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Russia's Petroleum Industry in the Period of Sanctions and COVID-19 Pandemic: A Review and Analysis

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ABSTRACT

Russia's four largest petroleum companies, Rosneft, Surgutneftegaz, Gazprom Neft, and Lukoil, account for more than 50% of petroleum production and 70% of the demand in Russia's drilling market. All these four petroleum companies are profoundly relying on Foreign Direct Investments (FDI) and import of equipment and technologies. FDI have been mostly received from European Union (EU) countries and United States (U.S.) and also these countries have been major providers of equipment and technologies including technologies for offshore development, horizontal, controlled-angle, and directional drilling, hydraulic fracturing, catalysts for oil processing and petrochemicals, and geological and seismic exploration. However, since applying economic sanctions against Russia by EU and U.S. in 2014 due to Crimea annexation and Ukrainian crisis, the situation with FDI and access to technologies has been dramatically changed. Keeping with the analytical separation between economic and non-economic sanctions and using concept of political economy of energy, this paper focuses on economic energy sanctions, and for brevity refer to them as energy sanctions with emphasizes on technology export ban, foreign capital ban, state support of petroleum industry and in addition, because of the crucial role that petroleum industry plays in the Russian economy, the paper discusses the impact of both energy sanctions and COVID-19 pandemic on national economy.

Keywords: Petroleum Industry, COVID-19, Russia, Energy Sanctions

JEL Classifications: P4, P48; Q4, Q43; K3, K32

1. INTRODUCTION

International sanctions generally refer to punitive measures taken by a country, a group of countries, or an international organization against countries that undermine international obligations, treaties, and agreements, and they are often initiated by countries with strong economic power as a means of combating and weakening the political, economic, and military power of other countries (Schwartz and Orleans, 1967; Nossal, 1999; Pape, 1997; Drezner, 2011). As an important means of safeguarding national security and interests, the imposition of international sanctions could also influence international relations (Brooks, 2002). In addition, many fields have also been

implicated in the impact of international sanctions. First, human rights and democracy have increasingly become important policy objectives in international economic sanctions (Tostensen and Bull, 2002; Brzoska, 2015). Additionally, in the economic field, sanctions present a significantly negative impact on the trade of the target countries (Ang, 2011). More seriously, economic sanctions undermine financial stability, making it more likely to generate currency crises. Growth Domestic Product (GDP) growth is also be negatively affected by international sanctions from a macroeconomic perspective. International sanctions also cause social problems in the countries being sanctioned - for example, increasing income inequality in target states and widening poverty gap (Paternoster et al., 1983; Marinov,

2005; Portela, 2005; Houser et al., 2008). Technological and financial sanctions targeting economic sectors are a common practice globally. However, only in the most egregious cases are they imposed on basic technologies. Generally, sanctions are oriented not on undermining the offending country's actions, but on closing off avenues for its future growth and development (Kreimer, 1984; White and Abass, 2006). The sanctions are designed so that their asphyxiating effect is not immediately noticeable (Early, 2015).

One important subset of economic sanctions is the sanctioning of energy. While not all energy sanctions lie in the economic realm, for example, the targeting of pipelines and power plants - the majority of these sanctions are of an economic nature (Mack and Khan, 2000; Allen, 2008; Portela, 2010). Keeping with the analytical separation between economic and non-economic sanctions, we focus in this paper on economic energy sanctions, and for brevity refer to them as energy sanctions. We focus on energy sanctions for several reasons. First, energy sanctions are a major category of economic sanctions and thus require closer attention. Indeed, scholars have noted the lack of theorization and conceptualization with regard to how and when energy is used in foreign policy for means other than energy goals (Miller, 2014; Rasoulinezhad, 2016; Mokin, 2019). Second, energy is a fundamental enabling element of modern life, and thus has a direct and critical impact on the functioning, well-being, and development of nations (Veebel and Markus, 2015; Nardin et al., 2016; Wen et al., 2020). This influence can be seen, for example, in the effects of the trauma of the 1973 oil shock, specifically the perception that countries that control the oil wield an oil weapon (Barrett, 1997). While OPEC use of the oil weapon in 1973 led to fear that energy dependence might increase an exporting country's ability to use sanctions against their clients, energy sanctions can also be waged by importers and transit countries. The sanctions can also seriously slow the development of export pipeline infrastructure by gradually squeezing Russia out of external markets, narrowing its channels for receiving export profits, and undermining the stability of its national economy.

Regarding the effectiveness of sanctions, abundant literature addresses the design of sanctions and their effectiveness. Many have argued that sanctions are ineffective, or that their goals are overambitious and nonrealistic (Andryushkevich, 2020). Others argue that the assessment of effectiveness needs to take a more nuanced approach than the success, failure dichotomy; should address the issue of costs in a more comprehensive way; and needs to consider political regime differences in the sender country as well as domestic factors (Newnham, 2015; Neuenkirch and Neumeier, 2016). One group of experts argues that the sanctions have no effect and, moreover, are finally stimulating import substitution and technological development (Eaton and Engers, 1999). The second group believes the sanctions will soon have catastrophic consequences due to the sector's extreme dependence on foreign financing and technology (Kaempfer and Lowenberg, 2007; Portela, 2010). An important feature of the sanctions is their exceedingly vague wording. This allows for significant flexibility in their interpretation and application, depending on the individual situation and the level of geopolitical tension (Lektzian and Souva, 2007; Chikunov et al., 2019). Under the current sanctions, it is possible

to simply preserve the status quo. But it is also possible to intensify the restrictions, including through their stricter interpretation or active application to specific projects. In both cases, the impact depends on the time frame. Understanding the design of energy sanctions is particularly important, given the considerable influence that the components of the design have over the costs, audience, and effectiveness of the sanction. Nevertheless, while the design of sanctions has been extensively researched, only a small number of these studies have analyzed energy sanctions. This paper is specifically focused on energy sanctions with emphasizes on trade import restrictions, technology export ban, foreign capital ban and in addition the impact of the COVID-19 pandemic.

Recently, there have been a number of studies that have investigated several specific resource usage and energy policy areas in resource-rich countries (Rivotti, et al., 2019) and technical issues of energy such as the gas and oil consumption (Karatayev et al., 2019), the impact of feed-in tariff policy (Karatayev and Hall, 2017), the practical application of the buy-back service contracts, or the latest reform attempts in the electricity industry (Allen, 2008; Bapat et al., 2013; Dreyer and Popescu, 2014). Beyond these particular studies, the seminal work provides a comprehensive picture of the domestic and international challenges of petroleum industry in Russia in the period of sanctions (Artykbaev et al., 2020; Karatayev et al., 2016; Fishman, 2017; Kilicarslan, 2019; Karatayev and Hall, 2020).

Another part of the literature provides different scenarios for the future production of oil and gas in Russia by the intensive use of production and consumption data, therefore putting rather less emphasis on the political aspects of supply and demand management (Zaynutdinov, 2015; Afesorgbor, 2019; Peksen, 2019; Yermekbayev et al., 2020). Some of the recent literature deals with the international prospects of the oil and gas policies of Russia, but they also contain relevant data on the development of the domestic energy policy (Neuenkirch and Neumeier, 2015; Tsaurai and Ngcobo, 2020; Meynkhart, 2020; Movkebayeva et al., 2021). The approach used in these studies is different in a sense that the focus is only on Russia and the interconnection of political and economic issues in the domestic arena (Mikhaylov and Sokolinskaya, 2019; Bimbetova et al., 2019; Ogneva, 2018; Alekseev et al., 2019; Movkebayeva et al., 2020). There is a need to reemphasize the importance of the political and economic embeddedness of Russia concerning its petroleum industry in the period of sanctions and COVID-19 pandemic. Compared to these studies, this article extends the research to sanction and COVID-19 pandemic period as well and provides the latest data on the issues discussed here. Moreover, this paper analyses existing policies and policy challenges of petroleum industry by contextualizing them with historical and political factors. Beyond the traditions of oil and gas sectors influencing energy choices, understanding organizational dynamics and the role of domestic political powerhouses in economic decision-making strengthens the human elements of energy policy analysis.

In the following sections, the paper aims to provide a reliable assessment for policy makers and all interested parties on the domestic prospects and challenges of petroleum industry in the period of sanctions and COVID-19 pandemic. With this overview,

it will be possible to identify the present state and the future needs of the Russia's petroleum industry. The significant social and economic changes such as industrialization, modernity, and the widespread use of information and communication technologies offer a new picture on the internal dynamics of Russia. Given the current circumstances provided by the partial elimination of the sanctions, the necessity of a comprehensive assessment on the performance of the Russia's petroleum sector appears relevant.

2. METHOD AND MATERIALS

There has been a large number of studies under the title of sanctions, some of them present theoretical foundation, purposes and principles of the sanctions. An overview of previous studies in introduction and literature review shows that although different quantitative methods have been used to analyze the effects of the sanctions. To address the scientific and research tasks related to petroleum industry in the period of sanctions and COVID-19 pandemic, we used the analysis of classical political economy of energy, which study energy resource production, consumption, export, import, storage in relation to governance, law, regulations, state management and public policy. The political economy analysis seeks to understand both the political and the economic aspects, and how these combines to affect patterns of power and vulnerability. Vulnerability and power are therefore analyzed as a political and economic process, in terms, for instance, of neglect, exclusion or exploitation, in which a variety of groups and actors play a part. Traditional concepts of political economy have focused on top down, macro-level approaches that examine systems and its rules. More recently, it was emphasized the need for a bottom up, micro-level, game theory approach. Both these macro and micro approaches have been incorporated into politics of development framework. The importance of understanding political processes and political systems is also central to any political economy analysis. New political economy and drivers of change, politics of development frameworks incorporate inter-disciplinary analysis - examining how economic, social and cultural systems interact with the political system and how their interactions impact on countries development. They also look at competing rules of games in formal and informal institutions; shifting coalitions that contribute to or prevent state collapse; state capacity, authority and legitimacy. These factors are particularly important in analyzing resource-rich states, where state capacity is often weak and informal practices prevalent. In addition to the descriptive analyses, a correlation analysis was performed to establish potential relationships between the study variables, with significance parameters: $P < 0.05$, $P < 0.01$, and $P < 0.001$. All statistical analyses were performed using SPSS (Statistical Package for Social Sciences, version 24.0).

3. SANCTIONS AND COVID-19 CRISIS: IMPACT AND STATE SUPPORT

3.1. Technology Export Ban

Sanctions prohibit the sale, supply, transfer, export, and financing of equipment for oil production in deep water, shale formations, and above the Arctic Circle. By the time sanctions were adopted,

foreign companies have already been prohibited from holding licenses in the Russian Arctic waters. However, their participation through service contracts with Rosneft' and Gazprom was essential for active development of Arctic petroleum resources offshore. Without access to foreign equipment, expertise, and finance, it falls on Rosneft' and Gazprom to conduct all exploration and production work, which they might not be prepared to do in the short-term. Despite strong state control of Russian Arctic offshore resources, both government and industry agree that state companies need the expertise and technology of foreign partners. Overall, experts estimate that when sanctions were imposed the development of Russian offshore resources had between 80 and 90% dependency on import technologies. In 2015, Gazprom, Novatek, and Rosneft' requested the postponement of their existing licenses, citing sanctions, low oil prices, and difficulty in accessing finance. Rosneft' requested the biggest number of such postponements. While Gazprom was developing expertise in offshore projects through Prirazlomnaya, Rosneft's projects relied heavily on western partners and its operations were arguably affected more. Thus, for example, when ExxonMobil suspended its cooperation with Rosneft' at the Pobeda field despite a significant discovery, further development at the field was postponed.

Delays in production are costly and problematic in the oil and gas industry, but it appears that the first steps are being made in attempts to revitalize the Rosneft's oil and gas ambitions. In 2019, it was announced that Rosneft' is going ahead alone at the license block in the Kara Sea, east of Novaya Zemlya. While previously drilling was done using the Norwegian-built West Alpha rig, it is not clear from publicly available reports which rig Rosneft' has been using in recent years. Moreover, while Rosneft's partnerships with Statoil and Eni for offshore development in the Okhotsk Barents Seas are on hold, there seems to be no change in long-term strategic cooperation. Close cooperation also continues with regards to the onshore Arctic fields, in which Statoil holds a 33.33% stake. As the contractual arrangements were made before the sanctions, the field is located just south of the Arctic Circle, and onshore, such cooperation is exempt from both Russian and EU restrictions. While sanctions hampered cooperation with western companies for shallow-water drilling, they did not affect any deepwater developments, as western partners also did not have established technologies for such drilling. The equipment ban has not resulted in the complete abandonment of petroleum projects but has rather led to delays and, consequently, the use of Asian equipment and the accelerated development of domestic technologies. Nevertheless, it is still premature to state that the lack of access to western technologies was substituted, especially since the current oil price climate puts any new production under question in the near-term. The lack of public access to technical assessment documents and environmental assessments of substituted technologies does not help the public scrutiny of their safety and adequacy for oil and gas industry.

3.2. Foreign Capital Ban

Another substantial factor potentially contributing to the halt of rapid development in petroleum industry is restricted access to foreign capital imposed by the sanctions. At the dawn of the imposition of sanctions, experts predicted that restriction of foreign

capital would be more detrimental to petroleum development than the technology export ban. This is further exacerbated by the low oil prices and high costs of production. Overall, some petroleum development projects in the were indeed postponed after the imposition of sanctions; currently the level of foreign direct investment is low and back to level of beginnings of 1990s (Figure 1). However, it would be unfair to attribute this solely to the sanctions regime. A number of other factors contribute to the downshift in exploration and production activities, including low oil prices, high environmental risks, and lack of reliable technologies. State support for the project has been unprecedented, starting with Putin's order to liberalize the LNG export market, effectively limiting Gazprom's monopoly. In addition to tax breaks, the Yamal LNG project has also received substantial infrastructure support, such as the construction of the Sabetta port and airport, and the launch of icebreaking and LNG tanker fleets. While Yamal LNG is exporting substantial volumes gas to, inter alia, Japan and the UK, the tax breaks it receives are substantially high. Further, Yamal LNG also receives large direct subsidies from the National Welfare Fund (NWF). Thus, in 2015, a sum of USD 2.3 bln was transferred to Yamal LNG (Russia's "Anti-Crisis" Na, 2015). This is not a unique occurrence – after sanctions were adopted, NWF also provided finance for Rosneft'.

3.3. Sanctions' Effects on Economy

Energy sanctions have had considerable reduction of Russia's GDP annual growth rate (Figure 2). Energy sanctions lead to budget deficit due to the significant dependence of the government's public budget (about 50%) on oil revenues. The seigniorage and borrowing from central bank ss an important tool for financing government budget deficit due to the economic recession and inadequate tax revenues in oil sanction conditions. Because of the energy sanctions, the inflow of the government-owned foreign currencies due to oil export drops and then, the ability of central

Figure 1: Russia's foreign direct investment, 1994-2020

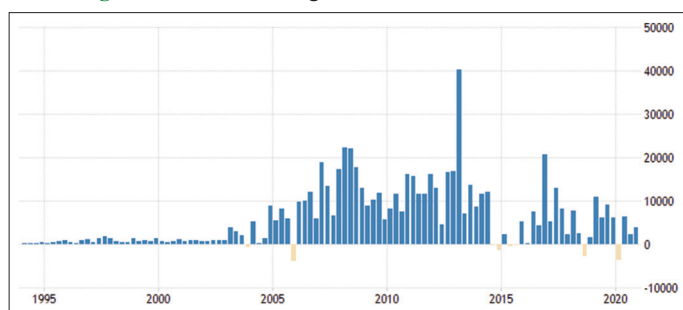
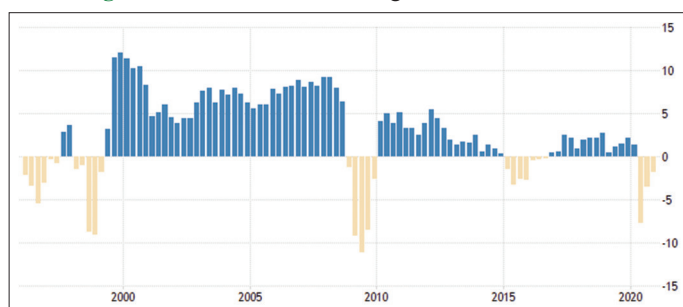


Figure 2: Russia's GDP annual growth rate, 1994-2020



bank for managing the exchange market which is in the form of managed floating regime decreases and ultimately the exchange rate rises and domestic currency is devaluated. An increase in the exchange rate, on the one hand, will raise importation costs and then the consumer price index and production costs and ultimately decrease all kinds of imports. On the other hand, it increases the competitiveness of domestic products against foreign products, thus, raising non-oil export and partly offsets the devaluation of the domestic currencies.

Russia's massive petroleum industry needs a huge amount of foreign investment and a high level of technology because oil fields are often in the second half of their lives and face severe drops in pressure and there are no adequate internal resources for financing projects. Furthermore, the international oil companies are very risk-averse due to the long-run and significantly expensive oil projects and to the uncertainty, so that the oil sanctions cause their withdrawal from Russian oil projects which reduce foreign investment and the level of technology in the oil industry, and ultimately reduce oil production and value-added activity that is the main component of gross domestic products. The result of the oil sanctions on gross domestic products depends on the final consequences of dynamics of oil export, non-oil export, imports and the consumption and investments of the government and households and the sanctions have resulted in a drop in domestic products and the recession. Hence, the primary assumptions regarding the effects of energy sanctions in the macroeconomic variables are the decreasing financing, technology and production in the petroleum industry, increasing budget deficit and seigniorage, decreasing inflow of foreign currencies and devaluation of domestic currency, increasing non-oil export and inflation, decreasing imports and gross domestic products.

3.4. COVID-19 Pandemic Impact

With the outbreak of COVID-19 and further intensification of the recession, the foreign exchange, gold, and stock markets initially experienced a slight decline but then followed an upward trend. The fluctuations in the foreign exchange and gold markets before COVID-19 pandemic (February 2020) were not much different from those after February 2020; however, the total stock market index reached its highest level since the foundation of the Russia Stock Exchange and experienced significant growth. Although this situation was not very stable and the stock market went through many fluctuations, the fact that the stock market reached its peak during this period of global economic uncertainty is particularly thought-provoking since during this period, due to the fall in oil demand and prices, Russia could hardly even sell oil below world prices and the oil revenues fell sharply. In addition, with the closure of many businesses following the COVID-19 outbreak, the government tax revenues dropped steeply. Moreover, the increase in both health expenditures and livelihood assistance to the people most affected by the outbreak led to a more severe budget deficit in majority of regions of Russia. This sequence of events led to the formation of high inflation expectations among the people. Thus, encouraged by the government's protectionist policies in the stock market, the people rushed to invest in the stock market more enthusiastically than before, hoping to make a profit and maintain the value of their assets. The influx of small investors

into the stock market and the sharp increase in the total market index created a very fragile condition.

3.5. Russia's State Support

Our correlation analysis showed that both sanctions regime and COVID-19 pandemic had significant impact on petroleum industry especially on exploration and refining sectors (Table 1). Since 2014, Russia has taken a multifaceted approach toward sanctions that has mitigated their impact, especially in the energy sector. Actually, Russia's approach has its origins in 1998 when oil prices dipped to about 10 USD per barrel. During this period of low oil prices Russia absorbed the value of sharply cutting imports of foreign goods and relying heavily on ruble transactions to reduce costs in the domestic economy, especially in the purchase of equipment and services for petroleum industry development. Other major elements of Russia's approach include continued efforts to boost natural gas exports to Europe, an increased emphasis on exporting gas to China and elsewhere in Asia, and continued efforts to limit competition in the European gas market from other former Soviet producers, particularly Azerbaijan, Kazakhstan, and Turkmenistan.

Another important aspect is financial reserves. In earlier 1990, the Russian economy defaulted that same month during a severe slump in oil prices, underscoring to Russia the value of building up financial reserves when times are good. During 1998 and 1999, Russia's international reserves were only about 12 USD billion. Putting the lesson into practice, Russia built up its reserves to 100 USD billion by 2004 and to a peak of nearly 600 USD billion in 2008. As oil prices decreased in recent years, the value of these financial reserves fell from about 500 USD billion in early 2014 by about 140 USD billion by 2015. However, the high starting point meant that Russia still had about 360 USD billion, about thirty times the amount of foreign currency reserves held by the central bank in 1998 and 1999. Russia's large buildup in financial reserves in the years leading up to 2014 enabled Russia to limit the impact of sanctions by buttressing the financial stability of its banks and providing funds to help offset the large debts of state-owned companies. Russia also used its financial reserves to support investment, including in the petroleum industry. State-owned Rosneft has particularly benefitted from these funds, as it had incurred considerable debt by buying assets formerly owned by Yukos and other entities in previous years.

At the same time, Russia allowed the ruble to drop sharply to discourage imports and lower the costs of domestic supplies purchased by Russian companies. This has worked particularly

Table 1: Petroleum industry in the period of sanctions and COVID-19 pandemic

Petroleum industry	Sanctions			COVID-19 pandemic		
	Coeff.	SE	P-value	Coeff.	SE	P-value
Production	0.64	0.76	0.12	0.73	0.68	0.07***
Exploration	-0.39	0.10	0.08***	0.86	0.03	0.06***
Refining	0.14	3.12	0.04**	0.78	0.06	0.02**
Service	-0.82	0.17	0.13	-0.33	0.08	0.14
Import	-0.41	0.13	0.00	0.42	0.02	0.00
Export	0.28	0.15	0.00	0.11	-0.17	0.00

***P<0.01, **P<0.05, *P<0.10

well in the energy sector, where domestic suppliers of equipment and services have been able to replace imported goods and services at lower costs. Many foreign suppliers of goods and services are also required to accept rubles as payment in the energy sector, which lowers costs for Russian companies. Russian government has further supported its energy sector activities by lowering taxes on oil production operations and oil export duties in recent years.

4. CONCLUSION

Overall, sanctions have significantly impacted Russia's economy, standard of living, investment capabilities, and even its options to pursue further political or military ambitions in Ukraine. However, the Russian energy sector—the target of some of those sanctions is doing well. Financially, Russia suffered the most economic pain in the first year of sanctions, as companies suddenly faced debts denominated in dollars and euros and saw their access to foreign borrowing reduced. At the same time, commodity prices were plunging, creating huge financial losses and a cash crunch, and contracting the economy. However, energy and commodity prices began to stabilize, and Russia's central bank began cutting back its defense of the ruble in 2015, reducing the drain on financial reserves.

The Russian government gradually resumed some investment, which benefited energy and other commodity development. This was reinforced by growing foreign investment, particularly by European companies. German investment almost disappeared after sanctions were imposed in 2014, but in 2016 Germany was second only to China in investment in Russia, contributing more than 2 USD billion. The dynamics of Russian oil production operations also work favorably. Both the value of the ruble and tax rates, including the mineral extraction tax and the export duty, fluctuate in concert with oil prices, helping to keep the economics of oil investment and production relatively stable. According to analysis by the Financial Times, the return on investment to Russian companies for production by standard individual vertical wells in West Siberia is similar to or higher than the return before the 2014-2015 price plunge.

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