally means the maximum rate of extraction of petroleum. The theory refers to the point in time when the extraction and production of oil is at its highest, after which an irreversible decline is expected. The implications of that phenomenon for the economy and, more broadly, for the mankind, have been widely analysed.

The concept and the first global quantitative model of the discovery and extraction of crude oil were created by M. King Hubbert.¹³ According to his calculations, peak oil would have been achieved in the United States in the late 1960s and in the global economy around 2000. The concept was later developed by J. Laherrere as well as by C.J. Campbell and K. Aleklett, who established the Association for the Study of Peak Oil (ASPO), thus introducing the notion of ‘peak oil’ to the language of economics.¹⁴

Oil prices are typically inelastic, therefore even minor movements in extraction may result in significant oil price fluctuations. According to U. Lehr, Ch. Lutz, K. Wiebe, the macroeconomic impacts of a price increase caused by a fall in production are comparable with the global crisis of 2008–2009. However, globally pursued policies of savings and enhancing energy efficiency as well as attempts to replace non-renewable energy sources with renewable ones can mitigate the adverse effects of peak oil.¹⁵

It follows from studies conducted by authors such as H. Waisman that low world prices of crude oil make countries importing petroleum

¹² *Ibidem*, pp. 15–17.

¹³ The ‘peak oil’ theory is also referred to as the Hubbert Peak Theory.

¹⁴ Ch. Kerschner et al., *Economic vulnerability to Peak Oil*, “Global Environmental Change” 2013, October, p. 2.

¹⁵ U. Lehr, Ch. Lutz, K. Wiebe, *Medium Term Economic Effects of Peak Oil Today*, Discussion Paper, Gesellschaft für Wirtschaftliche Strukturforchung, Osnabrück 2011, pp. 15–16.

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more sensitive to the announced date of ‘peak oil’. Therefore, it is recommended to apply additional measures for regulating oil prices (e.g. an international environmental protection policy, a local tax policy) in order to ensure continuous technical change and to counteract negative long-term effects of a sudden price rise.¹⁶

The researchers addressing this issue point out that the problem of achieving peak production may also concern other raw materials, i.e. peak coal (D. Huhges 2008; R.A. Kerr 2009; W. Zittel and J. Schindler, 2007), phosphorus (D. Cordell et al. 2009; P. Dery and B. Anderson 2007), uranium (M. Dittmar 2012), minerals (U. Bardi and M. Pagani) and peak ‘everything’ (R. Heinberg 2007).¹⁷

2. Major economic changes and reforms in Russia in 2000–2015

The period 2000–2015 witnessed intensive legislative work in a number of areas of Russia’s government administration. Many of the documents adopted were important to further development.

Those included a comprehensive reorganisation of the administrative division of the country leading to strong centralisation¹⁸ and the 2000 change of the rules on the formation of the upper house of the Russian parliament: the Federation Council, limiting its powers.¹⁹

¹⁶ H. Waisman et al., *Peak Oil through the lens of a general equilibrium assessment*, Centre International de Recherches sur l’Environnement et le Developpement, Working Papers 2010, No. 22, p. 27.

¹⁷ Ch. Kerschner et al., *op. cit.*, pp. 17–18.

¹⁸ President of the Russian Federation. Decree of 13 May 2000 *On the Plenipotentiary Representative of the President of the Russian Federation in a Federal District* of 13 May 2000, <http://base.garant.ru/12119586> (accessed 27.07.2016).

¹⁹ Federal Law of 5 August 2000 *On the Procedure of Formation of the Federation Council of the Federal Assembly of the Russian Federation*, http://www.consultant.ru/document/cons_doc_LAW_120517 (accessed 27.07.2016). The Law ceased to be effective on 1 January 2013 in connection with entry into force of the Federal Law of 3 December 2012 *On the Procedure of Formation of the Federation Council of the Federal Assembly of the Russian Federation*.

At the beginning of 2001 Putin's administration revolutionised the tax system, *inter alia* by introducing flat tax at a rate of 13%.²⁰ The Land Code enacted in 2001 boosted the development of the middle class and of the whole economy.²¹ A considerable role was also played by W. Putin's launching the concept of creating national leaders promoting Russia's national interests.²² In 2005 there was a reorientation towards social policy. President W. Putin presented a comprehensive development plan for human resources, in the form of the National Priority Projects.²³ As regards the liberalisation of trade and services, the most important event was the 18-year negotiation for Russia's accession to the World Trade Organisation (WTO). On 22 August 2012 Russia became the 156th member of the WTO.²⁴

A vital aspect of the analysis presented was to follow the advancement of privatisation. Early in the period in question the state's ownership of companies went up. But the rate of privatisation increased along with the occurrence of budget deficit (from 2009) and the need for greater access to Western technologies, whereas the authorities did not decide to cut expenditure on defence and social policy.²⁵

In the period covered public life became more political, *inter alia* through legal acts such as the federal laws 'On Political Parties' (2001); 'On the Basic Guarantees of Electoral Rights and the Rights of Citizens of the Russian Federation to Participate in Referendum' (2002); on the

²⁰ A. Ivanova, M. Keen, A. Klemm, *The Russian Flat Tax Reform*, IMF Working Paper, Fiscal Affairs Department, 2005, p. 4.

²¹ P. Gębski, *Federacja Rosyjska – przewodnik dla przedsiębiorców*, Warszawa 2006, pp. 97–99.

²² A. Aslund, *How Rosneft Is Turning Into Another Gazprom*, "The Moscow Times", 21 June 2013.

²³ A. Kargul, *Kryzys finansowy końca I dekady XXI wieku w Rosji – perspektywa porównawcza*, Zeszyty Naukowe Kolegium Gospodarki Światowej, Szkoła Główna Handlowa (Warsaw School of Economics), Warszawa 2011, p. 128.

²⁴ N. Suseeva, I. Tchakarov, *WTO: A Key Catalyst For Reforms*, "Eastern Europe and Central Asia World Finance Review" 2011, September, pp. 22–23.

²⁵ I. Wiśniewska, *Prywatyzacja po rosyjsku, czyli jak sprzedać i nie oddać*, Ośrodek Studiów Wschodnich, 2010, <http://www.osw.waw.pl/pl/publikacje/analizy/2010-10-27/prywatyzacja-po-rosyjsku-czyli-jak-sprzedac-i-nie-oddac> (accessed 27.07.2016).

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election of deputies of the parliament (2002) and of the president (2003) as well as the federal law ‘On the State Automated System of the Russian Federation “Vybory”’ (2003).²⁶ After multiple reform stages the pension system is supposed to take better account of the employment period (as well as of the contributory period), remuneration and the retirement age.²⁷ In 2001–2013 the values of demographic indicators showed an impressive rise, but they are still much lower than in the Western countries.²⁸

W. Putin’s reforms, especially those economic and social in nature (1st/2nd term of office respectively), were possible due to the stabilisation of Russia’s financial situation, on account of high receipts from energy material exports. Those helped improve the international image of the Russian Federation, but the situation changed dramatically after the annexation of Crimea, which is reflected, *inter alia*, in a decrease in foreign direct investment (FDI) by a factor of 16 in 2015 (cf. Table 1).

President Putin’s 3rd term of office, commenced in 2012, showed the signs of ‘conservative change’ and more radical views with regard to democratic freedoms.²⁹ Dismantling or even encroachment on the centralised government system serving interests of the political elite seems unlikely. However, certain more liberal changes may occur in the 2016–2018 election cycle.³⁰

²⁶ J. Rogoża, I. Wiśniewska, *Podsumowanie przemian polityczno-gospodarczych w pierwszej kadencji Władimira Putina*, Ośrodek Studiów Wschodnich, 2003, No. 11, pp. 8–9.

²⁷ J. Poteraj, *System emerytalny w Rosji*, “Nierówności Społeczne a Wzrost Gospodarczy”, Issue 17, pp. 5–6.

²⁸ Federal State Statistics Service (Rosstat), *Births, deaths and birth rates*, http://www.gks.ru/free_doc/new_site/population/demo/progn5.htm (accessed 27.07. 2016).

²⁹ E. Barry, *Foes of America in Russia Crave Rupture in Ties*, “The New York Times”, 15 March 2014.

³⁰ M. Domańska, *Powrót Kudrina – pozorowanie reform w Rosji*, Ośrodek Studiów Wschodnich, 27 April 2016, <http://www.osw.waw.pl/pl/publikacje/analizy/2016-04-27/powrot-kudrina-pozorowanie-reform-w-rojsji> (accessed 27.07.2016).

3. Russia's main macroeconomic indicators in 2000–2015

Analysing the effects of gains from energy material exports on the Russian economy involved examining the main macroeconomic indicators in the period covered. The relevant data are shown in Table 1.

The summarised data for the Russian economy clearly show a strong positive trend and buoyant economic growth of Russia, with the exception of the years 2008–2009 (the economic crisis) and 2013–2015 (a fall in oil prices and sanctions following the Ukrainian crisis). But this growth was not equally reflected in social development; in addition, the symptoms of the exhaustion of the ELG strategy could be seen even before the decline in prices of the energy materials which provided funding for the strategy (cf. data for 2012–2013).

4. The impact of gas exports on the economy

The study presented was aimed to establish the impact of 2000–2013 gas exports on Russia's gross domestic product in real terms. The research process was divided into 5 stages:

1. Analysis of the seasonality of time series.
2. Tests of the stationarity of time series.
3. Analysis of the relationship between gas exports and GDP using the classical linear regression model with independent random variables, for seasonal differences in logarithms of those variables.
4. Analysis of the relationship between gas exports and GDP using the Vector Error Correction Model (VECM).
5. Analysis of the relationship between combined gas and oil exports and GDP using the VECM.

4.1. Description of statistical data

The analysis was based on quarterly data for the period 2000–2013, therefore the sample included 52 observations. Data concerning Russia's GDP were expressed in real terms. Therefore, data regarding gas exports needed to be in real terms as well. There are a number of methods for

Table 1
The main macroeconomic indicators of the Russian Federation
in 2000–2015

Indicator\Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP at current prices (USD billion)	260	306	345	430	591	764	990	1,300	1,661	1,223	1,525	2,032	2,017	2,231	2,031	1,326
GDP <i>per capita</i> (USD)	1,772	2,100	2,373	2,975	4,109	5,338	6,948	9,145	11,700	8,616	10,710	14,212	14,091	15,543	13,902	9,057
GDP growth rate (%)	10.1	5.1	4.7	7.3	7.2	6.4	8.2	8.5	5.2	-7.8	4.5	4.3	3.4	1.3	0.7	-3.7
Foreign direct investment (USD billion)	2.7	2.7	3.5	8	15.4	15.5	37.6	55.9	75.8	36.6	43.2	55.1	50.6	69.2	22	4.8
Current account (USD billion)	46.8	33.9	29.1	35.4	59.5	84.4	92.3	72.2	103.9	50.4	67.5	97.3	71.3	33.4	58.3	69.6
Trade balance (USD billion)	60.1	48.1	46.3	59.9	85.8	118.4	139.3	130.9	179.7	111.6	151.7	198.2	193.2	182.5	191.4	151.1
Inflation rate, year-on-year (%)	20.8	21.5	15.8	13.7	10.9	12.7	9.7	9	14.1	11.7	6.9	8.4	5.1	6.8	7.8	15.5
Unemployment rate (%)	10.6	9	7.9	8.2	7.8	7.1	7.1	6	6.2	8.3	7.3	6.5	5.5	5.5	5.1	ND
External debt (December, USD billion)	160	146.3	152.3	186	213.5	257.2	313.2	463.9	480.5	467.2	488.9	545.2	636.4	728.9	599.9	518.5
Of which from the USSR period (December, USD billion)	ND	ND	ND	ND	55.9	34.3	9.4	7.1	4.6	3.2	2.9	2.5	ND	ND	ND	ND
Public debt (% of GDP)	ND	49	41.4	ND	ND	16.7	9.9	7.2	6.5	8.7	9.1	8.7	8.7	12.7	ND	ND

Source: own study based on data of the World Bank, the Central Bank of Russia, the Federal State Statistics Service of the Russian Federation, electronic documents, [http://www.cbr.ru/statistics/print.aspx?file=credit_statistics/bal_of_paym_an_00.htm&pid=svs&sid=pbDK_an](http://data.worldbank.org/indicator/GC.DOD.TOTL.GD.ZS?display=default); <http://www.cbr.ru/eng/statistics> (accessed 27.07.2016).

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transforming data into real terms, but for the purpose of this study the following were applied:

- the physical volume of gas exports was expressed in billion cubic metres,
- revenue from gas exports was expressed in USD, in nominal terms,
- revenue from gas exports was transformed into real terms using Russia's GDP deflator, expressed in roubles in real terms,
- revenue from gas exports was transformed into real terms using an import price index estimator.

The authors of the study decided to use their own import price index estimator. The estimator in question was computed as follows:

$$\text{IMP_P} = \frac{\text{CPI}}{\text{REER}}; \text{ since } \frac{\text{CPI}}{\frac{\text{CPI} \times \text{NEER}}{\text{CPI_F}}} = \text{CPI} \times \frac{\text{CPI_F}}{\text{CPI} \times \text{NEER}} = \frac{\text{CPI_F}}{\text{NEER}} = \text{IMP_P},$$

where: IMP_P – the import price index in Russia; CPI – the consumer price index in Russia; CPI_F – the consumer price index in the foreign sector (trade-weighted average); REER – the real effective exchange rate ($\text{REER} = \frac{\text{CPI}}{\text{CPI_F}} \times \text{NEER}$); NEER – the nominal effective exchange rate expressed in roubles against a basket of currencies, trade-weighted.

The analysis also used an additional variable: real GDP in the foreign sector, expressed as the gross domestic product of all the European Union Member States (GDP of the EU-28). It was a proxy variable reflecting the economic situation of Russia's major trading partners. It was introduced in order to take account of the impact of the economic situation in the EU Member States on the Russian economy, through both effects on exports of gas (sold mostly to those countries) and other transmission channels (e.g. finance, foreign direct investment or expectations influencing investment and consumption).

The summarised results of the final – fifth – stage of the analysis, i.e. the analysis of the relationship between combined gas and oil exports and GDP using the VECM, were presented in Table 2.

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Table 2

Results of analyses using the Granger causality test of the variables of 12 models (two-way causality testing)

Direction of the relationship tested	p-value
4 two-variable models	
Gas&Oil_vol → GDP_Ru	0.0284
GDP_Ru → Gas&Oil_vol	0.0001
Gas&Oil_USD → GDP_Ru	0.0006
GDP_Ru → Gas&Oil_USD	0.0003
Gas&Oil_RUR → GDP_Ru	0.0216
GDP_Ru → Gas&Oil_RUR	0.0002
Gas&Oil_ToT → GDP_Ru	0.0031
GDP_Ru → Gas&Oil_ToT	0
4 three-variable models – GDP of the EU-28 as the endogenous variable	
Gas&Oil_vol → GDP_Ru and GDP_UE	0
GDP_Ru → Gas&Oil_vol and GDP_UE	0
GDP_UE → GDP_Ru and Gas&Oil_vol	0
Gas&Oil_USD → GDP_Ru and GDP_UE	0
GDP_Ru → Gas&Oil_USD and GDP_UE	0
GDP_UE → GDP_Ru and Gas&Oil_USD	0.0002
Gas&Oil_RUR → GDP_Ru and GDP_UE	0
GDP_Ru → Gas&Oil_RUR and GDP_UE	0
GDP_UE → GDP_Ru and Gas&Oil_RUR	0.0001
Gas&Oil_ToT → GDP_Ru and GDP_UE	0.0001
GDP_Ru → Gas&Oil_ToT and GDP_UE	0
GDP_UE → GDP_Ru and Gas&Oil_ToT	0.0003
4 three-variable models – GDP of the EU-28 as the exogenous variable	
Gas&Oil_vol → GDP_Ru	0.0157
GDP_Ru → Gas&Oil_vol	0.0003
Gas&Oil_USD → GDP_Ru	0.0183
GDP_Ru → Gas&Oil_USD	0
Gas&Oil_RUR → GDP_Ru	0.042
GDP_Ru → Gas&Oil_RUR	0
Gas&Oil_ToT → GDP_Ru	0.2711
GDP_Ru → Gas&Oil_ToT	0.0025

Gas&Oil_vol – the physical volume of gas and crude oil; Gas&Oil_USD – revenue from exports of gas and crude oil expressed in USD; Gas&Oil_RUR – revenue from exports of gas and crude oil in real terms expressed in RUR; Gas&Oil_ToT – revenue from exports of gas and crude oil transformed into real terms using the estimator; GDP_Ru – Russia's real GDP; GDP_UE – GDP of the EU-28.

Source: study based on own calculations.

4.2. Interpretation of the results summarised in Table 2

Granger causality can be considered statistically significant if the p-value is below 0.1. Therefore, Granger-causal relationships between exports of energy materials and Russia's GDP can be found in 11 out of the 12 models used. But the results presented in Table 2 also confirmed the existence of two-way relationships between the variables tested. Thus: GDP of the 28 Member States of the European Union also had an effect on GDP growth in Russia, just as Russia's GDP growth Granger-caused growth in exports of natural gas.

Conclusions

Recommendations for Russia:

The analysis carried out allows to draw the following conclusions, important to the modification of Russia's previous development policy:

1. The export-led growth strategy applied in the 2000s contributed to an impressive improvement of the macroeconomic indicators in the Russian Federation. Furthermore, it facilitated the repayment of liabilities of billions of US dollars. However, this growth was not sufficiently translated into social development in Russia and improved living conditions for the population. The signs of the exhaustion of such a growth model could be seen even before the collapse in the world prices of natural gas and crude oil.
2. Profits from exports of raw materials should be allocated to the development of innovative economic sectors such as ICT, nanotechnology, exact sciences, biotechnology or to the development of human capital rather than to eliminating marked budget shortages.
3. Extraordinary gains from exports deposited at a special fund should be used to actually promote intergenerational solidarity rather than serve as emergency funds for economic crises.
4. The factors to be treated as essential elements of the strategy relying on exports of raw materials should be political and economic reforms. It would be conducive to the economic growth of the Russian Federation, enhancing the role of export revenue.

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Thus far, the Russian authorities have shown no intentions to deviate from the strategy adopted in the early 2000s. But the changing geopolitical situation, the sanctions imposed by the European Union and its increasing independence from supplies of natural gas, the ever-stronger position of China or the low prices of energy materials prevailing for a longer time have forced Russia to somewhat reorientate its policy. As regards raw material policy, it has become more oriented towards China and India and in 2015 the Eurasian Economic Union (EAEU) project, initiated by Moscow, started to be synchronised with China's alternative, namely the New Silk Road.³¹

Recommendations for Poland (as an importer of gas from Russia):

In Poland as little as one-third of blue fuel comes from domestic extraction. Therefore, it makes Poland very unfavourably dependent on gas imports, especially from Russia, a difficult partner to negotiate with for a number of reasons. Monopolistic practices, a political bias in the financial terms of supplies, new gas pipelines built outside the territory of Poland and an aggressive attitude of the Russian Federation in international relations – all these factors combined significantly jeopardise the energy security of the Republic of Poland.³²

Therefore, it is in Poland's vital interest to become permanently independent from supplies of Russian gas. The conclusions to be drawn from the analysis of Polish-Russian trade in natural gas can be presented in the form of the following recommendations:

1. Diversification of gas imports.
2. Building of infrastructure, in particular of new gas storage facilities.
3. Development of clean technologies and RES.

³¹ M. Kaczmarek, W. Rodkiewicz, *Rosyjska Wielka Eurazja wobec chińskiego Nowego Jedwabnego Szlaku: adaptacja zamiast konkurencji*, Komentarze Ośrodka Studiów Wschodnich, 21 July 2016, <http://www.osw.waw.pl/pl/publikacje/komentarze-osw/2016-07-21/rosyjska-wielka-eurazja-wobec-chińskiego-nowego-jedwabnego> (accessed 27.07.2016).

³² A. Gapys, *Ekspansja i działania monopolistyczne Gazpromu: wnioski dla Polski*, "Nauka i Gospodarka" 2010, No. 3 (6), p. 62.

4. Investment in search for and extraction of gas from unconventional sources.
5. Strengthening energy solidarity within the European Union – promoting the energy union project.³³
6. Making consistent use of the EU mechanisms for consumer right protection, unfair competition or monopolistic practices.
7. Renegotiating contracts with Russia.³⁴

Certainly, neither Poland nor the European Union intend to become fully independent from gas supplies from Russia. The quality of Russian gas is very good and it will continue to be much cheaper than LNG or gas from unconventional sources for a long time. In addition, for many years to come the Polish economy will rely on traditional fuels.

At the same time, Russia must accept free-market solutions in gas trading implemented in the European Union. It should also cease to use sales of raw materials for achieving political goals, in particular or provoking disputes between the EU Member States. This will only materialise if the EU is a strong, consolidated partner in negotiations, with a variety of alternative solutions for access to blue fuel.

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