

The Curse of the Petro-State: Economic sanctions channel: Evidence from the case of Russia

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Abstract

This study analyzes the impact of economic sanctions on Russia's macroeconomic indicators (foreign direct investment, oil exports, and GDP growth) using a synthetic control group approach. The research finds that the indicators would have been lower without the sanctions and highlights the vulnerability of petrostate economies to economic sanctions. The study suggests that the findings could assist sanctioned nations in developing internal and foreign strategies and that sanctions on petrostate countries may exacerbate the resource curse.

Keywords: economic sanctions, petrostates, oil curse, synthetic control method.

لعنة الدولة النفطية: قناة العقوبات الاقتصادية: الأدلة من حالة دولة روسيا

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الملخص:

تقوم هذه الدراسة بتحليل تأثير العقوبات الاقتصادية على المؤشرات الاقتصادية الرئيسية في روسيا (الاستثمار المباشر الأجنبي وصادرات النفط ونمو الناتج المحلي الإجمالي) باستخدام مجموعة مراقبة تحاكي المؤشرات قبل فرض العقوبات. وتشير الدراسة إلى أن هذه المؤشرات كانت ستكون أقل دون فرض العقوبات، مما يؤكد على ضعف الاقتصادات

المعتمدة على النفط وحساسيتها للعقوبات الاقتصادية. كما تشير الدراسة إلى أن هذه النتائج يمكن أن تساعد الدول المفروض عليها العقوبات في وضع استراتيجيات داخلية وخارجية، وأن فرض العقوبات على الدول المعتمدة على النفط يمكن أن يؤدي إلى تفاقم ظاهرة "لعنة الموارد".

الكلمات المفتاحية: العقوبات الاقتصادية، الدول البترولية، لعنة النفط، طريقة التحكم الاصطناعية

1. Introduction

The impact of economic sanctions on petrostates and the resource curse phenomenon is a significant topic in politics and international affairs. Sanctions, imposed by governments and international organizations, can have profound effects on the economy (Neuenkirch & Neumeier, 2015; Ertimi et al., 2023). However, there has been relatively little research conducted on this subject. With a growing number of nations classified as petrostates, it is important not to overlook the impact of sanctions within the framework of the resource curse theory.

The application of sanctions can lead to a decrease in exports, imports, and foreign investment, resulting in a negative impact on GDP growth and other macroeconomic indicators. This vulnerability to the resource curse makes governments more susceptible to the imposition of sanctions. Thus, the application of sanctions can be seen as one of the symptoms of the resource curse phenomenon. or the natural resource paradox, as discussed in literature by Auty & Warhurst (1993) and Sachs & Warner (1995).

The resource curse theory challenges the traditional belief that abundant natural resources automatically lead to economic development. It suggests that economies heavily reliant on natural resources, particularly oil, tend to have lower growth rates. This paradoxical situation is known as the natural resource curse hypothesis. Despite the general belief that natural resources

contribute positively to economic growth, empirical evidence and historical analysis show that this is not always the case.

This research focuses on examining the effect of economic sanctions on foreign direct investment, oil exports, and GDP growth in petrostates, using Russia as a case study. Petrostates, with their dependency on oil exports, have economies that are vulnerable to sanctions. The study aims to estimate the impact of economic sanctions on the mentioned variables in Russia, utilizing the synthetic control method.

The research begins with a review of the literature on petrostate economies, the effectiveness of economic sanctions, and the structures of these economies. It then delves into an analysis of Russia's economic characteristics and its susceptibility, along with other petrostates, to the oil curse phenomenon. This paper aims to show that economic sanctions tend to make matters even worse. Thus, it can be considered as another transmission channel of the oil curse.

2. Literature Review

2.1. Economic Sanctions and Petrostates: A Transmission Channel

Oil-generated conflict disincentives often target the government of the petrostate, leading to armed action and economic sanctions by countries or the international community. Sanctions are used to pressure existing regimes to undertake reforms, and this study suggests a new channel that has not been addressed as part of the resource curse (Ertimi et al., 2023; Bellin, 2004; J. Colgan, 2011; J. D. Colgan, 2010). Sanctions are foreign policy instruments used by sender countries to alter target states' actions, either unilaterally or multilaterally. They are believed to place economic costs on their targets to change their behavior (Bapat & Morgan, 2013). The effectiveness of sanctions is influenced by the determinants of their efficacy, with higher aggregate economic costs being more successful (Afesorgbor & Mahadevan, 2016; Peksen & Son, 2015; Neuenkirch & Neumeier, 2015).

The 1990s was referred to as the "sanctions decade," and studies have shown that sanctions have a significant negative effect on the target's GDP, particularly for poor people. They threaten financial stability, provoke currency crises, and hinder the economic development of the target country. Researchers have studied the operation of economic sanctions, their effectiveness, humanitarian implications, and the relationship between law and economic sanctions. Sanctions have severe health effects, adverse impacts on trade, and negative externalities by diminishing targeted state human rights and civil liberties, as well as reducing democratic freedoms in the target country (Hovi & Sprinz, 2005; Marinov, 2005; Pape, 1997; Hufbauer et al., 2008; Moret, 2015; Alexander, 2009; Allen & Lektzian, 2013; Gibbons & Garfield, 1999; Forrer & Zhu, 2009 and, Peksen & Drury, 2010).

2.1.1. Country Case (Russia)

Several estimates have been presented of the effect of sanctions on the Russian economy (e.g., (Dong & Li, 2018; Gurvich & Prilepskiy, 2015; Russell, 2016). In a report by the IMF, Erbenova et al. (2016) focused on a generic macroeconomic model; sanctions could decrease the real production of Russia by about 1 to 1.5 per cent of GDP through lower consumption and investment. Gurvich and Prilepskiy (2015) evaluate the negative effect of the 2014-2017 total capital flow due to sanctions at about \$280 billion. Dreger, Kholodilin, Ulbricht, and Fidrmuc (2016) present evidence that sanctions are most important in understanding currency patterns. They may not consider sanctions impact the development of the Russian currency substantially.

Similarly, a report by Grant and Hansl (2015) argues that sanctions against Russia might have impacted expenditure and consumption but do not include precise figures. Stone (2016) studies the impact of economic sanctions on Russian securities prices. He observed that sanctions reduced returns and concluded that sanctions were successful in enforcing costs to Russia and recommended three strategies for transmitting the effects of sanctions: lower projected income, higher volatility, and negative

effects on resources. The effect of the economic sanctions and oil prices on Russian ruble exchange rates is addressed by (Dreger et al., 2016) using daily data from 1 January 2014 to 31 March 2015. Based on a cointegrated VAR model, the bulk of depreciation of the ruble is attributable to the decline in oil prices, while unanticipated sanctions are liable for the conditional volatility. Using a model of structural vector auto regression, Kholodilin and Netšunajev (2019), with quarterly data on the period 1997Q1–2018Q1, investigated the actual impacts of Russian sanctions. In Dreger et al. (2016) 's spirit, they found weak proof of the decrease in Russia's growth rate. Although the consequences are minimal, depreciation pressures are reported following sanctions.

Bělín and Hanousek (2020) use bilateral flow data to examine the impact of sanctions imposed on exports and imports. Their finding shows a significantly greater decrease in European and American food imports than in extraction equipment exports. The researchers also relate variation in sanction performance to enforcement variations. In a similar vein, Cheptea and Gaigné (2020) assess that nearly half of the EU's exports of products to Russia sanctioned by Russia were related to sanctions themselves. Yet, Sanctions in Russia's oil industry are typically targeted at long-term, high-risk oil projects. Though these sanctions do not threaten or interfere with Russian energy supplies or prohibit Russian firms from exporting oil and gas to another country, they make it impossible for Russia to undertake potential long-term, technically demanding projects. To date, secondary sanctions have not been introduced concerning investments in those forms of Russian crude oil projects (Brown, 2020).

Oil production and Russian exports have risen since the first sanctions were imposed on the US oil industry in July 2014. Furthermore, despite steadily falling oil prices and Russia's presence in the OPEC and other non-OPEC oil-producing nations (jointly called OPEC+), such a rise occurred. Under Russia's new sanctions scheme, oil production volumes will begin to increase in the immediate future. Yet Russian future petroleum output remains

somewhat unclear, in part due to possible implications resulting from sanctions and the potential for secondary sanctions to ban foreign investments in some Russian petroleum production projects (Brown, 2020).

Considering the nature of sanctions placed on Russia, we focus on the spectrum of impacts of sanctions on macroeconomic indicators in Russia. The economy is heavily dependent on their oil, which would greatly influence and affect the entire economy. Overall, there was no substantial investigation of the resource curse under economic sanctions as one of the transmission channels. In doing so, a synthetic control method will be employed. This study differs from those suggesting evidence from a case studies country and the impact of economic sanctions to suggest another mechanism through which resource curse is affected.

The study reveals that economic sanctions impact GDP, foreign direct investment, industrial output, and corruption, which are key factors in the resource curse. It suggests that the curse is worse in sanctioned countries than non-sanctioned ones. The research uses sanctions as another transmission channel of the curse and conducts an empirical analysis of a synthetic control group. This approach provides new insights for policymakers and academics, highlighting the importance of understanding the relationship between economic, political, and social factors.

We provide particular country evidence of the effect of oil dependence on macroeconomic indicators by providing a new channel through which oil dependence affects the oil-growth nexus.

3. Empirical Specification

Estimates of the causal impacts of the economic sanctions on microeconomic indicators for selected petrostate economies, as well as the robustness analysis, are presented in this section. Most early studies of sanctions effects were based on traditional estimates methods, such as pooled regression of ordinary least squares (OLS) or fixed time effects. Fresh studies have disputed the validity of the OLS findings regarding the sanctions analysis and used different

strategies for bias-correcting techniques. Using more advanced models is motivated by which standard estimation methods will generate inconsistent estimates of parameters and incorrect inferences if panel data regression errors are cross-sectionally correlated (Pesaran, 2006).

3.1. Synthetic Control Method (SCM)

To assess the effect of economic sanctions on oil exports, we use the synthetic control method introduced by (Abadie & Gardeazabal, 2003) with further developments in (Abadie, Diamond, & Hainmueller, 2010) and (Abadie, Diamond, & Hainmueller, 2015). It is a relatively new method and, according to Athey and Imbens (2016), represents the leading innovation in the impact assessment literature since 2003. One of the main applications of the method is to perform case studies with small samples and with only one or a few units treated.

As argued by Abadie and Gardeazabal (2003) and Abadie et al. (2010), it is frequently the case that a mix of control units is developed to mimic the evolution of the placebo group as closely as possible before an intervention. Hence, it will serve as a much better comparison for the intervention-exposed unit than any single unit alone. It is imperative to select the donor pool from economies that are not also treated and share some fundamental similarities with the treating group when applying the synthetic control approach. We thus, limit our control group to non-sanctioned countries in oil-abundant countries, which depend heavily on oil exports as a large share of their total exports, which leaves a donor pool of 11 countries with a treatment country of Russia.

The method aims to create a synthetic country for a sanctioned country, consisting of a weighted average of non-sanctioned countries. The evolution of oil exports from these synthetic countries can demonstrate how macroeconomic indicators would have evolved without sanctions. The synthetic control method is objective, based on data-driven data, reducing researcher bias. It is challenging to find a single untreated unit that resembles the most important characteristics of the treated unit. The method generates

a weighted combination of units, providing a better basis for comparison. If the synthetic country is constructed to minimize differences before treatment, the estimated effect of sanctions will be determined by the difference between the sanctioned country's macroeconomic indicators and the synthetic country's in the post-treatment period (Abadie, 2019).

The question that this methodology should answer is: "What would be the development of the target variable in time if one single important event did not occur in the past." The SCM method is a synthetic counterfactual technique that is then clearly applied to the series observed. The contra factual is defined in the control sample as a weighted average of units. It is necessary to choose a set of suitable control units, as mentioned, as it is the only stage in which one can take the possible biases into account. Hence, the objective is to evaluate the effect of economic sanctions on macroeconomic indicators by applying the synthetic control group. We use this method for the treatment case of Russia.

3.2. Constructing Synthetic sanctioned country

The comparative case studies approach suggests measuring effects by estimating the counterfactual outcome without intervention from comparable comparison units. To evaluate the impact of economic sanctions on foreign direct investment, oil exports, and GDP growth, a comparison unit is built, which imitates the treated country's foreign direct investment, oil exports, and GDP growth before the sanctions. The donor pool is limited to oil-dependence countries, and the best reference unit mimics the counterfactual without treatment. The weights in Table 1 are chosen to fit foreign direct investment, oil exports, and GDP growth before the treatment for both the synthetic and treatment units, ensuring the synthetic country imitates the real economy.

Table 1: Country weight in Synthetic Russia

Russia FDI		Russia RGDP		Russia OILEXP	
Country	Weight	Country	Weight	Country	Weight
Algeria	0	Algeria	0	Algeria	0
Angola	0	Angola	0	Angola	0
Colombia	0	Colombia	0	Colombia	0.034
Ecuador	0	Ecuador	0	Ecuador	0
Kuwait	0	Kuwait	0	Kuwait	0
Nigeria	0	Nigeria	0.267	Nigeria	0
Norway	0.287	Norway	0	Norway	0
Oman	0	Oman	0	Oman	0
Qatar	0	Qatar	0	Qatar	0
Saudi Aribia	0.713	Saudi Aribia	0.733	Saudi Aribia	0.966
United Arab Emirates	0	United Arab Emirates	0	United Arab Emirates	0

3.3. Data and Sample Selection

This research focuses on analyzing oil exports as an outcome vector and predictor variables such as oil production, consumption, oil proven reserves, energy use, government expenditure, FDI, and GDP. Three assumptions are made for efficient use of the method: only the treated country is influenced by the policy intervention in the pre-treatment period, and policy intervention does not affect it until implemented. Additionally, a combination of donor countries can approximate the counterfactual effect of the treated country.

The method builds a synthetic for each sanctioned country that resembles the values of control variables as predictors. In implementing the SCM, it is imperative to select the donor pool from countries that are not also being treated and that share some common characteristics with the treatment group. We, hence, limit our control group to non-sanctioned economies that are heavily dependent on oil rents, leaving us with a donor pool of 11 countries. The empirical analysis is based on annual panel data for the period 1995 to 2018. Our donor pool includes eleven rich -oil countries: Algeria, Ecuador, Colombia, Kuwait, Nigeria, Qatar, Bahrain, Saudi

Arabia, Oman, Norway, and the United Arab Emirates. We define the sanctioned country (Russia) in our data set as the treated country. The countries of interest in our study are the major oil-exporting countries, making them at least economically comparable to the donor pool. Choosing the set of controls is the stage with the most significant potential influence on the outcomes (Gharehgozli, 2017; Smith, 2015; Ertimi & Oqab, 2022).

The economic sanctions (the most comprehensive) were introduced, which gives a pre-sanctions sample running accordingly. The outcome variables are the oil exports, the foreign direct investment and GDP growth rate in the study.

Table 2: Variable description and sources

Variable	Description	Source
Oil exports	Exports of Crude Oil including Lease Condensate,	The International Energy Agency IEA
Oil production	Thousand barrels daily	BP Statistical Review of World Energy
Oil consumption	Thousand barrels daily	BP Statistical Review of World Energy
Energy use	Energy use (kg of oil equivalent per capita)	The International Energy Agency IEA
GDP	Real GDP growth (annual %)	WDI
FDI	Foreign direct investment: Inward and outward flows and stock, annual	UNCTAD, <i>UNCTAD stat</i>
Government expenditure	General government final expenditure (% of GDP)	WDI

3.4. Empirical results

Table 1 shows the list of the donor countries and their share in the construction of Synthetic Russia's counterfactual. Synthetic Russia of the FDI is best generated by a weighted average of two countries, with Saudi Arabia having the highest weights. The share of other countries in the pool is zero. Synthetic of the OILEXP is best generated by Nigeria and Saudi Arabia. In terms of Synthetic Russia, the GDP is best generated by Colombia and Saudi Arabia.

3.4.1. Synthetic Russia and the Effect the foreign direct investment (FDI)

The oil export trajectory of Russia and its synthetic counterpart from 1995-2018 shows a significant difference in FDI between the two

countries (as seen in figure 1). Since 2014, FDI in Russia has decelerated, while synthetic Russia's FDI has risen at a pace similar to pre-2014 sanctions. The difference between the two series continues to grow until 2015, indicating a significant negative impact of economic sanctions on FDI until then, followed by an increase.

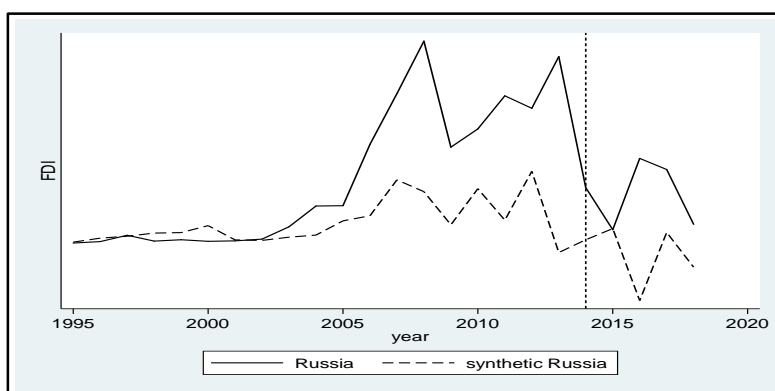


Figure 1: Trends in FDI: Russia versus Synthetic Russia

3.4.2. Synthetic Russia and the effect on the oil export (OILEXP)

Figure 2 shows a gapping plot illustrating the impact of economic sanctions on oil exports. Synthetic Russia's oil exports dropped in 2014, while actual Russia's oil exports experienced a slight drop. In 2013, Russia's oil exports were 4700.2759, less than the value they would have been if no sanctions had been imposed. However, after 2014, Russia's oil exports increased, indicating a significant difference between the two paths.

Note: The vertical dashed line is the year of imposing sanctions.

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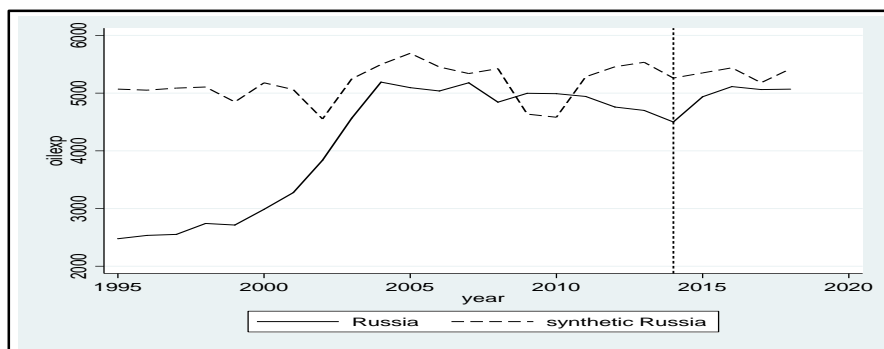
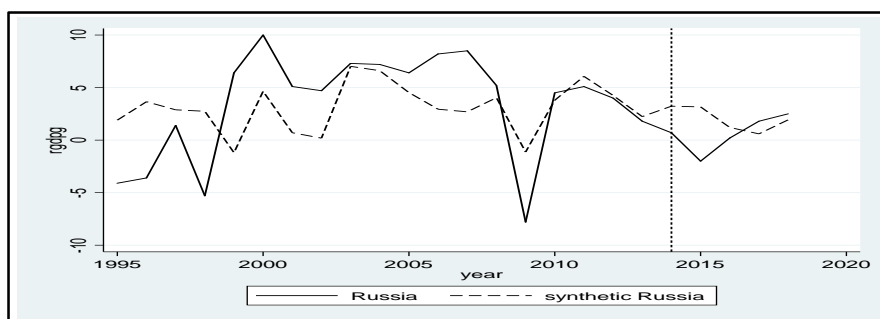


Figure 2: Trends in oil exports: Russia versus Synthetic Russia

3.4.3. Synthetic Russia and the Effect on GDP growth (GDP)

Figure 3 shows the real GDP growth rates of Russia and Synthetic Russia from 1995 to 2018, with Synthetic Russia showing a stable rate. The effect of economic sanctions imposed in 2014 is estimated by comparing the GDP growth rate of actual Russia and Synthetic Russia from 1980 to 2018 after 2014. The discrepancy between the two indicates a significant negative effect of economic sanctions on the country's GDP growth rate. The real GDP growth rate suffers a drop due to the economic sanctions.



Note: The vertical dashed line is the year of imposing sanctions.

Figure 3: Trends in GDP growth rate: Russia versus Synthetic Russia

Given that, one segment of the Russian economy is highly dependent on the oil sector and controlled mostly by the state, targeted country sanctions will have comparable consequences as far as comprehensive sanctions are concerned.

4. Conclusion and Policy Implications

This study investigates the impact of economic sanctions on the resource curse in sanctioned nations, focusing on Russia's petrostate economy. The research identifies the causal effect of economic sanctions and highlights another channel contributing to the resource curse, reflecting the international dimension of the oil curse. The study found that economic sanctions negatively affected macroeconomic indices of the Russian economy, including oil exports, foreign direct investment, and GDP growth.

The synthetic control approach was used to generate a control group, estimating a significant negative post-sanctions effect. The study highlights how economic sanctions can be used as another channel in the resource curse setting for the petrostate economy.

The case study confirms the conclusion that economic sanctions have been enforced in isolation from other methods, limiting their chances of success. The application of penalties has been linked to the strengthening of authoritarianism, as predicted by the literature. However, it also adds valuable insights to the literature on the impact of economic sanctions, as targeted sanctions aimed against the state may have a greater impact due to the reliance on a state-controlled industry.

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