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The Economic, Political and Social Effects of Geopolitical
Sanctions
A Comparative Study of Russia, China and Venezuela

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Yannic Sascha Daverkausen B.Sc.

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Abstract

Geopolitical sanctions are increasingly being used as an instrument of international foreign policy. While they aim to influence political behavior without the use of military force, their economic, political, and social consequences remain the subject of intense debate. This study examines the effects of geopolitical sanctions on these three dimensions by combining cross-country panel analyses with country-specific case studies. The empirical analysis focuses on Russia, China, and Venezuela and applies two complementary quantitative methods. First, fixed-effects panel models are estimated to determine the average relationship between sanctions and economic performance, political development, and social outcomes across a large panel of sanctioned countries. Second, the synthetic control method is used to construct counterfactual development paths for each case study, which enables the estimation of country-specific sanctions effects. The results suggest heterogeneity in the effects of sanctions. The fixed-effects models show that the European Union’s ongoing sanctions are associated with lower per capita GDP, weaker political rights, and lower levels of social development, while the effects of U.S. sanctions are generally smaller and less consistent. The SCM analysis reveals negative repercussions of sanctions for Russia and Venezuela, particularly in terms of economic performance. In contrast, there is little evidence of systematic negative effects for China, which may suggest that diversified and institutionally resilient economies are potentially better able to withstand external economic pressure. Overall, the results suggest that the effectiveness of sanctions depends heavily on country-specific structural characteristics.

Zusammenfassung

Geopolitische Sanktionen werden immer häufiger als Instrument internationaler Außenpolitik genutzt. Während sie darauf abzielen, politisches Verhalten ohne den Einsatz militärischer Gewalt zu beeinflussen, sind ihre wirtschaftlichen, politischen und sozialen Folgen nach wie vor Gegenstand intensiver Debatten. Diese Arbeit untersucht die Auswirkungen geopolitischer Sanktionen auf diese drei Dimensionen, indem länderübergreifende Panelanalysen mit länderspezifischen Fallstudien kombiniert werden. Die empirische Analyse konzentriert sich auf Russland, China und Venezuela und wendet zwei sich ergänzende quantitative Methoden an. Zunächst werden Panelmodelle mit festen Effekten geschätzt, um den durchschnittlichen Zusammenhang zwischen Sanktionen und Wirtschaftsleistung, politischer Entwicklung sowie sozialen Ergebnissen über ein großes Panel sanktionierter Länder hinweg zu ermitteln. Zweitens wird die Synthetische Kontrollmethode verwendet, um für jede Fallstudie kontrafaktische Entwicklungspfade zu konstruieren, was die Schätzung länderspezifischer Sanktionseffekte ermöglicht. Die Ergebnisse deuten auf eine Heterogenität bei den Auswirkungen von Sanktionen hin. Die Modelle mit festen Effekten zeigen, dass die laufenden Sanktionen der Europäischen Union mit niedrigerem Pro-Kopf-BIP, schwächeren politischen Rechten und geringerem Niveau der sozialen Entwicklung einhergehen, während die Auswirkungen der Sanktionen der USA im Allgemeinen geringer und weniger konsistent sind. Die SCM-Analyse zeigt negative Nachwirkungen der Sanktionen für Russland und Venezuela, insbesondere hinsichtlich der Wirtschaftsleistung. Im Gegensatz dazu gibt es für China kaum Anzeichen für systematische negative Auswirkungen, was darauf hindeuten könnte, dass diversifizierte und institutionell widerstandsfähige Volkswirtschaften möglicherweise besser in der Lage sind, externem wirtschaftlichen Druck standzuhalten. Insgesamt deuten die Ergebnisse darauf hin, dass die Wirksamkeit von Sanktionen stark von länderspezifischen strukturellen Merkmalen abhängt.

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1 Introduction

Time and again, states and intergovernmental organizations threaten other states with geopolitical sanctions. In increasingly frequent and extensive cases, these threats are not just empty words, but are implemented. They are used as a key instrument of foreign policy by major powers such as the United States, the European Union, and the United Nations to influence the behavior of affected states without having to resort to military intervention (Drezner, 2011; Hufbauer et al., 2008). Against the backdrop of increasing authoritarianism, geopolitical competition, and violations of human rights and international law, sanctions are often used to bring about political change, punish military aggression, or restrict access to global financial systems and strategic technology, especially military technology (Biersteker et al., 2016; Morgan et al., 2014). There has been ongoing debate about the effectiveness and humanitarian consequences of sanctions since the imposition of extensive economic sanctions against Russia following the annexation of Crimea in 2014 and, even more so, after the invasion of Ukraine in 2022. During a similar period, other countries such as China and Venezuela were also subject to various forms of targeted sanctions, raising questions about the political choices, economic impact, and unintended humanitarian consequences of such measures. As sanctions, particularly those imposed by the EU, are to be imposed in an increasingly “smart” and targeted manner, there is an urgent need for an empirical assessment of their real impact. This thesis contributes to the literature by providing a comprehensive data-driven analysis of the economic, political, and socioeconomic consequences of sanctions. The analysis combines a broad panel-based examination of several sanctioned countries over time with case studies of three highly relevant target countries with different characteristics: Russia, China, and Venezuela. The main question to be answered is whether sanctions have an impact on macroeconomic outcomes such as GDP per capita, as well as on political indicators such as the degree of democracy and social development metrics such as the Human Development Index (HDI). The study uses two complementary empirical strategies. The first method uses a fixed-effects panel model to estimate the average treatment effect of sanctions across many countries and years, controlling unobservable heterogeneity. In a second step, the Synthetic Control Method (SCM) is used to examine country-specific trajectories and counterfactual outcomes for Russia, China, and Venezuela. The thesis is divided into seven chapters. Chapter 2 outlines the theoretical framework for economic sanctions, and pro-

vides an overview of the existing empirical literature. Chapter 3 presents the research design and methodological approaches. Chapter 4 discusses the data sets and variables used in more detail and presents the composition of the donor pools. Chapter 5 presents and discusses the empirical results, divided into the two methods used, FEM and SCM. The thesis concludes in Chapter 6 with a summary and outlook.

1.1 Russia: Sanctions, Political Context, and Economic Background

In the early 2000s, Vladimir Putin led Russia into a period of economic growth and political stabilization, but this was accompanied by increasing authoritarianism (Gel'man, 2015). The political system has become increasingly centralized in the new century, resulting in the weakening of democratic institutions, the suppression of dissenting opinions, and the strong domination of areas such as the media and the judiciary by the state (Treisman, 2018). Economically, Russia is highly dependent on exports of natural resources, particularly oil and natural gas, which account for a significant portion of government revenues and foreign exchange earnings, while also making the economy vulnerable to global commodity price shocks and other external shocks (Connolly, 2020). Following Russia's annexation of Crimea in 2014, the United States, the European Union, and other Western allies imposed coordinated sanctions to deter further aggression against Ukraine. The measures targeted high-ranking individuals and various industries, including finance, defense, and energy. In particular, these measures consisted of asset freezes and travel bans against Russian officials and oligarchs, bans on Western capital markets for some of Russia's largest state-owned banks, export controls for dual-use goods, and restrictions on the transfer of advanced technology to Russia's energy sector (Connolly, 2018). Afterwards, sanctions were expanded again after Russia's full-scale invasion of Ukraine in 2022. As of 2023, Russia is considered to be the most sanctioned country in the world. In addition to targeting many individuals and sectors, Russia was excluded from parts of the SWIFT system, faced freezing of central bank reserves and asset seizures, and extensive export restrictions were imposed (Council of the European Union, 2024). These sanctions allow Russia to serve as an empirically rich case study.

The geopolitical salience and unprecedented intensity and longevity of economic sanctions on Russia allow for exploration of the economic, political, and

social effects of economic coercive measures.

1.2 China: Sanctions, Political Context, and Economic Background

Under the leadership of the Communist Party of China, China has undergone a major economic transformation, evolving from a centrally planned system to a strongly market-oriented economy. Rapid industrialization, technological progress, and integration into global markets have established China as one of the world’s largest economies (Brandt & Rawski, 2008; Naughton, 2007). Politically, however, China is an authoritarian one-party state with strict controls on opposition figures, the flow of information in the media, and civil liberties (Ringen, 2016). Under Xi Jinping’s leadership, surveillance mechanisms have been increasingly strengthened, term limits have been eliminated, and restrictions on minorities and political opponents have intensified (Economy, 2018). In recent years, geopolitical tensions between China and Western powers, particularly the United States, have intensified significantly. Developments such as the suppression of political freedoms in Hong Kong, threats and aggressive behavior toward Taiwan, and human rights violations against the Uyghur minority have ultimately prompted both the EU and the US to impose targeted sanctions on China. Mostly, these sanctions targeted Chinese officials by freezing assets and barring them from entering the United States. Officials and companies accused of human rights violations against Uyghurs and ethnic minorities in Xinjiang have been targeted. Restrictions have also been placed on Chinese companies via the Entity List and other blacklist-based methods restricting their ability to acquire advanced technology, semiconductors, and other vital components produced by Western companies (Council of the European Union, 2021; U.S. Department of the Treasury, 2021). In addition, increasing technological rivalry is another aspect of the confrontation, as a result of which the US has introduced extensive export controls and blacklisting measures against major Chinese tech companies to restrict access to strategic technologies (Miller, 2022; U.S. Department of Commerce, 2022).

Although the scope of sanctions against China is significantly smaller than those against Russia, from an empirical perspective, China nevertheless offers an interesting and unique case for examining the interaction between targeted sanctions, authoritarian resilience, and economic adjustment.

1.3 Venezuela: Sanctions, Political Context, and Economic Background

Venezuela has experienced many political and economic changes. It had been stable up until Maduro came to power but fell into large crisis due to many different factors. Venezuela benefitted from oil exports which strengthened its economy. This strong economy became fragile due to structural issues with governance, bureaucracy and over reliance on oil. Following the collapse of international oil prices in 2014, Venezuela found itself in a severe depression, evidenced by hyperinflation and large-scale emigration (Corrales, 2020). Following the country becoming more and more of an authoritarian regime which suppresses dissent, damages democracy, and erodes checks and balances, many western nations imposed sweeping and targeted sanctions. They consisted of travel bans and asset freezes on high-ranking officials, limits on Venezuela's ability to access international financial markets, sanctions on the state-owned oil firm PDVSA, and freezes on Venezuelan state assets overseas. The US in particular has imposed far-reaching financial sanctions on Venezuela in the form of asset freezes, oil export restrictions, and exclusion from international financial systems. The measures were designed to increase political pressure on the Maduro government and to encourage democratic and institutional reforms (Corrales, 2020; Seelke & Sullivan, 2025).

Venezuela is an interesting case due to the scope of the sanctions, the extent of economic collapse, and the differences, particularly in terms of the impact on the global economy, compared to the other two countries, Russia and China. The case thus provides insights into potential humanitarian trade-offs and the limited effectiveness of sanctions when imposed on states whose systems are already fragile.

2 Theory and Literature Review

This chapter introduces the theoretical foundation used for the analysis of geopolitical sanctions. We begin by defining the term sanctions as well as the types of sanctions, and identifying the main actors and goals associated with their use. We then discuss relevant theory on how sanctions are expected to create political, economic, or social leverage and present an overview of the empirical literature. Furthermore, we discuss the evolution and influence of targeted or "smart" sanctions, which have gained considerable importance over the past

years. Lastly, we summarize the body of research concerning our three case study countries: Russia, China, and Venezuela, and identify unique gaps in research.

2.1 Definition and Typology of Economic Sanctions

Sanctions are among the most commonly used foreign policy tools in recent years. Economic sanctions may be defined as partial or full purposeful withdrawal of some or all normal economic relations by a government or international governmental organization towards another country in order to prompt a change of that country's political behavior. Sanctions can be defined as "the withdrawal or threat of withdrawal of customary trade or financial relations" (Hufbauer et al., 2008, p. 3). They are therefore seen as an economic coercion instrument intended to pressure another state without military means. Depending on their scope and goals sanctions can assume many forms and differ substantially. One common typology differentiates between trade sanctions, financial sanctions, investment sanctions, and other measures such as travel bans or arms embargoes. The respective instruments can either be enacted unilaterally or multilaterally through international organizations such as the UN or the EU (Drezner, 2011).

Literature mainly draws a distinction between comprehensive sanctions and targeted sanctions. Comprehensive sanctions are wide-reaching sanctions that cover whole sectors or even the economy of the target country as a whole. The problem with these, however, is that they often had unintended humanitarian consequences and affected the population more than necessary (Biersteker et al., 2016). Targeted sanctions, also known as "smart sanctions" were therefore developed to achieve more precise pressure on individuals, organizations or specific industries.

Goals for imposing sanctions can also vary widely. One frequent use of sanctions is to force a change in behaviour from the target government. Sanctions can also be used for purely symbolic goals. As long as a state or international body does not agree with the behaviour or political stance of another state, it can impose sanctions. Geopolitical sanctions can seek to empower internal opposition and pressure the government to encourage political change.

Overall sanctions can serve as a bundle of diverse instruments to achieve foreign policy objectives without military force. The different categories between comprehensive/unilateral or targeted/multilateral sanctions show how the policy has adapted to normative demands of international cooperation on one hand

and concerns over efficacy and blowback on the other. This is necessary to understand how sanctions operate and their effects.

2.2 Theoretical Mechanisms of Sanction Effects

Sanctions work through several theoretical mechanisms that aim to change behavior in sanctioned countries. In general, sanctions can be understood as an economic policy tool that countries use to influence the behavior of another country through pressure, restrictions, or targeted signals. The theoretical basis for the effectiveness of sanctions has been extensively established and discussed in the literature.

The first body of work comes from rationalist models, which simply assume that sanctions raise the costs of defiance for the sanctioned state and therefore alter its cost-benefit calculus. According to this theory, the target state of the sanctions will be willing to comply with the sender's demands if the costs incurred exceed the perceived benefits of continued non-compliance (Hufbauer et al., 2008; Kaempfer & Lowenberg, 1988).

Targeting sanctions can also contribute to weakening a regimes domestic support through fostering domestic hardship, undermining supporters of the regime, or empowering opposition groups. Regime change can thus prove one of the more difficult objectives to realize through sanctions as it very much depends on domestic conditions being favorable. Consequently, destabilization effects tend to be indirect and contingent on pre-existing vulnerabilities.

By limiting access to financial markets, strategic goods and, above all, technology, governments can be rendered incapable of acting. This objective is usually what we see when sanctions are applied due to military aggression or threats of violence. Sanctions however often do not achieve swift behavioural change to comply with these regulations but instead serve to erode the target country's capabilities over time, as seen with Iran and Iraq (Morgan et al., 2014).

However, the effectiveness of these strategies hinges significantly on aspects like the breadth of international backing, the existing trade relationship between the sanctioning and targeted nations, and the level of outside assistance the latter receives. The literature has also identified unwanted spillover effects such as increasing domestic support for targeted regimes, or creation of bolstering actors who back targeted countries and help absorb imposed costs (Early, 2015). These unintended dynamics complicate empirical identification of causal

sanction effects.

2.3 Empirical Evidence on the Economic Effects of Sanctions

The number of empirical studies examining the economic results of sanctions has grown considerably in recent times. This literature bases its analysis on sanction effects primarily on macroeconomic variables such as GDP per capita, inflation rates, trade flows, or foreign direct investment (FDI). Theory predicts a negative impact on the target economy because of the costs imposed by sanctions. Empirically, studies find that both the magnitude and transmission channels of sanction effects vary case-by-case. The nature of economic harm inflicted by sanctions appears to be heavily dependent on the scope and type of sanction as well as contextual factors. Therefore, empirical findings point to large heterogeneity in both magnitude and transmission channels of sanction-induced economic effects.

The data from one of the earliest and most comprehensive sanction studies by Hufbauer et al. (2008) on more than 200 historical sanctions show that economic effects can be small and differ across sectors, despite having political success. The success rate of sanctions in their data set was higher if the political demands were small, if sanctions were multilateral instead of unilateral, and if they targeted weak countries or countries that were heavily dependent on trade with the sanctioning country (Hufbauer et al., 2008). Recent empirical studies based on panel methods support the previous findings that sanctions harm the target country's economy. Neuenkirch and Neumeier (2015) study the impact of UN and US sanctions on GDP growth. Their findings indicate that sanctions decrease GDP growth, mainly in authoritarian regimes. Crozet and Hinz (2020) use their gravity model to show that bilateral trade losses can be substantial after sanctions are imposed. Other studies assess the impact of sanctions on FDI and inflation. Political risk and limited access to international financial markets trigger the decrease in FDI (Afesorgbor, 2019). When analyzing inflation as a result of economic sanctions, Peksen (2019) shows that countries with pre-existing macroeconomic deficiencies are more susceptible to currency and inflation declines. In summary, the existing literature implies that sanctions result in economic disadvantages for the targeted nations. Using this information, we can analyze what type of sanctions will have the greatest impact and what effects sanctions have on different regimes and economic structures. How

much economic damage results is influenced by the nature of the regime and the country’s economic framework.

2.4 Targeted and “Smart” Sanctions: Evolution and Critique

The way sanctions are implemented has transformed greatly since the start of the century. In response to humanitarian concerns and growing doubts about their efficacy, sanctions have become “smarter.” Instead of targeting whole populations, states have aimed to impose costs directly on political leaders or elites, militaries, or private companies. In the early 2000s, the shift to targeted sanctions gained momentum after international criticism of the comprehensive sanctions against Iraq in the 1990s. The development of smart sanctions was driven by a desire to apply pressure on the Iraqi leadership in a way that avoided widespread human suffering (Biersteker et al., 2016; Cortright & Lopez, 2002). International organizations such as the UN and EU are now more likely to employ sanctions that seek to avoid collective punishment of an entire population’s civil society. Forms of smart sanctions include travel bans, arms embargoes, asset freezes, financial restrictions, and denial of sales related to strategic technology. The idea behind smart sanctions is to increase internal pressure by targeting political leaders or elites, military leaders, or specific companies without causing suffering to the civilian population. In theory, smart sanctions can offer several advantages. Their flexibility allows them to be tailored to a specific target country and the situation surrounding that country. In addition, they are easier to justify politically and legally, as they are designed to avoid collective punishment of an entire population. However, opinions and empirical findings on smart sanctions vary. Some studies question their actual effectiveness in enforcing political change. Those affected by targeted sanctions have often found ways to circumvent or at least mitigate the restrictions. There is also criticism that smart sanctions can have significant side effects, especially when important sectors such as energy, banking, or technology are sanctioned. Newer studies have found that even targeted sanctions cause economic downturns which can limit access to essential resources for the most vulnerable (Biersteker et al., 2016; Peksen, 2019). Critics also argue that the term “smart” in relation to sanctions is more of a political branding strategy than an empirical reality. In authoritarian regimes, sanctions can even contribute to consolidating power by enabling those in power to mobilize domestic support against foreign interven-

tion. This effect is also known as the “rally-around-the-flag” effect (Early, 2015; Galtung, 1967). Because of this, there is still controversy over whether targeted sanctions truly reduce humanitarian costs when compared to comprehensive sanctions. Conceptually, smart sanctions create unique methodological problems. Because they are targeted at individuals or organizations, it is difficult to establish causality. Despite this, smart sanctions are closely examined here because they comprise modern day sanction policy. All three countries under analysis have been subjected to some form of targeted sanctions in the last decade.

2.5 Country-Specific Evidence and Research Gaps

The broad literature on sanctions concerning Russia, China and Venezuela can likely be explained by countries geopolitical standing as well as their respective political and economic makeup. As mentioned earlier, these countries have been sanctioned on different occasions for a variety of reasons and have responded in multiple ways.

Following its 2014 annexation of Crimea and the 2022 invasion of Ukraine, Russia has been the target of multiple sanctions. Various studies have examined the effects of Western sanctions on trade flows, financial stability, and economic growth. Crozet and Hinz (2020) estimate that Russia trades substantially less due to sanctions and show that sanctions and counter sanctions shock trade links, decreasing trade significantly. Additional research explored how countries adapted by replacing imports, leaning more on locally produced goods, and building stronger connections with other trading nations (Connolly, 2018; Korhonen et al., 2018). Political influence has also been discussed, and research has examined whether sanctions have reinforced authoritarian tendencies by enabling the state to strengthen its power through increased control of the media and thus propaganda (Åslund, 2019; Dreyer & Popescu, 2014).

For China, the literature on sanctions is more limited, which could be due, among other things, to the extent of the sanctions. Research focuses on specific, targeted measures imposed in response to human rights violations, cybersecurity concerns, and geopolitical tensions. The sanctions were primarily aimed at officials and companies linked to human rights violations in Xinjiang, the aggressive crackdown on Hong Kong, and the military threat against Taiwan. Some studies suggest that China is now seeking to further entrench itself from potential western sanctions by further developing domestic tech and reducing

its dependence on western products and the dollar (Horesh, 2021; Shirk, 2022). The long term political ramifications are still up for debate in literature. Questions on whether China’s authoritarian style of government will be affected by western sanctions and if China’s global economic standing will be altered remain without answer.

An abundance of research can be found on Venezuela. Researchers have looked at the socioeconomic and political impact of sanctions on a nation with a severe shortage economy and a government in authoritarian consolidation. The US in particular has imposed several sanctions against individuals, the financial system, and especially the oil sector. Rodríguez (2019) argues that sanctioning the Venezuelan oil industry caused the collapse of the country’s economy and intensified humanitarian suffering. The result was the flight of many people and mass migration to neighboring countries. Other studies analyzed if sanctions on Venezuela have promoted democratic reforms. Peksen and Drury (2010) found that there is little to no evidence that sanctions have helped Venezuela transition to democracy.

Overall, while there is plenty of research on the effects of sanctions on these countries, there are still gaps that can be explored. Most studies tend to focus on one country at a time and do not compare across countries. Combined analyses using large scale panel data and detailed case studies are few and far between. Also, sanctions’ various effects based on different regime types on political and social metrics has been somewhat overlooked.

3 Research Design and Methodology

The following chapter presents the methodological framework used to empirically assess the impact of sanctions on economic, political, and social outcomes. The aim is to identify measurable effects of sanctions on key macro indicators and to examine whether these effects differ according to country-specific contexts. This method is suitable for controlling unobservable heterogeneity and identifying trends in various political, economic, and socio-humanitarian indicators. Subsequently, the Synthetic Control Method (SCM) is applied to create detailed case studies on Russia, China, and Venezuela. SCM enables the construction of a synthetic development by combining a weighted average of non-sanctioned countries that resemble the characteristics of the sanctioned country prior to the sanctions. This allows country-specific effects of sanctions

to be identified and dynamic changes over time to be examined. The chapter outlines the core logic behind the two approaches, the structure of the empirical procedure, and the reasons for using the methods, which are discussed in 3.1 and 3.2. Section 3.3 discusses possible methodological limitations.

3.1 Fixed Effects Panel Model (FEM)

To identify the average causal effect of international sanctions on economic, political, and social outcomes, this paper uses a fixed effects panel regression model (FEM). The specification closely mirrors that of Neuenkirch and Neumeier (2015), who study the effects of economic sanctions on recipient countries using a two-way fixed effects panel model. This paper deviates from Neuenkirch and Neumeier’s (2015) paper in several aspects. First, sanctions are differentiated based on sender (European Union vs. United States). Second, sanction onset is separated from sanction enforcement through the use of sanction-start and active indicators. Third, the framework is utilized for political and social outcomes as well (Freedom in the World score, HDI).

The empirical specification is given by:

$$Y_{it} = \alpha_i + \lambda_t + \beta S_{it} + \gamma X_{it-1} + \varepsilon_{it} \quad (1)$$

where Y_{it} is the outcome variable for country i in year t . The dependent variable is the logarithm of GDP per Capita, or alternatively Freedom in World score or HDI depending on the specification. α_i and λ_t are country and year fixed effects respectively.

$$S_{it} = \{USStart_{it}, USActive_{it}, EUStart_{it}, EUActive_{it}\} \quad (2)$$

Equation (2) defines the elements of the sanction vector S_{it} . $USStart_{it}$ and $EUStart_{it}$ are dummy variables equal to one in the first year of a sanction episode, zero otherwise. $USActive_{it}$ and $EUActive_{it}$ are dummy variables indicating that sanctions are currently in effect. Accounting separately for sanction onset and sanction duration allows the model to capture both immediate and lasting effects of sanctions.

The vector X_{it-1} includes lagged controls for country-specific time-invariant characteristics that are thought to affect relevant economic, political, and social traits of countries in the sample. Model specifications include inflation, trade

openness, foreign direct investment, population size, democracy measures, and conflict variables as controls. Lagged terms are used throughout to mitigate concerns of simultaneity or reverse causality with the explanatory variables and our outcome variables.

Country- and year-fixed effects account for time-invariant country characteristics like geography, history, institutions, culture, and economic structure, as well as global trends and shocks like the international business cycle, commodity price cycles, and wars. Therefore, I capture how changes within countries over time relate to sanctions.

Compared to Neuenkirch and Neumeier’s (2015) baseline specification, the current analysis differs from their work by including four sanction variables as opposed to one sanction indicator. This allows for a separate analysis of both the imposing parties and the duration of the sanctions. Furthermore, separate model specifications are estimated for economic, political, and social outcomes, enabling a broader assessment of sanction consequences than the original growth-focused framework.

3.2 Synthetic Control Method (SCM)

In a second step of the empirical analysis case studies based on the Synthetic control method (SCM) are created for each of the three countries Russia, China and Venezuela. SCM is an approach to conduct quantitative case studies developed by Abadie and Gardeazabal (2003) and further refined by Abadie et al. (2010). It allows estimating causal effects when only one or few units are treated by a certain measure.

Fundamentally, the aim is to build a synthetic counterfactual, charting the hypothetical course the country would have followed without the intervention. This synthetic unit consists of a weighted average of “similar” units that were not treated, where the weights are chosen such that the characteristics of the synthetic control resemble those of the treated unit as closely as possible. The difference between the post-treatment path of the sanctioned country and the synthetic control can then be interpreted as the treatment effect. Potential donor countries were first selected from a pool of non-sanctioned countries based on their similarity to the treated country in terms of the respective outcome variable and predictor variables. In practice, the SCM determines weights by the synthetic control algorithm for donor countries that minimize the difference in pre-treatment levels of the outcome variable and a set of predictor variables

between the synthetic unit and the treated unit. The outcome variables and predictor variables are discussed in more detail in the next chapter. The quality of the method depends on the similarity between the treated unit and the synthetic control in the pre-treatment phase.

The formal specification of the synthetic control estimator is given by

$$\hat{Y}_{1t}^N = \sum_{j=2}^{J+1} w_j Y_{jt}, \quad (3)$$

where $\hat{Y}_{1t}^N$ denotes the estimated counterfactual outcome for the treated country in the absence of sanctions, Y_{jt} represents the observed outcome of donor country j at time t , and w_j is the weight assigned to donor country j . The donor weights are determined such that the synthetic control closely reproduces the characteristics and outcome trajectory of the treated country during the pre-treatment period. They are subject to the following constraints:

$$w_j \geq 0, \quad \sum_{j=2}^{J+1} w_j = 1. \quad (4)$$

In this study, Y_{1t} represents GDP per capita in the economic model, the V-Dem Democracy Index in the political model, and the Human Development Index (HDI) in the social model. The SCM is estimated separately for each country and outcome dimension.

The SCM will be run separately for each of the three countries under each of the three dimensions. The donor pool from which the countries are drawn from will also be different for each case and dimension. In all cases, we specify the introduction of extensive international sanctions as the start of the treatment (2014 Russia, 2017 Venezuela, and 2021 China). Donor countries are ones that were not exposed to major sanctions during the sample period (2000-2024) and have macroeconomic and institutional profiles comparable to the country under analysis.

This approach comes with various benefits. Its ability to estimate dynamic treatment effects allows us to trace how the outcome variable changes over time. Estimating these case-specific effects can give greater nuance to conclusions that would be drawn from cross-country averages. Since the effectiveness and impact of sanctions can depend widely on factors like regime type, domestic economic structure, and international linkages, this added specificity can help us better understand the consequences of sanctions in different contexts.

However, there are drawbacks to SCM, particularly with regards to its data needs. A lengthy and contiguous pre-treatment period with reliable data must be available. Suitable donors must also exist. Additionally, as with all analytical approaches, ensuring validity is crucial, highlighting the need for robustness checks like placebo tests and MSPE (Mean Squared Prediction Errors) ratios. Finally, poor predictor balance or donor weighting instability can limit our ability to interpret SCM estimates, which can be present in countries with erratic economic or political paths.

While the fixed-effect panel model offers a macroeconomic assessment of sanction effects, the SCM allows us to analyze these consequences on a microeconomic level by looking at how each case study individually responds. Overall, this methodology should add nuance to our understanding of both the average effect of sanctions and how context matters.

3.3 Methodological Limitations and Identification Challenges

While the joint application of both methods constitutes a powerful empirical strategy to study sanction effects, both methods suffer from drawbacks which should be noted.

First, regarding the fixed effects model, strict exogeneity of the sanctions variable is presumed. This means that the application of sanctions is believed not to systematically correlate with error terms or unobserved time-variation that could impact the outcome variable of interest. However, sanctions are usually not exogenous, i. e. they are often applied in response to negative developments in a target country’s political, economic or social/humanitarian situation. Consequently, the estimates for sanction effects could be biased due to reverse-causality and omission errors. Time-varying confounding factors thus still constitute a threat to the identification of effects despite controlling for unobserved heterogeneity with country and year fixed effects. Furthermore, potential spillover effects between treated and control countries are not considered. Lastly, when studying sanction effects, only domestic fluctuations are considered.

A primary challenge for the synthetic control method lies in the limited choice of the donor pool and the resulting conclusions drawn from it. A long and reliable period of pre-treatment data and a sufficient predictor overlap between treated and potential donor countries is crucial for obtaining stable SCM-results.

Moreover, it is not possible to include multiple treated units and estimate average treatment effects on the group-level simultaneously. Classical significance testing is not feasible. Thus, the validity of placebo tests and the MSPE before and after treatment can only be assessed.

Both methods rely on the assumption of stable unit treatment values which assumes that treatment on one country does not affect the outcome of another country. However, this assumption might be violated because of geopolitical entanglements, trade relations, or strategic agreements like between the BRICS countries.

Taken together, both methods allow deriving stable and meaningful results despite their limitations. While FEM estimates the average effect present in numerous sanctioned countries, SCM allows an in-depth-analysis of country-specific effects.

4 Data and Variables

Chapter 4 introduces the data used in the quantitative analysis. The chapter outlines the origins of the data, its panel configuration, and the specific variable definitions applicable to both analytical approaches. Moreover, it outlines how the outcome and control variables were constructed as well as how the donor pool for SCM was determined. The chapter is structured according to the logic of the empirical strategy. First the data basis is introduced, followed by the variables.

4.1 Data Sources and Panel Structure

For the empirical analysis, we compiled a panel dataset spanning 2000 to 2024, incorporating countries subject to international sanctions as well as those free from them. The data set was constructed by merging several publicly available, commonly used international data sources to enable transparency and comparability of results. Indicators were sourced primarily from the World Bank (World Development Indicators) and the United Nations Development Program. Where applicable, data on political indicators such as the democracy score and political rights level of a country was sourced from the Varieties of Democracy (V-Dem) project (Coppedge et al., 2021) and Freedom House. Each data source provides annual data on the country level, with wide international coverage and consistency in methodology. Sanctions data comes from

the Global Sanctions Database (GSDB) compiled by Felbermayr et al. (2020), which systematically codes sanctions imposed by large actors, such as the European Union (EU), United States (US), and United Nations (UN). For each sanction, it offers standardized data on sanction type, actors involved, start- and enddate, and the targeted country. In addition, it describes the objective of each measure. This database allows for readily available sanction identification and harmonized coding, which facilitates compiling the panel dataset. While the panel consists of both treated and untreated observations, only sanctioned countries are included in the FEM in this study, since the fixed-effects modeling strategy exploits within-country variation in the timing and duration of sanctions. Countries which are not sanctioned constitute the donor pools in the SCM. The dataset contains information at the country-year level. Data has been cleaned and standardized across all sources. Countries which lacked widespread coverage in several data sources (like North Korea) were omitted. The dataset used for the FEM consists of N countries observed over T years and thus translates to a classic panel of two dimensions. This structure allows for estimating within-country effects while accounting for trends. While the SCM uses information from the same dataset, restricted donor pools are selected for each case study and dimension.

4.2 Variable Definition and Selection

The following section describes the variables used for the empirical analysis. Its construction is based on current empirical work on economic sanctions and macro-political outcomes (Afesorgbor, 2019; Neuenkirch & Neumeier, 2015; Peksen, 2019). The selection of variables is based on theoretical considerations on the one hand and on the availability and comparability of data across countries and years on the other. The chapter is further subdivided into 4.2.1, where we discuss the dependent variables in detail. Chapter 4.2.2 deals in more detail with the control variables used. For both methods, important economic, political, and social variables are recorded that sanctions are likely to affect. This consistent structure ensures that both the FEM and the SCM rely on clearly defined and theoretically grounded variables.

4.2.1 Outcome Variables

The study relies on a variety of outcome variables because sanctions are assumed to affect not only a country’s economic performance but also its political struc-

ture and social development. Therefore, the study takes a multidimensional approach, which is analyzed using both the fixed-effects panel model and the SCM.

An important indicator of a functioning economy is GDP per capita, which serves as a proxy for overall economic performance and living standards in a country. It is among the most common variables used in sanctions literature and allows for international comparisons both over time and space (Felbermayr et al., 2020; Neuenkirch & Neumeier, 2015). The data comes from the International Monetary Fund (IMF), a recognized and reliable source that reflects inflation-adjusted annual data from the national accounts.

Beyond economic indicators, the study includes variables that capture political and institutional development. The fixed-effects political model uses the Freedom in the World score, while the SCM political models use the V-Dem electoral democracy index because of its continuous scale and suitability for synthetic control estimation. The electoral democracy index from the V-Dem Project (Coppedge et al., 2021) is used to measure the quality of democratic institutions in a country. The index combines indicators such as suffrage, freedom of expression, fair elections, and restrictions on the executive branch, and provides a continuous measurement between 0 and 1. This measurement is well suited for tracking gradual regime changes. Sanctions are often imposed in response to democratic backsliding or human rights violations, which is why this variable serves as an important political outcome.

Finally, the Human Development Index (HDI) by the United Nations Development Programme (UNDP) is used to measure a sanction’s far-reaching impact on a country’s human development. HDI captures dimensions of prosperity and social development by incorporating life expectancy, education, and per capita income. Sanctions can spill over to affect health systems, education infrastructure, and long-term human development. The HDI is therefore a useful outcome variable to capture these effects. Note that the HDI adjusts slower than most economic indicators, which should be kept in mind when looking at SCM trajectories in the post-treatment period.

4.2.2 Control Variables

The models control for additional covariates, allowing us to improve the internal validity of our empirical analysis and mitigate concerns of omitted-variable bias. The selection of variables follows the approach of established empirical

strategies such as Neuenkirch and Neumeier (2015), Peksen (2019), and Afesorgbor (2019). The control variables were selected based on their relevance in the existing literature and their theoretical connection to sanctions and their influence on economic, political, and social outcomes. One of the most relevant and frequently used control variables in the literature is inflation. Inflation is sensitive to external price shocks, monetary instability, and weak exchange rates, which can be further exacerbated under sanctions, especially in weak economies (Peksen, 2019).

Gross fixed capital formation (GFCF), measured as a share of GDP, is used as a proxy for investment dynamics, as sanctions can have a long-term impact on capital accumulation and infrastructure development. Its role as an indicator of domestic investment in development literature has already been used in studies on trade disruptions and political risks (Escribà-Folch & Wright, 2010).

External economic linkages are controlled for using variables on trade openness and Foreign Direct Investment (FDI) inflows, expressed as share of GDP. These covariates are included in most sanction studies as they account for vulnerability to external economic coercion (Afesorgbor, 2019; Crozet & Hinz, 2020).

Furthermore, controls are included for the size of a country using the logarithm of total population. Larger countries may be subject to less sanctions impact due to domestic market-size and economic diversification. Total population is often used as a scaling variable in cross-country regression analyses (Hufbauer et al., 2008).

The model also includes public spending on education and health as a percentage of GDP to account for the role of investment in social and human capital. These indicators are important for long-term development and can be indirectly influenced by sanctions. Their importance in social development allows them to indirectly affect the factors under analysis and are included following precedent in development economics literature (United Nations Development Programme, 2024). Including these variables allows for more robustness when using composite measures like the HDI.

Finally, we argue that institutional quality of a country should be included when quantitatively measuring the political and social criteria. Not only can quality of governance predict whether a regime might be targeted for sanctions but can play a major role in resilience to them. We use six indicators of institutional quality from the Worldwide Governance Indicators (WGI), they are: anti-corruption, government effectiveness, political stability & absence of vio-

lence, regulatory quality, rule of law, and voice & accountability. Depending on the model specification, selected WGI indicators are included as control variables. Several studies have shown these indicators to have either economic or political effects of countries under external pressure (Biersteker et al., 2016; van Bergeijk, 2022). Peksen (2019) uses the indicators in his study analyzing the durability of authoritarian regimes and economic performance under sanctions. These findings support the inclusion of institutional quality variables to improve model specification and reduce omitted-variable bias.

5 Empirical Results

The following chapter presents the empirical results of the study. The analysis is divided into two parts, corresponding to the methodological approach described in Chapter 3. Section 5.1 presents and section 5.2 discusses the results of the fixed-effects panel model (FEM), which estimates the average relationship between sanctions and economic, political, and social outcomes across the sample. Sections 5.3, 5.4, and 5.5 then present the results of the synthetic control method (SCM). The sections are organized thematically according to the three areas of analysis: economic, political, and social effects. Within each section, the three case studies are analyzed separately in order to construct a counterfactual development path for each country and analyze deviations from the actual development after sanctions.

5.1 Fixed Effects Model Results

Tables 1 to 3 present the estimation results of the three fixed effects regressions on economic, political and social sanctions. On the whole, the results show that ongoing EU sanctions are negatively related to all three dependent variables across all model specifications.

Table 1: Fixed Effects Regression Results: Economic Model

Variable	Coefficient
Sanction Start (US)	0.004 (0.018)
Active Sanctions (US)	-0.014 (0.016)
Sanction Start (EU)	0.092* (0.052)
Active Sanctions (EU)	-0.106*** (0.038)
conflict	-0.029 (0.029)
inflation _{t-1}	-0.000023*** (0.000004)
trade _{t-1}	-0.0031*** (0.0004)
log(population)	-0.728*** (0.066)
FDI _{t-1}	0.0008 (0.0030)
GFCF _{t-1}	0.0110*** (0.0012)
democracy _{t-1}	0.046 (0.075)
Observations	2,019
Countries	92
Country Fixed Effects	Yes
Year Fixed Effects	Yes
Adjusted R^2	0.714
F-statistic	151.86***

Notes: Standard errors are reported in parentheses. Country and year fixed effects are included in all specifications but omitted from the table for brevity. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Regarding the economic model, the coefficient for ongoing EU sanctions takes a value of -0.106 and is statistically significant at the 1 percent level (p

$= 0.005$), which implies that EU sanctions in force are associated with a significantly lower GDP per capita. However, neither the start of US sanctions nor EU sanctions had a notable impact on economic performance. Of all included control variables, inflation, trade openness and population load negatively on GDP per capita while GFCF is positive and statistically significant with a very high t-value. FDI and democracy are statistically insignificant. The overall explanatory power of the model is quite high, as indicated by an adjusted R^2 of about 0.71.

The estimation results for the political model in Table 2 show a negative relationship between sanctions and Freedom in the World score. Ongoing EU sanctions lead to a significant decrease in political rights and civil liberties, as indicated by the coefficient of -7.77 ($p < 0.001$). While the effect of active US sanctions is negative as well, it is much smaller than its EU counterpart (-2.38; $p < 0.001$) and statistically significant. Although the coefficient for sanction start by the EU is positive and significant (3.95; $p = 0.005$), the US sanction-start variable is not statistically different from zero. Taken at face value, these results suggest that longer sanction episodes are in general associated with worsening political conditions on average. Findings for the political model are therefore in line with arguments made in the sanctions literature about the unintended consequences of sanctions enforcement such as incumbent empowerment or political centralization instead of democratization. About one quarter of variation in Freedom in the World score can be explained by the estimated model, reflected in an adjusted R^2 of 0.25.

Table 2: Fixed Effects Regression Results: Political Model

Variable	Coefficient
EU Sanction Start	3.955** (1.392)
Active EU Sanctions	-7.770*** (1.050)
US Sanction Start	0.181 (0.492)
Active US Sanctions	-2.377*** (0.455)
GDP _{t-1}	-1.349* (0.654)
inflation _{t-1}	-0.00025* (0.00010)
rule of law _{t-1}	12.669*** (0.824)
log(population)	-4.556* (1.835)
Observations	2,009
Countries	94
Country Fixed Effects	Yes
Year Fixed Effects	Yes
Adjusted R^2	0.248
F-statistic	27.00***

Notes: Standard errors are reported in parentheses. Country and year fixed effects are included in the estimation but omitted from the table for brevity. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Estimation results for social development are similarly negative, but overall smaller in magnitude as can be seen in Table 3. While active EU sanctions are associated with a significant decline in HDI (-0.007; $p = 0.014$), the coefficient for US sanctions in force is not statistically significant. This finding implies that the model does not yield sufficient evidence for a systematic relationship between US sanctions and social development. The coefficient for sanction start by the US is positive (0.002) and marginally significant at the 10 percent level. By contrast, the coefficient for the EU sanction-start variable is not statistically different from zero. Of all control variables, lagged GDP per capita and control of corruption are positive and statistically significant. Public expenditures for education and health are negative as predicted, but not significant at conventional levels. The social model features an extraordinarily high explanatory power, with an adjusted R^2 of about 0.83.

Table 3: Fixed Effects Regression Results: Social Model

Variable	Coefficient
EU Sanction Start	0.0016 (0.0041)
Active EU Sanctions	-0.0073* (0.0030)
US Sanction Start	0.0024* (0.0013)
Active US Sanctions	-0.0010 (0.0012)
GDP _{<i>t</i>-1}	0.0209*** (0.0016)
education _{<i>t</i>-1}	0.0004 (0.0005)
health _{<i>t</i>-1}	-0.0001 (0.0003)
control of corruption _{<i>t</i>-1}	0.0127*** (0.0021)
Observations	1,465
Countries	85
Country Fixed Effects	Yes
Year Fixed Effects	Yes
Adjusted R^2	0.826
F-statistic	227.70***

Notes: Standard errors are reported in parentheses. Country and year fixed effects are included in the estimation but omitted from the table for brevity. Statistical significance is denoted by * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

In sum, the three fixed effects models show that ongoing EU sanctions are negatively related to economic performance as well as political and social development. Results for US sanctions are mixed and only arise as statistically significant relationships in the political model. Although the discussed regression results cannot be interpreted as causal effects beyond a reasonable doubt, they illustrate that longer sanction episodes may go in tandem with poor economic indicators as well as political and social development in target countries.

5.2 Discussion of FEM Results

Looking at the fixed effects results in Section 5.1, several key takeaways emerge. On the whole, the patterns align with much of the broader sanctions literature. For example, several authors have cautioned that sanctions can inflict economic damage on target states, while also creating unintended political and social

side-effects.

Specifically, the economic model yields a negative and statistically significant coefficient for active EU sanctions. This echoes research by Neuenkirch and Neumeier (2015) who demonstrate that economic sanctions tend to decrease GDP growth in targeted countries. Neuenkirch and Neumeier find especially large effects for multilateral compared to unilateral US sanctions. The latter are shown to be weaker and statistically insignificant. This parallels the findings here, where EU sanctions are associated with significantly worse economic outcomes, but US sanctions do not produce robust economic effects. One interpretation is that EU sanctions are more effective when signalling and enforcing truly international disapproval or when they disrupt valuable trade, financial, or investment relationships. Conversely, the lack of US effects on economic performance indicates that sanctions do not always affect target countries in the same way.

The political estimates reinforce this somewhat skeptical reading of sanctions. Economic and US sanctions are both negative and statistically significant, suggesting that sanctions are not conducive to political liberalization. Instead, they are associated with declines in political rights and civil liberties. This is consistent with the argument that sanctions may strengthen authoritarian incumbents by allowing them to blame external actors for domestic problems. Galtung’s (1967) “rally-around-the-flag” mechanism is particularly relevant in this context, as sanctioned governments may use foreign pressure to consolidate domestic support, justify repression, or centralize political authority. Sanctions create scapegoats for political leaders who seek to generate domestic support for their rule. This could take the form of increased repression, centralized political authority, or other actions that uniformly decrease polity scores. Many sanction researchers have voiced similar concerns, claiming that sanctions can backfire by triggering political deterioration rather than democratization.

Finally, the social model suggests sanctions may have negative side-effects on development. The coefficient for active EU sanctions is negative and passes the conventional threshold for statistical significance. This implies that longer sanction episodes correlate with lower HDI values. Thus, the results are consistent with studies saying sanctions harm civilian living standards by reducing government revenue, undermining service provision, discouraging investment, or weakening institutional capacity. By contrast, active US sanctions fail to reach statistical significance. Similar to the economic model, this suggests the social impact of sanctions may vary according to the sender. The costs imposed on

civil society may depend on sanction design, how many countries participate, and whether the target can substitute away from lost economic activity.

5.3 Economic Effects: Synthetic Control Analysis

This section presents the results of the synthetic control method (SCM) used to analyze the economic impact of sanctions. The focus here is on the change in GDP per capita and the assessment of how it would have developed without sanctions imposed by the EU or the US. The analysis covers the three case studies of Russia, China, and Venezuela. To ensure comparability between the cases, the same outcome variable is used for all three countries, namely GDP per capita. The selection of predictors is also consistent across all economic models and is based on theoretical considerations and empirical relevance in the literature on economic performance. The selection of predictors includes foreign direct investment as a share of GDP, the inflation rate, the log-transformed population size, and GDP per capita. These variables are frequently used in literature to capture structural macroeconomic characteristics. Although the outcome and predictor variables are harmonized, each of the three SCM models is based on a country-specific donor pool and, logically, a treatment year. The donor pools are constructed to exclude countries that have been sanctioned and to include economies that are similar in terms of data availability. Treatment years correspond to the year in which large-scale coordinated sanctions were first imposed by the EU and US on the target country. In addition, a placebo-in-time and placebo-in-space analysis is performed for each SCM model to assess the robustness of the estimated effects. For readability, the corresponding placebo figures are included in Appendix B, while the main text summarizes the key findings of these robustness tests. The same applies to the other two SCM sections (5.4 and 5.5).

5.3.1 Russia: Economic Effects of Sanctions

The synthetic control unit is formed from a pool of non-sanctioned emerging and middle-income countries with similar macroeconomic structures. As can be seen in Table 4 Uruguay, Poland, Suriname and India are given the highest weights in composition of the synthetic control. The predictor balance in Table 5 shows that per capita GDP, inflation, population, and foreign direct investment show a reasonably close alignment, providing a solid, although not perfect, basis for constructing the counterfactual.

Table 4: Donor weights for the synthetic Russia (Economic Model)

Country	Weight
Uruguay	0.3753
Poland	0.3716
Suriname	0.1854
India	0.0545

Table 5: Predictor means before the sanctions, Russia (Economic Model)

Predictor	Russia	Synthetic Russia	Donor Pool Mean
GDP per capita	8265.53	8264.90	4059.37
Inflation (%)	11.92	7.38	7.14
Population	143869343	79984090	81161758
FDI (% of GDP)	2.562	2.564	5.121

Figure 1 shows that before treatment, the treated unit and the synthetic control closely resemble each other, but after treatment, there is a clear discrepancy between the treated unit and the control. The per capita GDP of the treated unit stagnates and eventually declines, while the control group continues to grow moderately. This pattern and an MSPE ratio of 2.99 suggest a negative divergence consistent with the interpretation that sanctions may have constrained economic performance, which is consistent with theoretical expectations. The magnitude and duration of the discrepancy after treatment suggest that sanctions may have contributed to long-term growth constraints and also show that sanctions were intensified in the meantime.

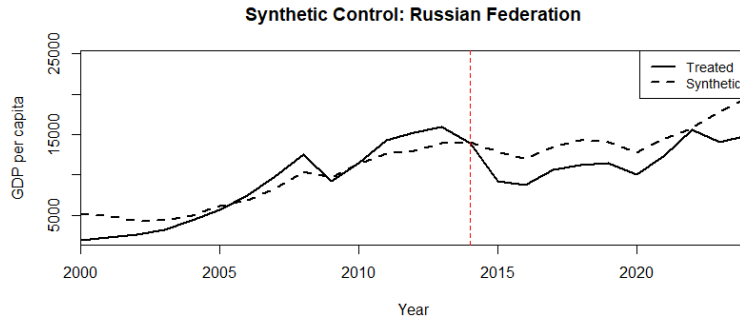


Figure 1: Synthetic Control for Russia: GDP per capita

The robustness of these results is supported by two placebo tests. First, a

placebo-in-time analysis (see Appendix B, Figure 10) is used with a fictitious treatment year of 2009, and second, a placebo-in-space test is used to examine how countries from the donor pool perform as treated countries compared to Russia. The in-time analysis shows no divergence between the treated and synthetic series, confirming that the observed deviation after 2014 is unlikely to be due to random fluctuations. The figure for the placebo-in-space test (see Appendix B, Figure 11) shows that Russia’s gap after treatment is more pronounced than for most countries in the donor pool. Even though some donor countries show moderate deviations in some cases, the clear downward trend of the treated unit supports the interpretation of a negative effect. Overall, the SCM provides strong indications of a negative post treatment divergence for Russia, both in terms of magnitude and duration.

5.3.2 China: Economic Effects of Sanctions

Since we only have a short post-sanction phase of three years in this example, the medium-term and long-term effects of sanctions can only be demonstrated to a limited extent using the example of China. In contrast to the comprehensive measures against Russia or Venezuela, the sanctions against China were mainly limited to selected individuals, companies, and sectors. The donor pool comprises countries that did not experience sanctions during the observation period and have consistent data availability. Looking at Table 6 Malaysia, India and the Maldives are given the highest weights in the composition of the synthetic control, reflecting their similarity to China’s macroeconomic structure. Table 7 shows that the predictor balance shows close alignments in GDP per Capita and FDI, but shows big deviations for inflation and population.

Table 6: Donor weights for the synthetic China (Economic Model)

Country	Weight
Malaysia	0.456
India	0.439
Maldives	0.104

Table 7: Predictor means before the sanctions, China (Economic Model)

Predictor	China	Synthetic China	Donor Pool Mean
GDP per capita	5141.43	5135.81	4355.949
Inflation (%)	2.24	3.95	5.49
Population	1340258000	557349760	80849870
FDI (% of GDP)	2.968	2.964	4.895

The actual and synthetic GDP per capita trends are largely consistent before treatment. After 2021, however, the GDP per capita of the treated unit rises significantly, while the control unit shows flatter growth, which can be seen in Figure 2. This divergence and the MSPE ratio of 7.07 suggest that China performed better economically after the sanctions were imposed than in the counterfactual scenario. This result contradicts the original expectation of negative effects and could indicate that China was able to compensate for external pressure through domestic policy measures or alternative trade relations, or that the sanctions imposed had only limited economic impact.

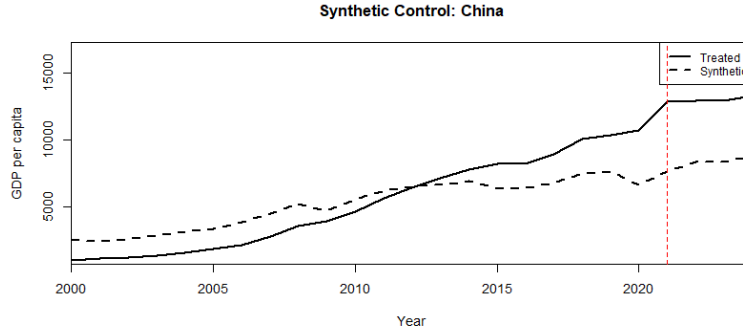


Figure 2: Synthetic Control for China: GDP per capita

The placebo-in-time analysis, which assumes a fictitious treatment year of 2016, shows no significant differences between treated and synthetic China (see Appendix B, Figure 12). The placebo-in-space results (see Appendix B, Figure 13) show that China is unique in its positive effect, with one exception, and that the countries in the donor pool show smaller effects. These two tests jointly support the interpretation that the observed post treatment divergence is unlikely to be driven by random variation. It is likely that economic dynamics, government control mechanisms, and close integration into global supply chains have cushioned the potential impact of international sanctions.

5.3.3 Venezuela: Economic Effects of Sanctions

Venezuela is a special outlier because of high macroeconomic volatility and the extreme scope of US sanctions. The year of treatment is 2017 where most sweeping sanctions were put in place including financial and oil sanctions. The donor pool covers many Latin American and Caribbean economies and other developing economies with similar economic structures. Table 8 shows that the economies with the most weight on Venezuela’s control are Ecuador, Argentina and Brazil. As for the predictor balance in Table 9, the pretreatment alignment is satisfactory, though some room for improvement exists. GDP per capita and population seem well matched on average, while inflation and FDI display larger differences between Venezuela and Synthetic Venezuela.

Table 8: Donor weights for the synthetic Venezuela (Economic Model)

Country	Weight
Ecuador	0.4938
Argentina	0.4508
Brazil	0.100

Table 9: Predictor means before the sanctions, Venezuela (Economic Model)

Predictor	Venezuela	Synthetic Venezuela	Donor Pool Mean
GDP per capita	7102.26	6387.75	4391.77
Inflation (%)	44.97	10.38	7.65
Population	27905046	27904127	25506409
FDI (% of GDP)	1.398	1.729	3.973

As can be seen in Figure 3, there begins to be a divergence between treated Venezuela and synthetic Venezuela around the year 2013. This gap continues to grow every year. An MSPE value of 3.74 confirms these findings. US sanctions began to ramp up significantly in 2015. Venezuela was given the treatment year of 2017 because the EU enacted sanctions that year and the US also increased the intensity of sanctions. Venezuela suffers a significant drop in GDP per capita while that of the control group increases at a moderate rate. The synthetic has a dip in between these two but not to the magnitude of Venezuela. With such a growing gap after treatment, a massive negative shock to the economy can be assumed but was not unexpected. These findings fit under the assumptions that sanctions will have large negative impacts on countries with high levels of structural issues. Venezuela’s economy was especially weak due to high reliance

on outside financing and exporting.

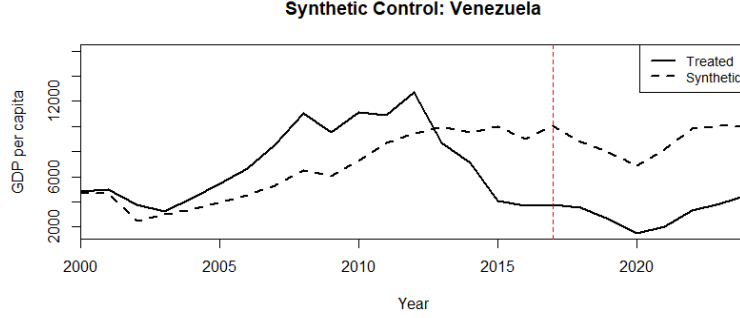


Figure 3: Synthetic Control for Venezuela: GDP per capita

This finding passes additional placebo tests. First, we conduct a placebo-in-time analysis where we fictitiously assign the year 2012 as treatment year (see Appendix B, Figure 14). The real and synthetic curves do not significantly diverge, indicating that the drop starting in 2017, or already in 2015, is driven by the sanctions instead of other unaccounted shocks. Second, we implement a placebo-in-space test (see Appendix B, Figure 15). Not a single country from the donor pool experiences a decline of similar size or duration if we were to fictionally assign it as treated. Venezuela’s gap is starkly different from the distribution of placebo effects, which supports the view that our finding is not driven by randomness. The pre-treatment fit, the post treatment divergence together with these placebo tests suggest a sizable negative impact.

5.4 Political Effects: Synthetic Control Analysis

This chapter presents the results of the SCM used to analyze the political impact of sanctions. The focus is on the change in the main variable of the V-Dem democracy index and the assessment of how political conditions would have developed without the sanctions imposed by the EU or the US. As with the economic analysis, the same target variable and predictors are used for all three countries to ensure comparability of the results. The predictors include GDP per capita, the rule of law index, and population size. These variables are frequently used in political economic research to map the structural institutional characteristics of states. As in the economic model, country-specific donor pools are created, comprising countries that did not experience sanctions during the

observation period and at the same time have sufficient data availability. For each case, placebo-in-time and placebo-in-space tests are also carried out to verify the robustness of the results. It should be noted in advance that political indicators generally react less abruptly to external shocks than economic variables.

5.4.1 Russia: Political Effects of Sanctions

The predictor balance in Table 11 shows that the used predictors match very well, which shows that the donor pool fits well. Equatorial Guinea, Papua New Guinea, and India account for most of the weight in the synthetic unit as can be seen Table 10. Before the intervention, the treated and synthetic units follow similar trajectories, indicating an adequate pre-treatment match.

Table 10: Donor weights for the synthetic Russia (Political Model)

Country	Weight
Equatorial Guinea	0.5982
Papua New Guinea	0.2433
India	0.1197
Tajikistan	0.0312

Table 11: Predictor means before the sanctions, Russia (Political Model)

Predictor	Russia	Synthetic Russia	Donor Pool Mean
Democracy	0.325	0.324	0.468
GDP per Capita (%)	8265.53	8264.90	5299.1
Population (log)	143869343	143841971	85896260
Rule of Law Indicator	-0.915	-0.913	-0.31

After the intervention, a gradual divergence can be seen between the two graphs in Figure 4, but it is not huge. Russia’s democracy index continues a strong downward trend, especially from 2021 onwards, while the synthetic control remains relatively stable. The deviation thus increases over time but does not show a clear break immediately after the intervention. We observe an MSPE ratio of 3.83, which shows that the prediction error in the post-treatment period exceeds that of the pre-treatment phase. This could indicate that a certain divergence between the treated and synthetic units develops after the intervention.

The in-time placebo test (see Appendix B, Figure 17) using a fictitious treatment year of 2009 shows no comparable divergence, which indicates that the

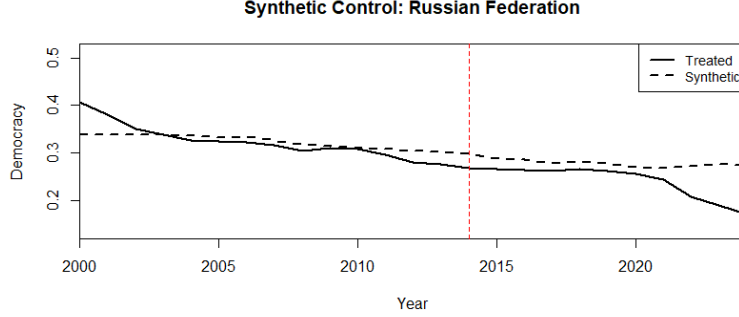


Figure 4: Synthetic Control for Russia: Democracy

model does not generate artificial deviations in periods without intervention. The placebo-in-space analysis (see Appendix B, Figure 18) shows that several countries in the donor pool exhibit deviations of a similar magnitude under hypothetical treatment. Although Russia’s gap is among the more pronounced negative values, it does not represent an extreme case within the distribution. Overall, the SCM results suggest that Russia’s political development continues to deteriorate toward an authoritarian state after the intervention. However, the existence of an already clearly declining trend prior to the intervention requires cautious interpretation. The results suggest a continuation of existing political developments rather than a clearly definable turning point that could be attributed exclusively to the sanctions.

5.4.2 China: Political Effects of Sanctions

The synthetic control for China’s political model in Table 12 is mainly formed by Saudi Arabia, Tajikistan, and Equatorial Guinea, which account for the majority of the weight. The predictor balance in Table 13 shows that some predictors match relatively well, while others differ, resulting in a mixed but acceptable pre-treatment fit.

Table 12: Donor weights for the synthetic China (Political Model)

Country	Weight
Saudi Arabia	0.6114
Tajikistan	0.2687
Equatorial Guinea	0.1188

Table 13: Predictor means before the sanctions, China (Political Model)

Predictor	China	Synthetic China	Donor Pool Mean
Democracy	0.09	0.091	0.417
GDP per Capita (%)	5141.43	14313.43	16680.03
Population (log)	1340258000	17371827	92063255
Rule of Law Indicator	-0.453	-0.42	0.043

The trajectory of China’s democracy index experiences a gradual downward slope before intervention. China’s democracy index decreases slightly after the intervention, whereas the democracy index of the control unit does not change much, as can be seen in Figure 5. This leads to a small noticeable deviation which is neither sudden nor extremely jagged. The MSPE of 1.47 is also quite low, which means that the variation of post-treatment data does not significantly exceed that of the pre-treatment error. The small divergence that does exist should therefore be taken with caution.

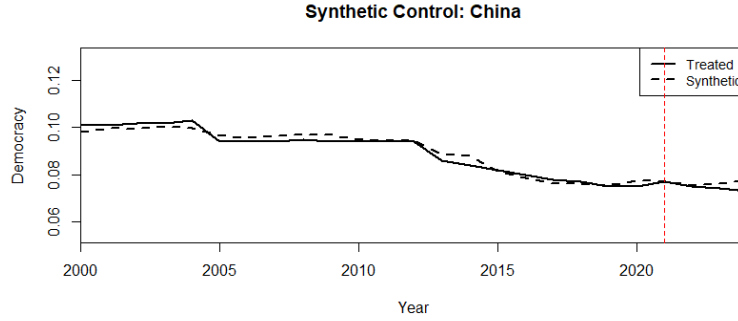


Figure 5: Synthetic Control for China: Democracy

The placebo-in-time test (see Appendix B, Figure 18) with an earlier fictitious treatment year in 2016 does not reveal a comparable pattern and is thus consistent with the main result. The placebo-in-space results (see Appendix B, Figure 19) illustrate that several donor countries show similar or greater deviations in hypothetical treatment. The results for China are therefore within the normal range and do not represent an exceptional case, which is why no effects of sanctions on the democracy index in China can be identified.

5.4.3 Venezuela: Political Effects of Sanctions

The synthetic control for Venezuela is based on a broader distribution of weights than in the political models for Russia or China. Table 14 shows that the largest contributions come from Equatorial Guinea, Trinidad and Tobago, Kazakhstan, Hungary, and Serbia, while most of the other donor countries also receive weights above 0.03. Overall the weights of the donor pool are balanced. The predictor balance in Table 15 shows a close alignment for the democracy index, GDP per capita, and population, while the rule of law indicator is less precisely adjusted.

Table 14: Donor weights for the synthetic Venezuela (Political Model)

Country	Weight
Equatorial Guinea	0.232
Trinidad and Tobago	0.122
Kazakhstan	0.063
Hungary	0.063
Serbia	0.060

Table 15: Predictor means before the sanctions, Venezuela (Political Model)

Predictor	Venezuela	Synthetic Venezuela	Donor Pool Mean
Democracy	0.426	0.426	0.465
GDP per Capita (%)	7102.26	7102.25	5990.59
Population (log)	27905046	28154823	82085627
Rule of Law Indicator	-1.542	-0.521	-0.268

Figure 6 illustrates that the democracy index was already declining significantly prior to the intervention. This downward trend accelerated significantly after the sanctions and continued to decline year after year. At the same time, control remains relatively stable in comparison, and the gap to the treated unit widens from the time of the sanctions onwards. The MSPE ratio of 7.33 indicates a substantial increase in post-treatment prediction error relative to the pre-treatment period. This supports the interpretation that the observed divergence between the treated and synthetic trajectory reflects meaningful differences rather than random variation.

The placebo-in-time analysis (see Appendix B, Figure 20) with an earlier fictitious treatment year in 2012 does not show a comparable pattern and thus supports the temporal relationship between intervention and divergence. The placebo-in-space results (see Appendix B, Figure 21) illustrates that Venezuela’s

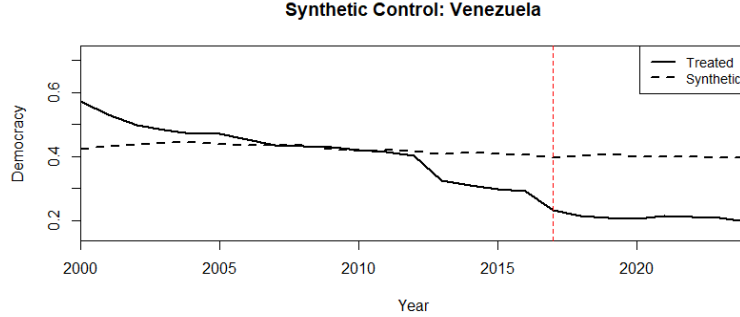


Figure 6: Synthetic Control for Venezuela: Democracy

gap after the intervention is among the stronger negative deviations but does not move completely outside the distribution of donor countries. Overall, the SCM results provide evidence that sanctions coincided with and likely intensified Venezuela’s political deterioration. However, the already severe pre-treatment decline indicates that sanctions acted on an already fragile political system, which requires cautious interpretation of causality.

5.5 Social Effects: Synthetic Control Analysis

This chapter presents the results of the SCM analysis on the socioeconomic impact of sanctions. This model focuses on changes in the Human Development Index (HDI), which summarizes long-term welfare dimensions such as life expectancy, education level, and standard of living in terms of GDP per capita. The aim is to assess how the social situation in the respective countries would have developed without the sanctions imposed by the EU or the US. As with the other two models, the same target variable is used for all three case studies and the same predictors consisting of GDP per capita, population size, urbanization rate, and life expectancy are used. Here, too, country-specific donor pools are constructed that exclude sanctioned countries and only include countries with sufficient data availability. Placebo-in-time and placebo-in-space tests are performed for each case study to assess and determine the robustness of the estimated effects. Since the HDI generally responds more slowly to external shocks, it is less likely that changes resulting from sanctions will be visible in the short or medium term.

5.5.1 Russia: Social Effects of Sanctions

The predictor balance as depicted in Table 17 follows a mixed pattern. HDI and life expectancy match closely between treated and synthetic unit while GDP per capita, population size, and urbanization rate display greater differences. We can therefore conclude that the adjustment is sufficient, without showing an especially close structural match between the data. Hungary, Kazakhstan, Singapore and Peru form the predominant share of the synthetic control, adding up to the biggest weight in the composite control unit, illustrated in Table 16.

Table 16: Donor weights for the synthetic Russia (Social Model)

Country	Weight
Hungary	0.2810
Kazakhstan	0.2363
Singapore	0.2337
Peru	0.145
India	0.064

Table 17: Predictor means before the sanctions, Russia (Social Model)

Predictor	Russia	Synthetic Russia	Donor Pool Mean
HDI	0.778	0.778	0.715
GDP per Capita (%)	8265.53	14265.87	9941.05
Population (log)	143869343	86247731	82466081
Urbanization (%)	73.55	70.44	56.85
Life Expectancy	67.30	72.53	71.79

In Figure 7 we can see that after 2014, HDI rises to its peak around year 2019 before slightly decreasing again in the following years. The synthetic control follows a moderately increasing path. As a result, Russia as a whole shows only a small negative deviation throughout the post-treatment period. MSPE ratio shows a value of 19.81, meaning post-treatment prediction errors are substantially higher than before. An increasing variability in the difference of treated–synthetic unit after intervention can therefore be concluded, however, this does not indicate by itself that there was an abruptly large treatment effect.

Looking at the placebo-in-time test (see Appendix B, Figure 22), no significant divergence can be observed after the fictitious intervention year in 2009, showing that the model does not produce systematic artificial deviations. In the placebo-in-space distribution (see Appendix B, Figure 23), the treated unit does not show any extreme deviations from the donor countries, indicating that

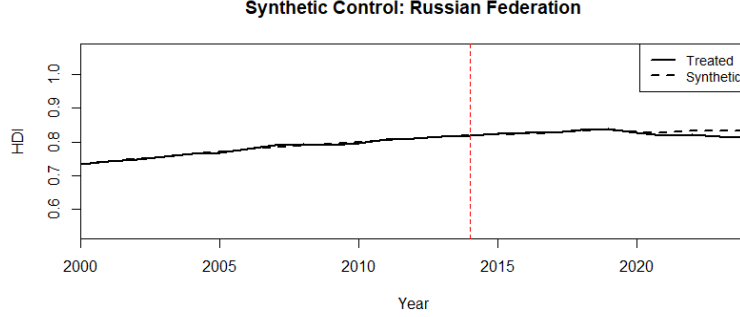


Figure 7: Synthetic Control for Russia: HDI

Russia’s trajectory is well within the normal range of placebo paths and that no strong evidence of sanction effects on HDI is present.

5.5.2 China: Social Effects of Sanctions

The predictor balance in Table 19 indicates a limited degree of accuracy between the two entities. While HDI itself is well represented even before treatment, the predictors urbanization rate, GDP per capita, and life expectancy show minor deviations, while population size shows significant discrepancies. Overall, the predictor quality can be described as sufficient, but it does not represent a close structural match. The control group consists mainly of India, Serbia, and South Korea, which account for almost the entire weight, as can be seen in Table 18.

Table 18: Donor weights for the synthetic China (Social Model)

Country	Weight
India	0.4467
Serbia	0.442
South Korea	0.1089

Table 19: Predictor means before the sanctions, China (Social Model)

Predictor	China	Synthetic China	Donor Pool Mean
HDI	0.691	0.69	0.716
GDP per Capita (%)	5141.43	5651.15	8093.17
Population (log)	1340258000	562317345	94987882
Urbanization (%)	48.96	47.07	57.1
Life Expectancy	75.46	71.59	71.62

In Figure 8 we see that after the intervention year, the HDI of the treated unit rises slightly, while the synthetic control shows a flat trend. This results in a slightly positive deviation in the post-treatment period. The extent of the difference remains limited and no effect can be identified. The MSPE ratio of 6.84 shows that the proportion of prediction error coming from the post-treatment phase is notably larger than in the pre-treatment period, which requires careful interpretation but does not constitute evidence for a substantive effect.

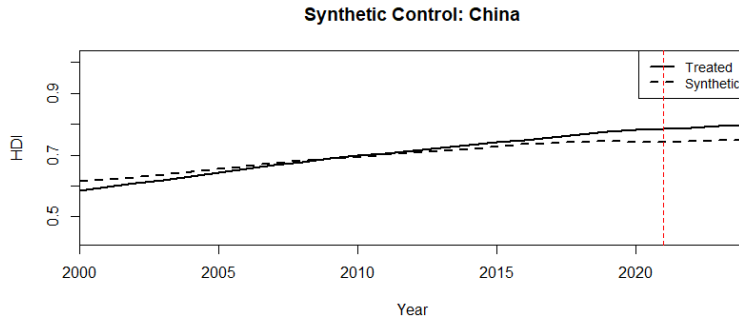


Figure 8: Synthetic Control for China: HDI

The placebo-in-time test (see Appendix B, Figure 24) shows no significant divergence, which means that the model does not produce an artificial effect in the absence of an actual intervention. In the placebo-in-space distribution (see Appendix B, Figure 25), China clearly falls within the range of placebo curves observed for donor countries. Some donor units show deviations of similar or greater magnitude, indicating that China’s post-intervention pattern is not an exceptional case.

5.5.3 Venezuela: Social Effects of Sanctions

Table 20 shows that Hungary, Armenia, Sri Lanka, and Bahrain contribute the largest shares to synthetic control, while the other countries play a lesser role. The predictor balance shown in Table 21 indicates that only the urbanization rate shows a significant deviation, which allows for a robust counterfactual comparison.

Figure 9 shows that the trajectories of the treated and synthetic units are close together before the intervention but begin to diverge slowly shortly before the treatment year 2017. After the treatment year, the synthetic control shows a

Table 20: Donor weights for the synthetic Venezuela (Social Model)

Country	Weight
Hungary	0.308
Armenia	0.237
Sri Lanka	0.221
Bahrain	0.089

Table 21: Predictor means before the sanctions, Venezuela (Social Model)

Predictor	Venezuela	Synthetic Venezuela	Donor Pool Mean
HDI	0.741	0.741	0.632
GDP per Capita (%)	7102.26	7103.48	5787.59
Population (log)	27905046	27874933	82078397
Urbanization (%)	88.00	53.84	47.34
Life Expectancy	72.71	72.59	66.18

gradual upward trend in the HDI, while Venezuela’s HDI declines sharply from 2016 onward and continues to fall more in the following years. The resulting gap becomes considerable over time and indicates a significant decline in long-term welfare. The MSPE ratio of 96.70 shows that the predicted errors in the post-treatment period are massively higher than before. Such high value indicates that the model has difficulty accurately depicting developments after the intervention. Although this reduces the accuracy of the effect estimate, it also reflects the fact that Venezuela’s trajectory after the sanctions deviates much more strongly from expectations than could be explained by normal forecast uncertainty.

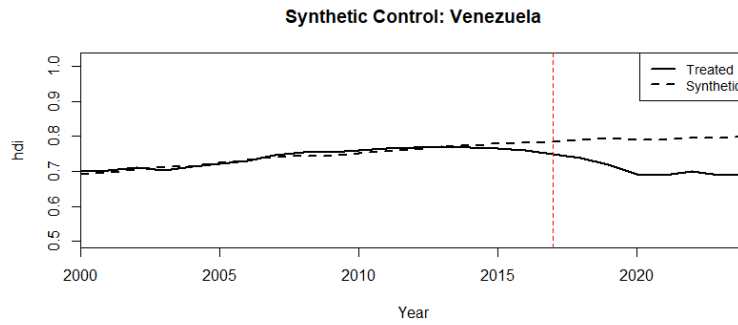


Figure 9: Synthetic Control for Venezuela: HDI

The placebo-in-time test (see Appendix B, Figure 26), which uses a fictitious

treatment year of 2012, shows no comparable divergence between the treated and synthetic units, supporting the interpretation of non-random fluctuations after the intervention. The placebo-in-space distribution (see Appendix B, Figure 27) places the Venezuelan gap in the range of more pronounced negative deviations, without it lying completely outside the distribution. Overall, the results suggest that Venezuela experienced a pronounced decline in HDI after treatment that exceeds that of donor countries. However, the fragile baseline situation prior to the intervention and the very high MSPE ratio require cautious interpretation and do not allow for a causal assessment of the estimated effect.

6 Discussion and Conclusion

The last chapter discusses the empirical results found in both the fixed-effects panel models (FEM) and the synthetic control method (SCM). These results are put into a wider analytical and theoretical framework. The goal here is to build a coherent picture of sanctions’ economic, political, and social effects and to see if these findings hold up when viewed through various methodological lenses. Furthermore, we situate our results in theoretical expectations and literature on economic sanctions policy. In addition, the chapter reflects on the methodological strengths and limitations of the empirical approach, discusses alternative explanations for the observed developments, and outlines the implications for future research.

6.1 Integrated Interpretation of FEM and SCM Results

Taken together, the findings from both the fixed effects models (FEM) and the synthetic control method (SCM) present a largely consistent, though detailed, narrative regarding the impact of sanctions. The coefficient estimates of the FEM provide an understanding of the average effects that exist across all countries that have been targeted by sanctions. As such, the negative and statistically significant associations of EU sanctions with country development can be interpreted in line with our initial assumptions, while the statistically insignificant and non-directional correlations of US sanctions serve as evidence for multilateral measures being more effective on average. Supplementing this analysis with the country-specific results of the SCM allows us to observe these countries’ development over time and, in the case of Russia and Venezuela, uncover corresponding effects. Russia and Venezuela exhibit significant and

generally persistent negative post-intervention gaps across all categories, with GDP per capita and the political indicators showing the largest deviations from synthetics. In contrast, the case of China diverges from previous results. Economic, political, and social indicators show no sign of negative deviation from the corresponding synthetics. Instead, the unit under observation even shows statistically significant positive average gaps in terms of GDP per capita. A possible explanation for the overall failure of sanctions to affect China could be its high state capacities and institutional control, its diversified economy, and high level of global integration. Compared to Russia and Venezuela, China is less susceptible to international pressure due to its economic resilience and massive markets. This underlines that sanctions likely exert their strongest effects once a certain threshold of economic fragility and political frailty has been passed. Besides uncovering broad average effects, the two methods used in this paper also show substantial country-specific heterogeneity.

6.2 Sanctions in Context: Literature and Theoretical Implications

In conclusion, the empirical results of this paper can be situated relatively clearly in the broader literature on sanction effects. On the one hand, they corroborate long-established understandings of sanctions effects. On the other hand, they also highlight context-specificities that nuance these general insights. Specifically, the fixed-effects results suggest that European Union sanctions exert significant negative impact across all three dimensions, while the effects of US sanctions are generally weaker and statistically less consistent. This is in line with general arguments that multilaterally coordinated sanctions are more effective than unilateral ones, as they are more difficult to evade and induce greater pressure (Biersteker et al., 2016; Hufbauer et al., 2008). Moreover, the SCM case studies show that sanction effects differ substantially across countries and are heavily shaped by existing levels of vulnerability and institutional make-up. Russia and Venezuela exhibit highly diverging sanction effects in the SCM estimations, as their pathways strongly deviate from the respective synthetic counterfactuals after the onset of sanctions. These findings are in line with scholarship that finds sanctions to be more effective against countries with structural vulnerabilities, low economic diversification, and reliance on external financial flows or commodity exports (Neuenkirch & Neumeier, 2015; Peksen, 2019). By contrast, the SCM estimates for China show no sanctions-induced

negative trends in any dimension. This is in accordance with studies which argue that large states with economically diverse and institutionally centralized authoritarian regimes are particularly resistant to sanctions pressure (Peksen, 2019). Taken together, the findings of this paper reaffirm the basic point that sanctions are not a one-size-fits-all instrument with uniformly predictable effects. In fact, their effectiveness depends on characteristics of the target state in addition to the precise design of the sanctions regime. Particularly vulnerable or weak states are more affected by sanctions, while resilience and global embeddedness appears to make countries immune to these effects.

6.3 Implications and Limitations

There are several policy-related conclusions that can be drawn from the empirical findings discussed in this paper. First, while the negative correlations of EU sanctions in the fixed-effects models suggest that multilateral sanctions can have severe economic, political, and social repercussions, the case studies with SCM show that there is a large variation between countries. Adverse consequences depend on the structural characteristics of the targeted country. Sanctioning countries should therefore consider these characteristics more closely when applying sanctions. However, in order to pressure large and diversified economies like China, targeted sanctions will have to be accompanied by complementary measures or coordination via broader coalitions. Second, there must be a clear delineation between goals and side-effects. Political freedoms, for instance, were seen to decline due to sanctions. In other words, sanctions may exacerbate repression instead of incentivizing political reforms. Sanctions that target political freedoms should therefore be designed very carefully to avoid unintended consequences. There are, however, several caveats that should be considered when interpreting these results. While fixed effects and placebo tests were included in the analyses, endogeneity is still likely to be an issue because sanctions are rarely exogenous. Data availability also limits the accuracy of the counterfactual estimates, which can be particularly imprecise for political and social trends that evolve slowly over time. As discussed in Section 4, the SCM results are sensitive to both the donor pool composition and the predictors' quality. Furthermore, the elevated MSPE figures suggest that these estimates warrant cautious interpretation. Lastly, several factors are not considered in this paper, such as potential spillover effects, adaptation mechanisms, and long-term impacts due to geopolitical realignments.

6.4 Conclusion

The thesis analyzed the economic, political, and social consequences of geopolitical sanctions using two different empirical strategies. Fixed-effects panel models and the synthetic control method complement each other in that they allow the estimation of average relationships based on a large panel of sanctioned countries, while also enabling an investigation of how individual countries fare based on case studies focusing on Russia, China, and Venezuela. The results from the empirical analysis show that geopolitical sanctions tend to have negative economic, political, and social consequences. The magnitude and duration of these consequences vary significantly by country, however. Sanctions do not have comparable effects on all countries, as shown by the synthetic control analysis. Russia and Venezuela experienced large post-treatment deviations following the imposition of sanctions, while China was markedly less affected, showing only limited evidence of adverse effects. This underscores the conclusion that countries' institutions, economic structure, and domestic politics matter when it comes to their response to foreign economic coercion. Taken together, these results show that the success of sanctions depends on the country they are imposed on. Sanctions are not a foreign policy tool that works independent of the economic, political, and institutional realities in the targeted country. The mixed results of sanctions on Russia, China and Venezuela show that caution is needed when evaluating their effectiveness. This thesis has made use of both panel-estimated and country-specific studies to provide greater insight into the efficacy of sanctions and shows the value of complementing panel-based evidence with country-case specific analysis to measure the impact of geopolitical sanctions.

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Appendix A - Countries Included in the FEMs

Table 22: Countries Included in the Fixed Effects Economic Model ($N = 92$)

Afghanistan	Côte d'Ivoire	Kenya	Russian Federation
Albania	Dominican Republic	Kuwait	Rwanda
Angola	Ecuador	Kyrgyz Republic	Saudi Arabia
Argentina	Egypt	Lao P.D.R.	Sierra Leone
Azerbaijan	El Salvador	Latvia	Somalia
Bangladesh	Eritrea	Lebanon	South Africa
Belarus	Ethiopia	Lesotho	South Sudan
Belize	Gabon	Liberia	Sri Lanka
Benin	Gambia, The	Libya	Sudan
Bolivia	Ghana	Madagascar	Syria
Bosnia and Herzegovina	Greece	Mali	Tanzania
Brazil	Guatemala	Malta	Thailand
Bulgaria	Guinea	Mauritania	Tunisia
Burkina Faso	Guinea-Bissau	Mexico	Turkey
Burundi	Guyana	Moldova	Uganda
Cambodia	Haiti	Myanmar	Ukraine
Cameroon	Honduras	Nicaragua	United Arab Emirates
Central African Republic	Hong Kong SAR	Niger	Uzbekistan
Chad	Indonesia	Nigeria	Venezuela
China	Iran	Pakistan	Vietnam
Colombia	Iraq	Panama	West Bank and Gaza
Congo, Dem. Rep. of the	Israel	Paraguay	Yemen
Costa Rica	Jamaica	Philippines	Zimbabwe

Notes: Countries included in the estimation sample after excluding observations with missing values.

Table 23: Countries Included in the Fixed Effects Political Model ($N = 94$)

Afghanistan	Dominican Republic	Liberia	Saudi Arabia
Albania	Ecuador	Libya	Sierra Leone
Angola	Egypt	Madagascar	Somalia
Argentina	El Salvador	Mali	South Africa
Azerbaijan	Eritrea	Malta	South Sudan
Bangladesh	Ethiopia	Marshall Islands	Sri Lanka
Belarus	Gabon	Mauritania	Sudan
Belize	Gambia, The	Mexico	Syria
Benin	Ghana	Moldova	Tanzania
Bolivia	Greece	Mozambique	Thailand
Bosnia and Herzegovina	Guatemala	Myanmar	Tunisia
Brazil	Guinea	Namibia	Turkey
Bulgaria	Guinea-Bissau	Nicaragua	Uganda
Burkina Faso	Guyana	Niger	Ukraine
Burundi	Haiti	Nigeria	United Arab Emirates
Cambodia	Honduras	Pakistan	Uzbekistan
Cameroon	Hong Kong SAR	Panama	Venezuela
Central African Republic	Indonesia	Paraguay	Vietnam
Chad	Iran	Russian Federation	West Bank and Gaza
China	Iraq	Rwanda	Yemen
Colombia	Israel	Saudi Arabia	Zimbabwe
Congo, Dem. Rep. of the	Jamaica	Sierra Leone	
Costa Rica	Kenya	Somalia	
Côte d'Ivoire	Kyrgyz Republic	South Africa	

Notes: Countries included in the estimation sample after excluding observations with missing values.

Table 24: Countries Included in the Fixed Effects Social Model ($N = 85$)

Afghanistan	Dominican Republic	Kyrgyz Republic	Russian Federation
Albania	Ecuador	Latvia	Rwanda
Angola	El Salvador	Lebanon	Saudi Arabia
Argentina	Eritrea	Lesotho	Sierra Leone
Azerbaijan	Ethiopia	Liberia	South Africa
Bangladesh	Gabon	Madagascar	South Sudan
Belarus	Gambia, The	Mali	Sri Lanka
Belize	Ghana	Malta	Sudan
Benin	Greece	Marshall Islands	Syria
Bolivia	Guatemala	Mauritania	Tanzania
Bosnia and Herzegovina	Guinea	Mexico	Thailand
Brazil	Guinea-Bissau	Moldova	Tunisia
Bulgaria	Guyana	Mozambique	Turkey
Burkina Faso	Haiti	Myanmar	Uganda
Burundi	Honduras	Nicaragua	Ukraine
Cambodia	Indonesia	Niger	United Arab Emirates
Cameroon	Iran	Nigeria	Uzbekistan
Central African Republic	Israel	Pakistan	Venezuela
Chad	Jamaica	Panama	West Bank and Gaza
China	Kenya	Paraguay	Yemen
Colombia	Kuwait	Philippines	Zimbabwe
Costa Rica			

Notes: Countries included in the estimation sample after excluding observations with missing values.

Appendix B - Supplementary Results for the SCM

Appendix B.1 - SCM Donor Pool Weights

Table 25: Donor Weights for the Synthetic Russia (Economic Model)

Country	Weight	Country	Weight
Uruguay	0.375	Morocco	< 0.001
Poland	0.372	Armenia	< 0.001
Suriname	0.185	Georgia	< 0.001
India	0.054	Republic of the Congo	< 0.001
Serbia	< 0.001	Tajikistan	< 0.001
Malaysia	< 0.001	Mongolia	< 0.001
Kazakhstan	< 0.001	Peru	< 0.001
North Macedonia	< 0.001	Sri Lanka	< 0.001

Table 26: Donor Weights for the Synthetic Russia (Political Model)

Country	Weight	Country	Weight
Equatorial Guinea	0.598	Armenia	< 0.001
Papua New Guinea	0.243	Sri Lanka	< 0.001
India	0.120	Morocco	< 0.001
Tajikistan	0.012	Hungary	< 0.001
Kazakhstan	< 0.001	Malaysia	< 0.001
Djibouti	< 0.001	Republic of Korea	< 0.001
Zambia	< 0.001	Serbia	< 0.001
North Macedonia	< 0.001		

Table 27: Donor Weights for the Synthetic Russia (Social Model)

Country	Weight	Country	Weight
Hungary	0.281	Armenia	< 0.001
Kazakhstan	0.236	Morocco	< 0.001
Singapore	0.234	Qatar	< 0.001
Peru	0.145	North Macedonia	< 0.001
India	0.064	Tajikistan	< 0.001
Mongolia	< 0.001	Georgia	< 0.001
Serbia	< 0.001	Maldives	< 0.001
Trinidad and Tobago	< 0.001	Sri Lanka	< 0.001

Table 28: Donor Weights for the Synthetic China (Economic Model)

Country	Weight	Country	Weight
Malaysia	0.456	Turkmenistan	< 0.001
India	0.439	Mongolia	< 0.001
Maldives	0.104	North Macedonia	< 0.001
Mauritius	< 0.001	Namibia	< 0.001
Kazakhstan	< 0.001	Georgia	< 0.001
Botswana	< 0.001	Jordan	< 0.001
Peru	< 0.001	Armenia	< 0.001
Bhutan	< 0.001	Tajikistan	< 0.001
Sri Lanka	< 0.001		

Table 29: Donor Weights for the Synthetic China (Political Model)

Country	Weight	Country	Weight
Saudi Arabia	0.611	Madagascar	< 0.001
Tajikistan	0.269	Malaysia	< 0.001
Equatorial Guinea	0.119	Papua New Guinea	< 0.001
Kazakhstan	< 0.001	Sri Lanka	< 0.001
Djibouti	< 0.001	Serbia	< 0.001
Oman	< 0.001	India	< 0.001
Bahrain	< 0.001	Trinidad and Tobago	< 0.001
Japan	< 0.001	United Kingdom	< 0.001
Germany	< 0.001	Qatar	< 0.001

Table 30: Donor Weights for the Synthetic China (Social Model)

Country	Weight	Country	Weight
India	0.447	Mongolia	< 0.001
Serbia	0.442	Morocco	< 0.001
Republic of Korea	0.109	Mauritius	< 0.001
Oman	< 0.001	Tajikistan	< 0.001
Maldives	< 0.001	Armenia	< 0.001
Peru	< 0.001	Malaysia	< 0.001
Trinidad and Tobago	< 0.001	Kazakhstan	< 0.001
Equatorial Guinea	< 0.001		

Table 31: Donor Weights for the Synthetic Venezuela (Economic Model)

Country	Weight	Country	Weight
Ecuador	0.494	Bolivia	< 0.001
Argentina	0.451	Jamaica	< 0.001
Brazil	0.100	Costa Rica	< 0.001
Paraguay	< 0.001	Solomon Islands	< 0.001
Malaysia	< 0.001	Armenia	< 0.001
Dominican Republic	< 0.001	Madagascar	< 0.001
Peru	< 0.001	Zambia	< 0.001
Kazakhstan	< 0.001	Sri Lanka	< 0.001

Table 32: Donor Weights for the Synthetic Venezuela (Political Model)

Country	Weight	Country	Weight
Equatorial Guinea	0.232	Madagascar	0.053
Trinidad and Tobago	0.122	Sri Lanka	0.053
Kazakhstan	0.063	Comoros	0.051
Hungary	0.063	Tajikistan	0.046
Serbia	0.060	Botswana	0.046
Armenia	0.059	Mauritius	0.030
Djibouti	0.055	India	0.018
Zambia	0.054	Bahrain	< 0.001

Table 33: Donor Weights for the Synthetic Venezuela (Social Model)

Country	Weight	Country	Weight
Hungary	0.308	Madagascar	0.012
Armenia	0.237	Papua New Guinea	0.012
Sri Lanka	0.221	Djibouti	0.010
Bahrain	0.089	Zambia	0.010
Mauritius	0.021	Botswana	0.009
Tajikistan	0.016	Equatorial Guinea	0.008
India	0.015	Trinidad and Tobago	0.007
Kazakhstan	0.012		

Appendix B.2 - SCM Placebo Tests

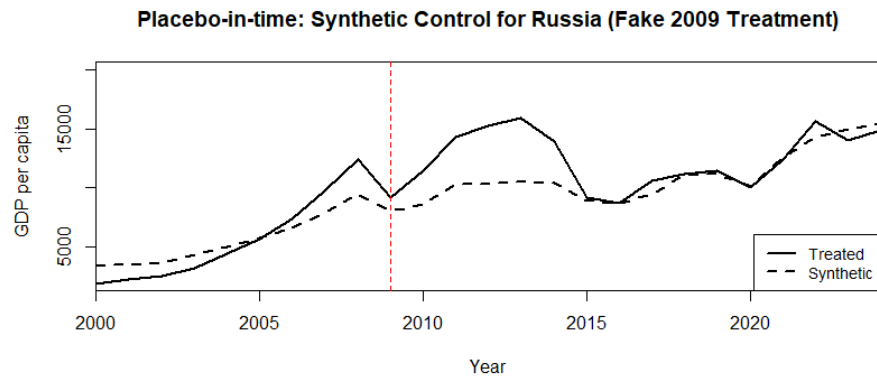


Figure 10: Placebo in-time for Russia: GDP per capita

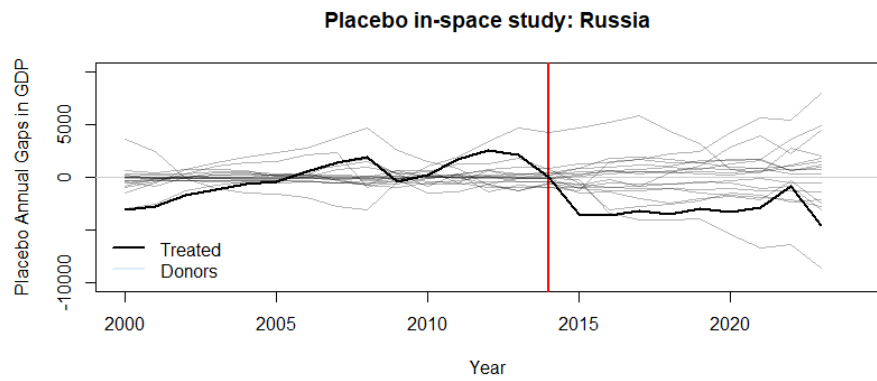


Figure 11: Placebo in-space for Russia: GDP per capita

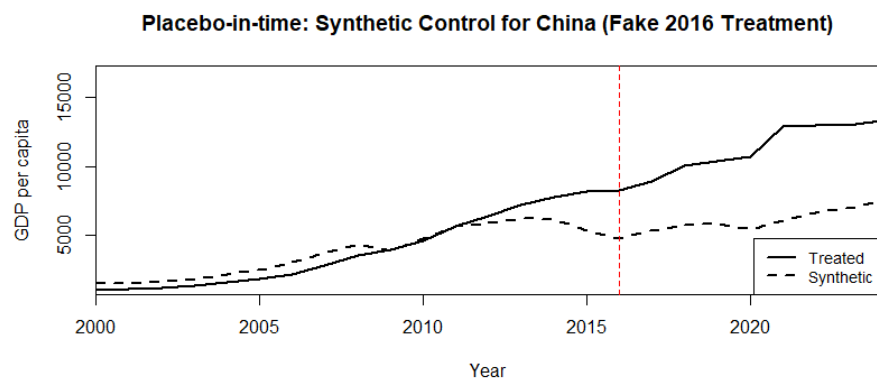


Figure 12: Placebo in-time for China: GDP per capita

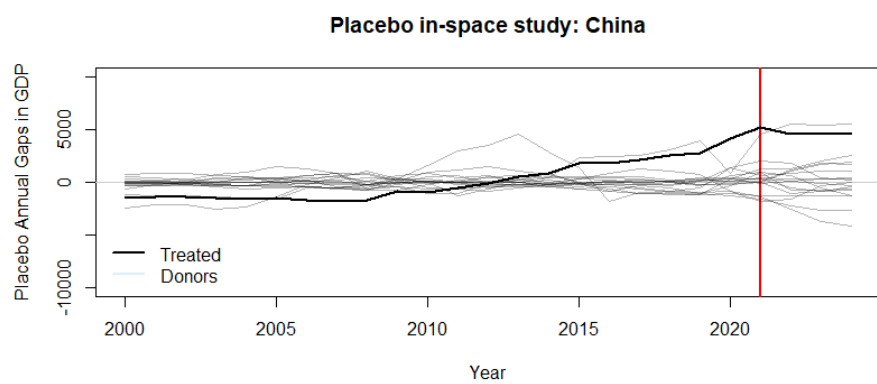


Figure 13: Placebo in-space for China: GDP per capita

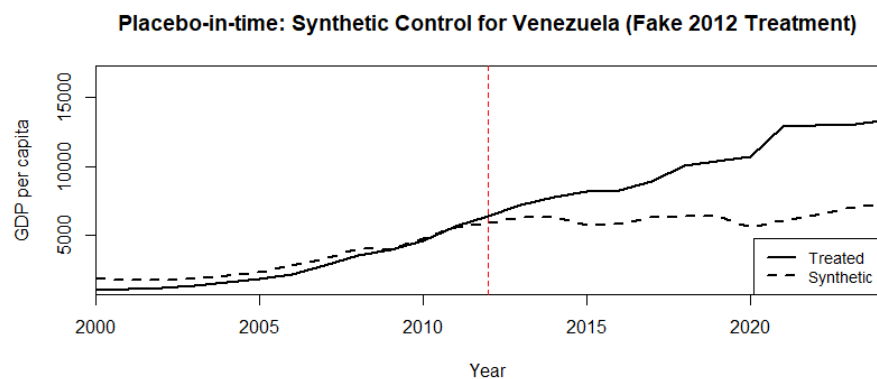


Figure 14: Placebo in-time for Venezuela: GDP per capita

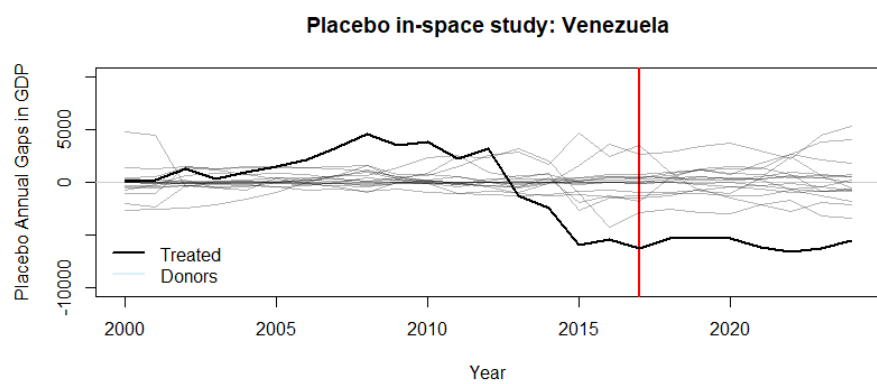


Figure 15: Placebo in-space for Venezuela: GDP per capita

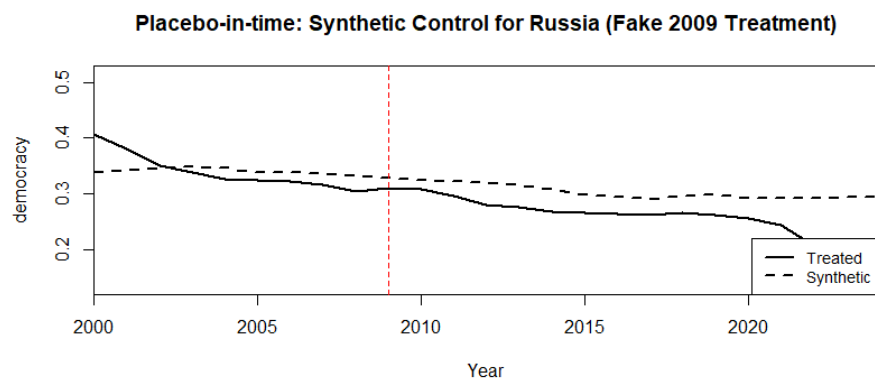


Figure 16: Placebo in-time for Russia: Democracy

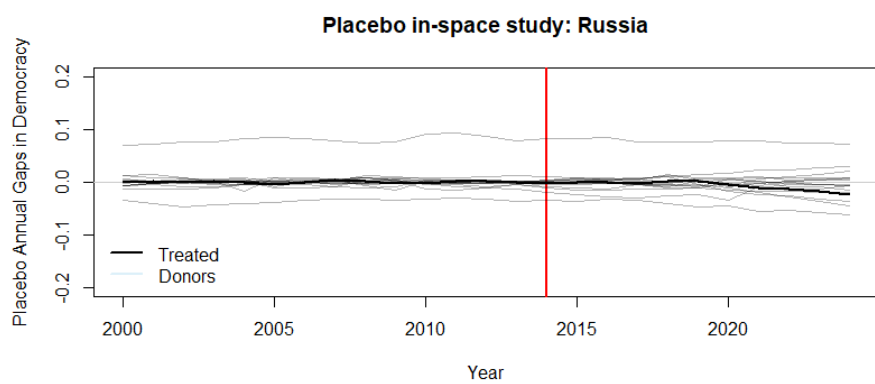


Figure 17: Placebo in-space for Russia: Democracy

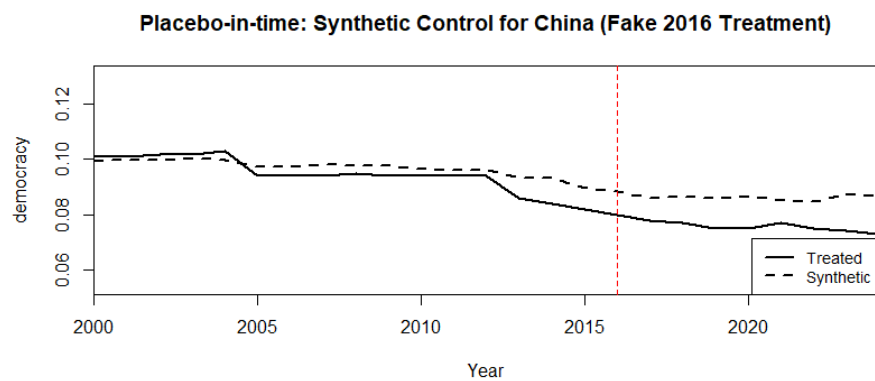


Figure 18: Placebo in-time for China: Democracy

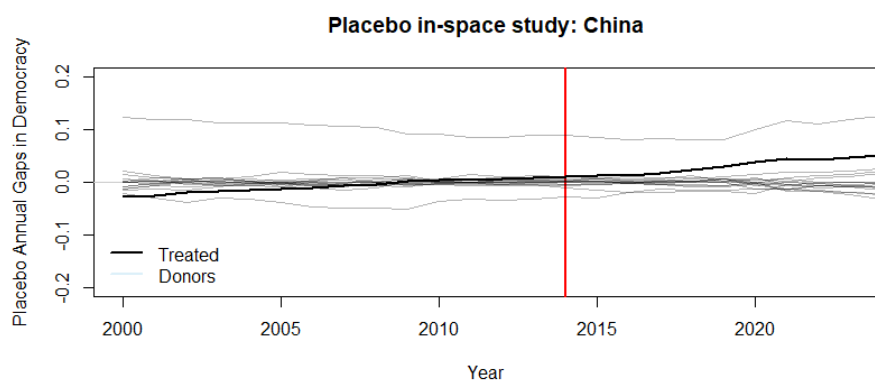


Figure 19: Placebo in-space for China: Democracy

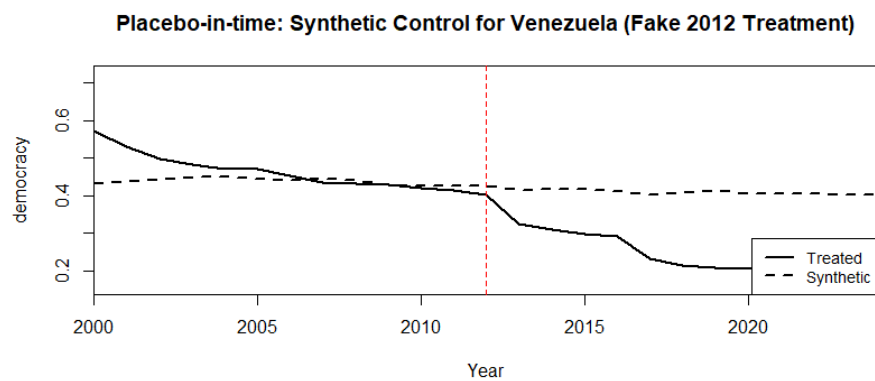


Figure 20: Placebo in-time for Venezuela: Democracy

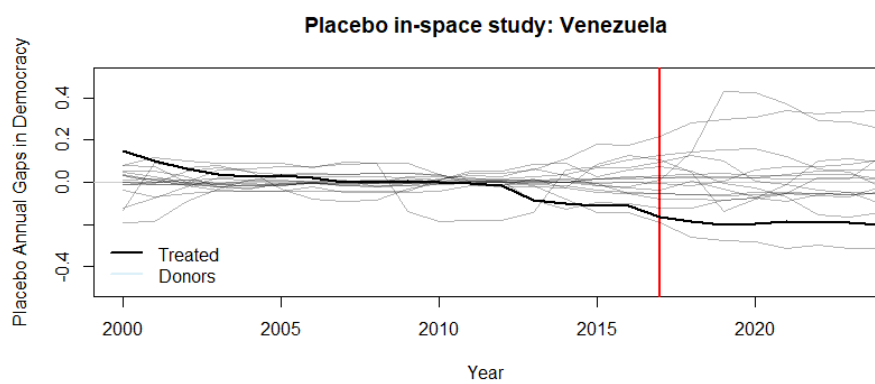


Figure 21: Placebo in-space for Venezuela: Democracy

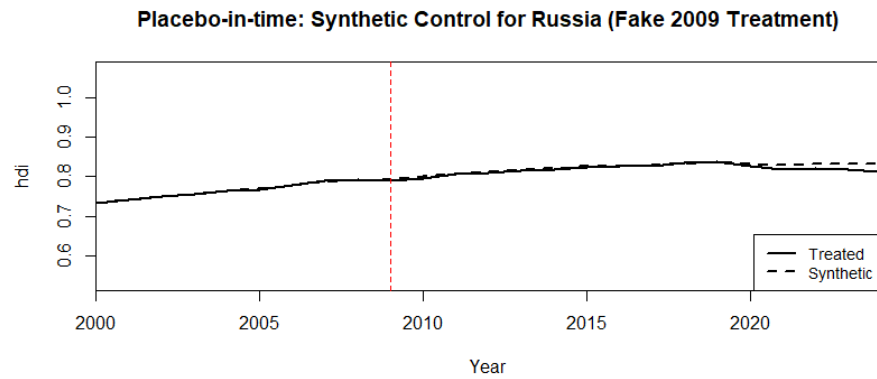


Figure 22: Placebo in-time for Russia: HDI

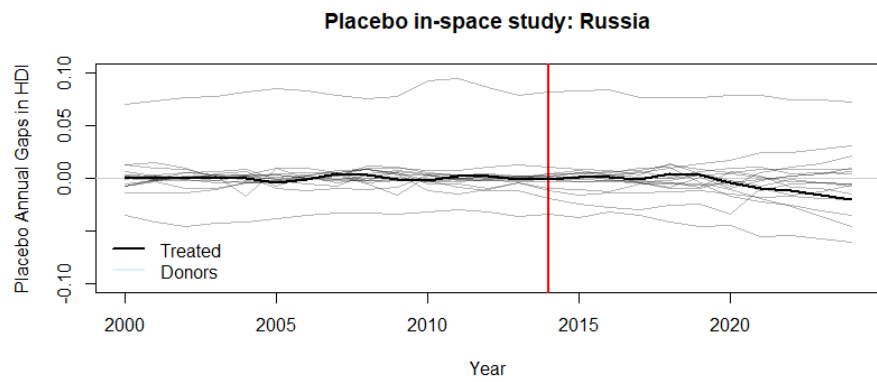


Figure 23: Placebo in-space for Russia: HDI

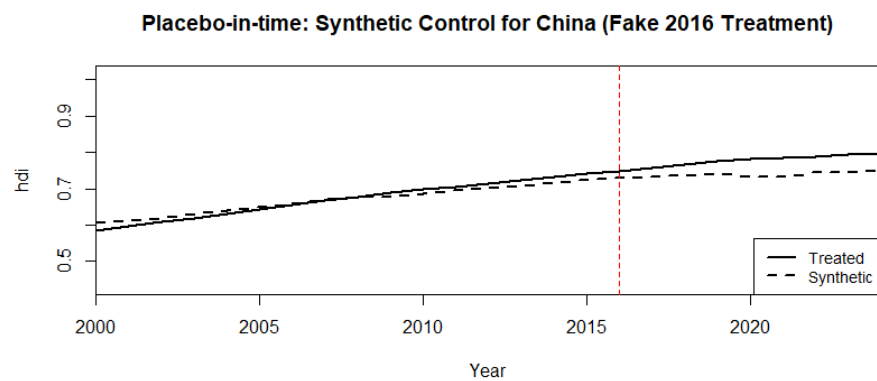


Figure 24: Placebo in-time for China: HDI

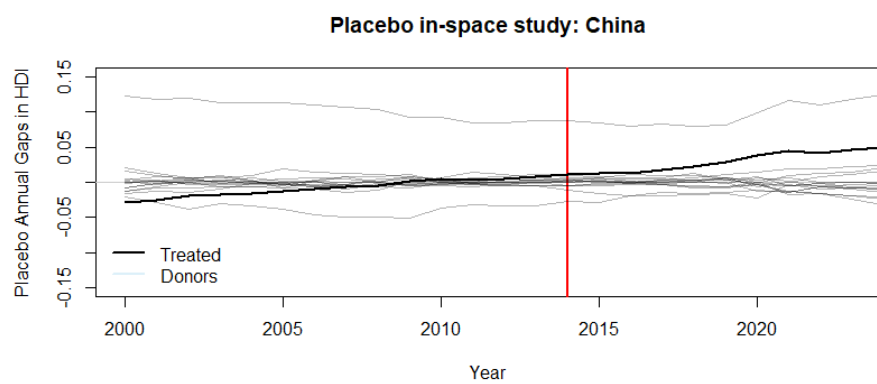


Figure 25: Placebo in-space for China: HDI

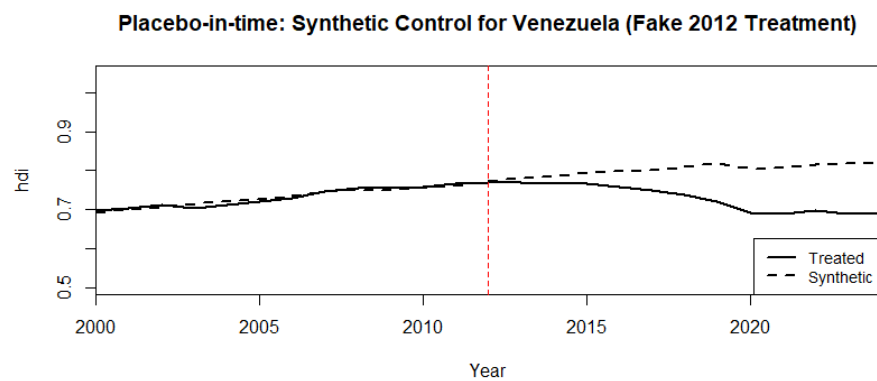


Figure 26: Placebo in-time for Venezuela: HDI

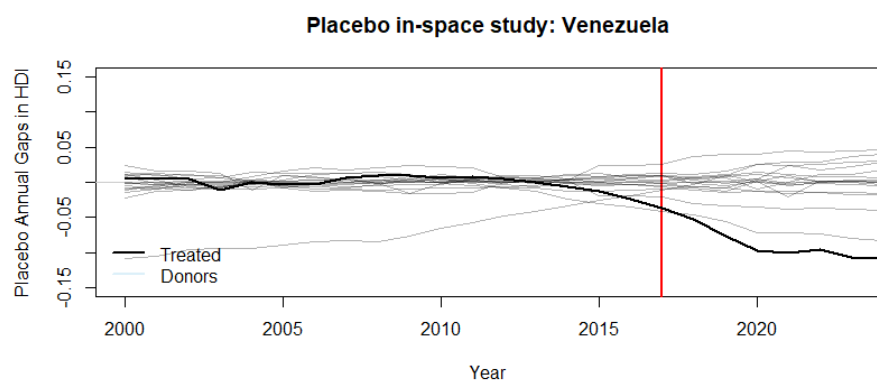


Figure 27: Placebo in-space for Venezuela: HDI