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ECONOMIC SANCTIONS AND TRADE VOLUME: THE CASE OF THE MENA REGION*

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Abstract

This study aims to analyze the impact of sanctions on trade volumes, encompassing GDP and the authoritarian index, within a selected group of countries. Over time, these nations have implemented diverse policies to shape their foreign trade strategies, with sanctions playing a pivotal role. Utilizing panel data from the Global Sanctions Data Base (GSDB) spanning from 1975 to 2022, countries within the MENA region (Algeria, Egypt, Iran, Iraq, Kuwait, Saudi Arabia, Syria, Turkey) are grouped using a panel logit model for examination. Findings reveal significant implications: sanctioned countries experience substantial alterations in their trade patterns due to these sanctions. Notably, higher trade volumes tend to mitigate the imposition of trade sanctions, while countries with a higher authoritarian index face a greater likelihood of being subjected to sanctions.

Keywords: Sanctions, trade volume, authoritarian regime, trade policies, regional analysis

JEL Classification: F10, F13, F14, R10

EKONOMİK YAPTIRIMLAR VE TİCARET HACMİ: MENA BÖLGESİ ÖRNEĞİ

Öz

Bu çalışma, seçilmiş bir grup ülkede yaptırımların, GSYİH ve otoriterlik endeksi ile birlikte, dış ticaret hacimleri üzerindeki etkisini analiz etmeyi amaçlamaktadır. İncelenen ülkeler zaman içinde dış ticaret stratejilerini şekillendirmek için yaptırımların önemli bir rol oynadığı çeşitli politikalar uygulamışlardır. Çalışmada Küresel Yaptırımlar Veri Tabanı'ndan (GSDB) 1975'ten 2022'ye kadar uzanan panel verileri kullanılarak, MENA bölgesindeki ülkeler (Cezayir, Mısır, İran, Irak, Kuveyt, Suudi Arabistan, Suriye, Türkiye) için bir panel logit modeli kullanılmıştır. Bulgular önemli sonuçlar ortaya koymaktadır: yaptırım uygulanan ülkeler, bu yaptırımlar nedeniyle ticaret modellerinde önemli değişiklikler yaşamaktadır. Özellikle, daha yüksek karşılıklı ticaret hacimleri ticari yaptırımların uygulanmasını hafifletme eğilimindeyken, daha yüksek otoriter endekse sahip ülkelerin yaptırımlara maruz kalma olasılığı daha fazladır.

Anahtar Kelimeler: Yaptırımlar, ticaret hacmi, otoriter rejimler, ticaret politikaları, bölgesel analiz

JEL Sınıflaması: F10, F13, F14, R10

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1. Introduction

Recent global developments have increased the importance of sanctions, leading to extensive debates about their "effectiveness". These sanctions serve various goals in maintaining policymakers' control both domestically and internationally (Galtung, 1967; Renwick, 1981; Drury, 2001; Hufbauer and Oegg, 2003; Dai et al., 2021). Consequences for both sanctioned and sanctioning countries shape their foreign trade policies (Rasoulinezhad, 2019). Investigating the potential impact of these sanctions on countries, particularly considering their geographical proximity, has gained significant importance over the years. A country's economic structure, governance, strong institutions, and capability to cope with competition shape its position regarding economic sanctions. Over the last 70 years, the number of economic sanctions has increased, with the US and the EU leading this trend (Kirilakha et al., 2021).

Numerous studies have covered sanctions and their effects on trade. Dai et al. (2021) investigated the timing of sanctions on trade, concluding that the longer the duration of sanctions, the stronger their effect. They found that as the duration increases, so does the impact on trade, and this effect does not occur suddenly. While Dai et al. (2021) focused on the duration of sanctions, Morgan and Schwebach (1997) concentrated on the cost of sanctions, suggesting that higher costs lead to greater achievements. Conversely, Drezner (1999) stated the opposite, suggesting that sanctions are more successful with lower costs. According to Felbermayr et al. (2020), sanctions on Iran have different outcomes for various countries. Their estimates indicate that Germany has experienced lower exports to Iran since sanctions, while the US has encountered lower trade losses. They attribute this difference to policy discrepancies. Nguyen and Do (2021) investigated the impact of economic sanctions from Western countries on the Russian Federation's trade, concluding that economic sanctions reduce imports and exports by approximately 25%. Some studies have found a negative relationship similarly (Fritz et al., 2017; Giumelli, 2017; Korhonen et al., 2018), while Klinova and Sidorova (2019) found no effect between sanctions and trade. Lindsay (1986) examined the success of sanctions by considering a unique set of goals: "compliance, subversion, deterrence, international symbolism, and domestic symbolism." The author's results revealed that sanctions are more successful when the goal is "international and domestic symbolism," but less so when aiming for "compliance, subversion, deterrence."

This study aims to investigate the trade volumes affected by sanctions, including GDP and the authoritarian index of a group of countries. Over time, various policies have been implemented to shape the foreign trade policies of these countries. It is undeniable that sanctions exert a crucial influence on nations' policies. This study employs a set of panel data

from the Global Sanctions Data Base (GSDB) covering the years 1975-2022. To examine the relationship, countries are grouped as MENA (Algeria, Egypt, Iran, Iraq, Kuwait, Saudi Arabia, Syria, Turkey) by employing a panel binomial logit model. Results suggest that these sanctions have a significant impact on countries' trade patterns, particularly for sanctioned countries.

This paper is motivated by several voids in the literature: First, while many studies investigate the effect of sanctions on trade, empirical studies scrutinizing the impact of trade volume on economic sanctions are scarce. Second, the paper investigates the impacts of trade volume on economic sanctions by using a binomial panel logit model to analyze the probability (odds ratios). The paper is organized as follows: Section 2 describes the data and methodology, section 3 presents empirical results, and finally, section 4 concludes.

2. Data and Methodology

The sample is composed of 7 MENA countries (Algeria, Egypt, Iran, Iraq, Kuwait, Saudi Arabia, Syria)[3] and Turkey. Annual panel data is used, and the dataset starts in 1975 and ends in 2022. Data for dependent and independent variables are taken from Global Sanctions Data Base (GSDB), World Bank, World Development Indicators and Global State of Democracy Indices. Panel data of MENA countries' sanctions are the dependent variables in the equations. Regarding sanctions, data represents if a country is sanctioned by any other country. And we use four different types of sanctions in the model: trade sanctions, arms sanctions, military sanctions, financial sanctions. Data on trade volume (% of GDP) and GDP per capita (natural logarithm) and authoritarian index are included as explanatory variables. The paper examines the impact of the trade volume on economic sanctions. In order to understand the data in some perspective, some descriptive figures are presented in Table 1.

[3] The rest of the MENA countries are not included because of availability of data.

Table 1: Descriptive Statistics

Variables	
	Mean
	(Std.Dev)
Trade Sanctions	0.331
	(0.471)
Arms Sanctions	0.413
	(0.493)
Military Sanctions	0.177
	(0.382)
Financial Sanctions	0.326
	(0.469)
GDP	7028.956
	(9002.381)
Trade Volume	61.448
	(25.125)
Authoritarian Index	4.531
	(0.969)
Observations	384

Source: World Bank, World Development Indicators, Global State of Democracy Indices, GSDB.

The aim for this paper is to examine whether trade volume is effective on economic sanctions. For the empirical models, we estimate the following models as:

$$Sanction_{it} = \alpha + \beta TV_{it} + \delta GDP_{it} + \sigma AI_{it} + u_{it} \quad (1)$$

$$Sanction_{it} = \alpha + \beta TV_{it} + \delta GDP_{it} + \sigma AI_{it} + \varepsilon_i + e_t + u_{it} \quad (2)$$

where $Sanction_{it}$ is different types of sanctions that countries are object to (where i is the cross-section and t is the time), TV_{it} is the trade volume, GDP_{it} is the GDP per capita, and AI_{it} is the authoritarian index. ε_i allows for the cross-sectional fixed effects and e_t allows for the time effect for all cross-sections in equations and u_{it} is the error term.

In terms of the theoretical and empirical framework, we developed a model based on the studies conducted by Lin and Lin (2010) and Bramblett (2017) regarding sanctions and trade. With respect to data availability, this study aims to utilize an extended set of variables. For the analysis, we employed a panel logit regression. Our dependent variable, $Sanction_{it}$, is a binary variable that assumes the value 1 if a country faces a sanction and 0 otherwise. The utilization of a panel logit model proves advantageous as it enables us to grasp the probability of the explanatory variables' impact on the dependent variables (Cavdar and Aydın, 2015). Moreover, examining the probability of the effect can be achieved by calculating odds ratios

in panel logit models. We employed four different models to estimate the relationship between sanctions and trade volume, utilizing both fixed-effect and random-effect panel logit methods for our analyses.

We estimate the following model as:

$$\Pr\left(SA_{it}|X_{it-1}\right) = \begin{cases} P_{it}\ if\ SA_{it} = 1 \\ 1 - P_{it}\ if\ SA_{it} = 0 \end{cases} \quad (3)$$

$$\text{Log it}\left(\text{E}\left[SA_{it}|X_{it-1}\right]\right) = logit(P_{it}) = \ln\left(\frac{P_{it}}{1-P_{it}}\right) = \beta X_{it-1} \quad (4)$$

where i is the cross-section and t is the time. SA_{it} is binary dependent variable which is used as 1 if a country is sanctioned and 0 otherwise. X_{it} is the set of explanatory variables.

3. Empirical Results

Panel logit analyses are carried for 8-panel cross-sections. Table 2 represents the results of panel logit estimates. This paper examines the relationship of sanctions and trade volume. Regressor (1) represents the dependent variable as trade sanctions, regressor (2) represents dependent variable as arms sanctions, regressor (3) represents dependent variable as military sanctions and regressor (4) represents dependent variable as financial sanctions.

Table 2: Panel Logit Model Results

Variables	Trade Sanctions	Arms Sanctions	Military Sanctions	Financial Sanctions
GDP	0.306	-0.967***	-0.635***	-0.436***
	(0.193)	(0.213)	(0.220)	(0.166)
Trade Volume	-0.0243***	-0.0122	-0.00226	-0.00176
	(0.00819)	(0.00767)	(0.00751)	(0.00668)
Authoritarian Index	1.148***	-1.776***	1.364*	-0.320
	(0.276)	(0.454)	(0.804)	(0.219)
Constant		16.57***	-3.240	4.114**
		(3.237)	(4.560)	(1.860)
Observations	384	288	288	384
Chi2	-149.14***	-150.62***	-119.02***	-200.70*

Source: World Bank, World Development Indicators, Global State of Democracy Indices, GSDB.

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

For the first model, where trade sanctions are the dependent variable, the empirical evidence indicates that a high level of trade volume is statistically significant, denoted by a negative sign, suggesting that a higher trade volume is more likely to reduce trade sanctions.

This might be explained by the fact that countries engaging more in exports and imports are less prone to encountering trade barriers, such as trade sanctions. The probability of the authoritarian index's effect on trade sanctions is positive, indicating that more authoritarian countries face a higher likelihood of sanctions. This trend could be attributed to countries preferring trade engagements in more secure and well-established environments, potentially leading to sanctions when this expectation is not met. However, there is no significant impact on GDP.

The analysis concerning arms sanctions and explanatory variables reveals no significance regarding trade volume. Nevertheless, both GDP and the authoritarian index variables show statistical significance with negative signs. The observed negative relationships suggest that higher GDP levels correlate with fewer arms sanctions, while more authoritarian countries are less likely to face such sanctions.

The variables related to military sanctions produce similar results, indicating that higher GDP corresponds to fewer military sanctions, while increased authoritarianism leads to more military sanctions. However, there is no statistically significant effect on trade volume and military sanctions.

Results concerning financial sanctions only demonstrate significance for GDP, suggesting that higher GDP levels result in fewer financial sanctions across the 8 MENA countries.

4. Conclusion

This study investigates the impact of trade volumes on economic sanctions, including GDP and the authoritarian index, within 8 MENA countries. Sanctions exert a crucial influence on nations' policies and are affected by macroeconomic variables while also influencing them. The paper aims to explore the impact of trade volume on different types of sanctions.

The study uses a panel dataset from the Global Sanctions Data Base covering the years 1975-2022. To examine the relationship, countries are grouped as MENA Algeria, Egypt, Iran, Iraq, Kuwait, Saudi Arabia, Syria, Turkey) using a panel binomial logit model. Results indicate significant impacts of these sanctions on trade patterns in sanctioned countries.

Empirical evidence suggests that a high level of trade volume negatively affects trade sanctions which implies that higher trade volumes are more likely to reduce trade sanctions. However, for other types of sanctions (arms, military, and financial), we find no statistical significance.

Appendix

Figure 1A: Trade Sanctions

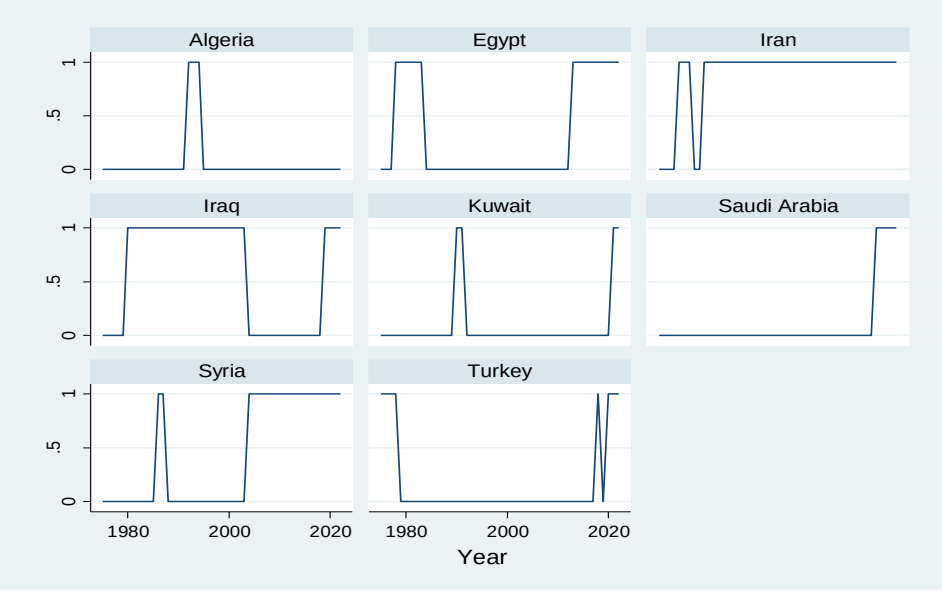


Figure 1B: Arms Sanctions

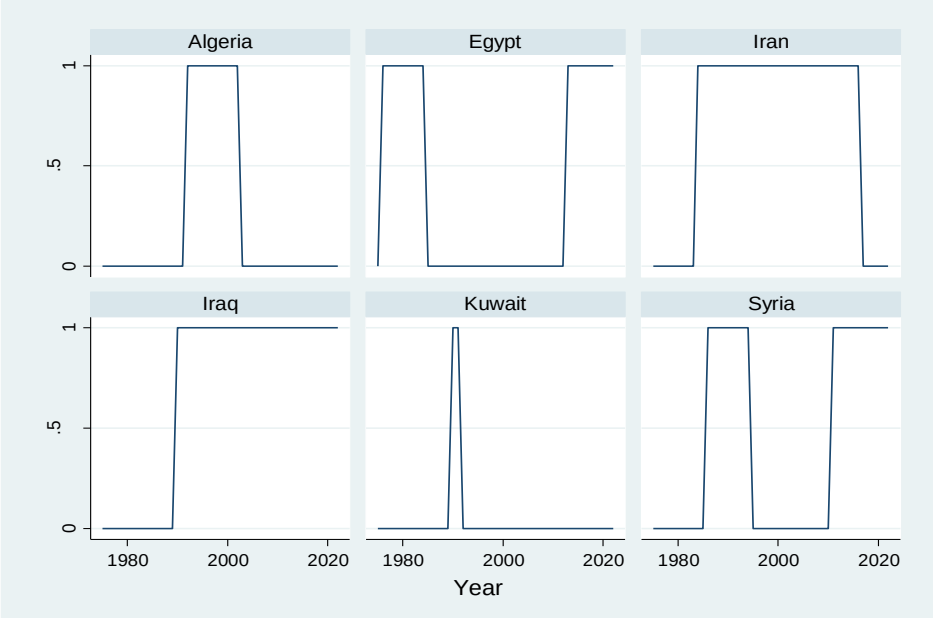


Figure 1C: Military Sanctions

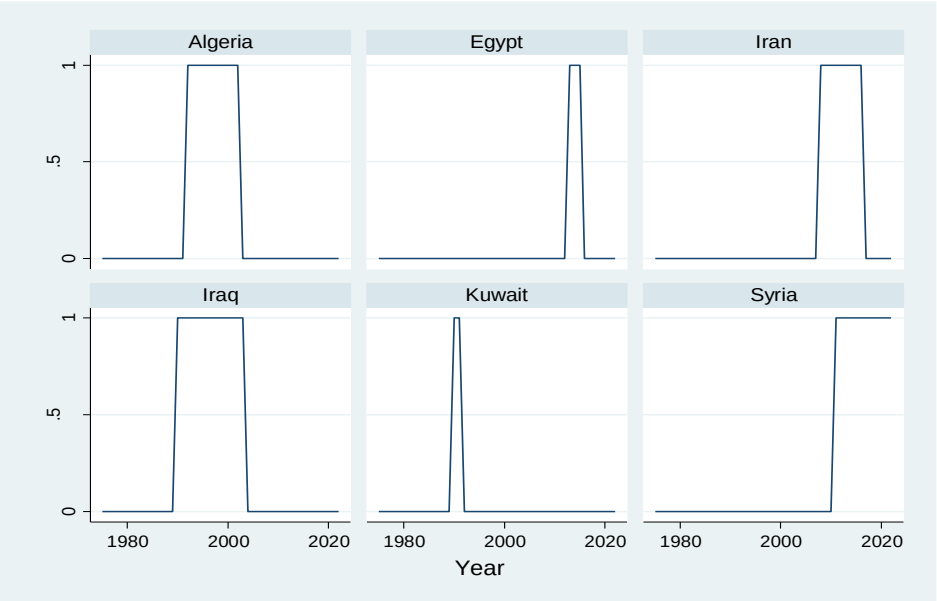


Figure 1D: Financial Sanctions

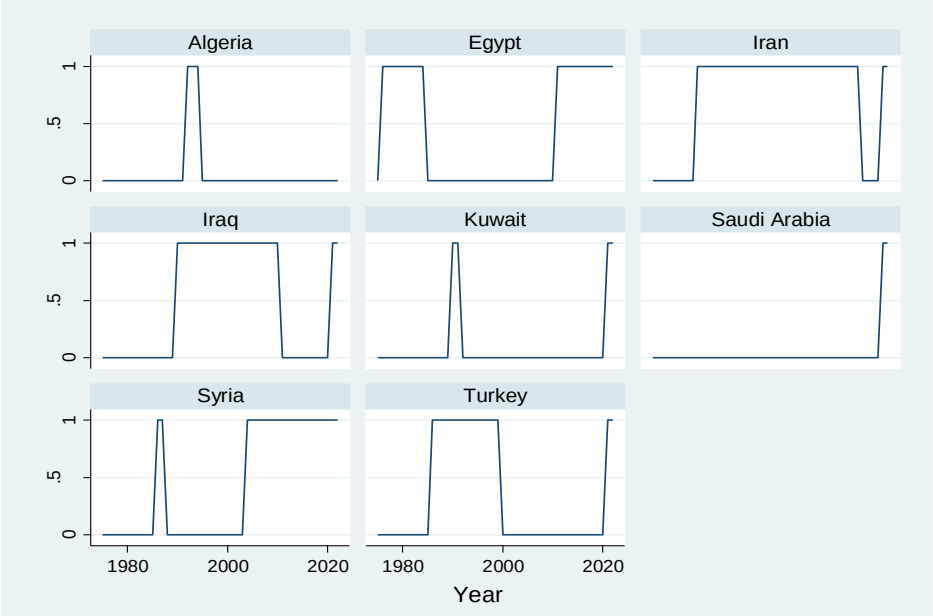


Figure 1E: Trade Volume

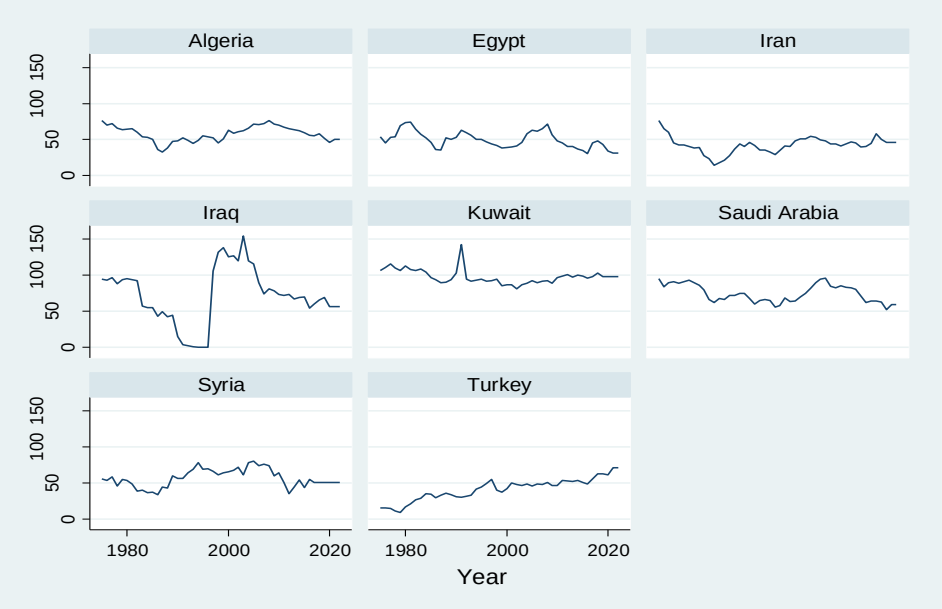


Figure 1F: GDP Per Capita

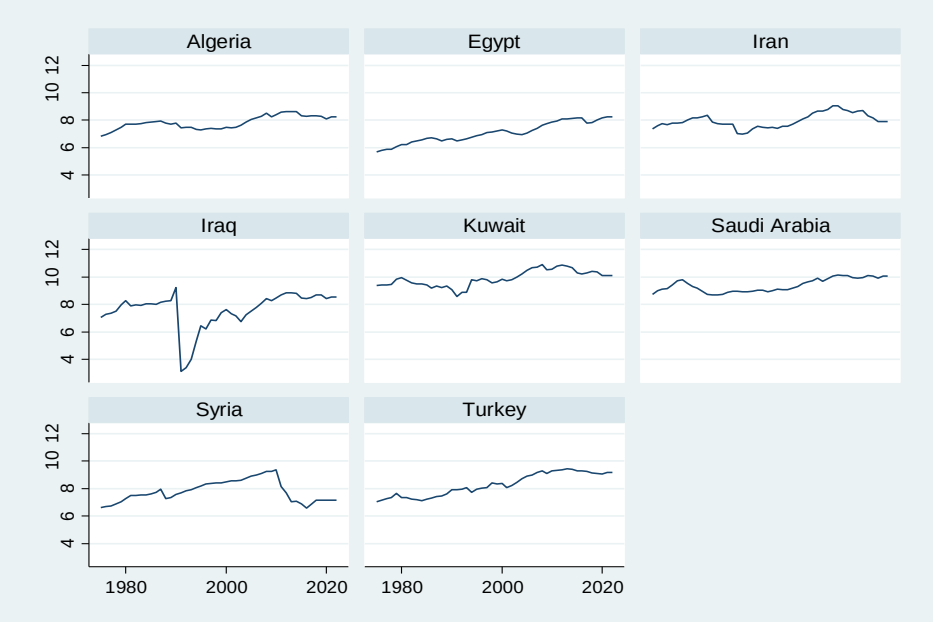
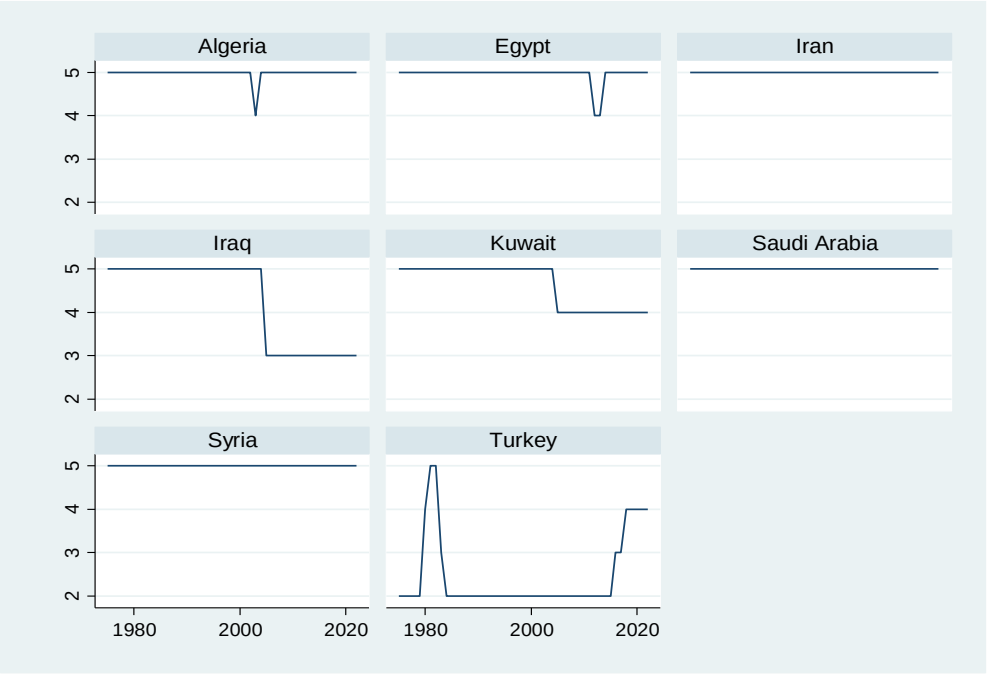


Figure 1G: Authoritarian Index



References

Bramblett, R. (2017). Sanctions: Protectionism, Environment, and Macro-Level Impacts (Doctoral dissertation, Colorado State University).

Cavdar, S. C., & Aydin, A. D. (2015). Understanding the factors behind current account deficit problem: A panel logit approach on 16 OECD member countries. *Procedia Economics and Finance*, *30*, 187-194.

Dai, M., Felbermayr, G. J., Kirilakha, A., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2021). Timing the impact of sanctions on trade. In *Research Handbook on Economic Sanctions* (pp. 411-437). Edward Elgar Publishing.

Drezner, D. W. (1999). *The sanctions paradox: Economic statecraft and international relations* (No. 65). Cambridge University Press.

Drury, A. C. (2000). How and whom the US president sanctions: A time-series cross-section analysis of us sanction decisions and characteristics. In *Sanctions as Economic Statecraft* (pp. 17-36). Palgrave Macmillan, London.

Felbermayr, G., Kirilakha, A., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2020). The global sanctions data base. *European Economic Review*, *129*, 103561.

Felbermayr, G., Syropoulos, C., Yalcin, E., & Yotov, Y. (2020). *On the heterogeneous effects of sanctions on trade and welfare: Evidence from the sanctions on Iran and a new database* (No. 2020-4). LeBow College of Business, Drexel University.

Fritz, O., Christen, E., Sinabell, F., & Hinz, J. (2017). Russia's and the EU's Sanctions. Economic and Trade Effects, Compliance and the Way Forward. *WIFO Studies*.

Galtung, J. (1967). On the effects of international economic sanctions, with examples from the case of Rhodesia. *World politics*, *19*(3), 378-416.

Giumelli, F. (2017). The redistributive impact of restrictive measures on EU members: Winners and losers from imposing sanctions on Russia. *JCMS: journal of common market studies*, *55*(5), 1062-1080.

Hufbauer, G. C., & Oegg, B. (2003). *The impact of economic sanctions on US trade: Andrew Rose's gravity model* (No. PB03-04).

Kirikakha, A., Felbermayr, G. J., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2021). The Global Sanctions Data Base (GSDB): an update that includes the years of the Trump

presidency. In *Research Handbook on Economic Sanctions* (pp. 62-106). Edward Elgar Publishing.

Klinova, M. V., & Sidorova, E. A. (2019). Economic sanctions of the West against Russia: development of the situation. *Studies on Russian Economic Development*, *30*(3), 355-364.

Korhonen, I., Simola, H., & Solanko, L. (2018). Sanctions and countersanctions–effects on economy, trade and finance. *Focus on European Economic Integration, Q3-2018*, 68-76.

Lin, H. L., & Lin, E. S. (2010). FDI, trade, and product innovation: theory and evidence. Southern Economic Journal, 77(2), 434-464.

Lindsay, J. M. (1986). Trade sanctions as policy instruments: A re-examination. *International Studies Quarterly*, *30*(2), 153-173.

Morgan, T. C., & Schwebach, V. L. (1997). Fools suffer gladly: The use of economic sanctions in international crises. *International Studies Quarterly*, *41*(1), 27-50.

Nguyen, T. T., & Do, M. H. (2021). Impact of economic sanctions and counter-sanctions on the Russian Federation's trade. *Economic Analysis and Policy*, *71*, 267-278.

Renwick, R. (1981). *Economic sanctions*. Center for International Affairs, Harvard University.