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## How Are Global Trade Relationships Affected by Western Sanctions?

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# **How Are Global Trade Relationships Affected by Western Sanctions?**

Colin A. Martinez

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## **Abstract**

Do sanctions actually have an impact on their intended targets? This paper seeks to fill a gap in the existing literature on the effectiveness of sanctions by measuring potential impacts on the trade relationships of targeted states after the imposition of sanctions. To do so, it turns to a comprehensive dataset that combines all trade and sanctions data for each of 229 states, arranged in 23,132 dyads, from 2000 through 2019. It then examines 792 regressions using a hybrid fixed effects difference-in-difference model applied to twelve different types of sanctions, differentiated by the sanctioning state's membership in certain groups of states, across eight categories of products traded. The paper hypothesizes that there are in fact some negative relationships between the imposition of sanctions and the value of trade in the sanctioned state. Although, it also recognizes that multiple confounding variables will hold it back from determining that the sanctions themselves are the cause for any decrease in trade in sanctioned states. Ultimately, it finds that much of hypothesis is true but also finds more interesting details pertaining to the behavior of trade in certain product categories after the imposition of sanctions.

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## Introduction

While sanctions have long been used as a tool of foreign policy, their use by Western states has seen a recent increase in publicity. In concert with the increase in publicity has been an intensification of the longstanding debate surrounding the effectiveness of sanctions. This paper seeks to contribute to filling a small gap in the literature on sanctions with an empirical examination of the effects Western sanctions have on the trade relationships of states that are the targets of such sanctions. This paper attempts to achieve these goals by using a difference-in-difference model, with country-pair and year fixed effects, run 792 times on a comprehensive database covering all trade values and sanctions imposed between states from 2000 through 2019. Within this model, it hypothesizes that there will be some negative impacts on trade relationships following the imposition of sanctions. However, it also believes that it will be difficult to discern that sanctions are the cause of any negative impacts as there is a number of confounding variables that are near impossible to account for in the data.

Sanctions have been an increasingly hot-button topic since 2014 when they were the bulk of the European Union's and United States' respective responses to Russia's annexation of Crimea (Crimmino 2018). Discussions of their importance as tools of foreign policy intensified during the negotiations for the Joint Comprehensive Plan of Action, popularly known as the "Iran deal," and the subsequent debate over its merits during the 2016 United States presidential election (Ofek 2017). With sweeping sanctions on Russia being central to the European Union's and United States' responses to Russia's invasion of Ukraine in 2022, the public profile of sanctions has risen to an apparent peak (Portela and Kluge 2022). Anecdotal evidence of the Russian economy since the imposition of Western sanctions has seemed to show a Russian resilience to the intended effects of sanctions, however, that may indeed be far from the truth (Pomeranz and White 2024; Berman 2024).

A core motivation for this paper is to attempt to see how, if at all, sanctions impact the trade relationships of sanctioned states. Such trade relationships can serve as a secondary indicator of economic expansion and recession. While the case of sanctions against Russia following its invasion of Ukraine in 2022 fall outside the scope of this paper, there are more than enough instances of sanctions being imposed upon states by other states to form a comprehensive review of their impacts on global trade relationships.

The definition of sanctions varies, but given that the analyses in this paper hinge on sanctions data derived from an external source, the Global Sanctions Database, this paper will operate with that project's definition for sanctions:

[R]estrictive policy measures adopted by individual countries, groups of countries, the UN, and other international organizations, to address various types of violations of international norms and conventions. Importantly, in the GSDB, the imposition of tariffs or anti-dumping duties is not considered a sanction. (Syropoulos et al. 2021, 5)

This definition will suffice and serves well to exclude tariffs and duties as they are often implemented with domestic political motivations rather than the international political motivations most often behind the imposition of sanctions (Thompson 1997).

## **Literature Review**

Given their longstanding history as tools of foreign policy, there is no shortage of literature on sanctions and their effectiveness. Works on the topic most often come from the fields of economics and political science—particularly the subfield of international relations. Throughout the literature, it is widely accepted that there is no foolproof way to measure the effectiveness of sanctions, with each metric capable of yielding entirely different results (Pala 2021). In a seminal 1997 work on the topic, Robert Pape opines that economic sanctions are not effective instruments in achieving foreign policy goals while rejecting much of the data upon which prior empirical analyses were based (Pape 1997). In his response to Pape, David Baldwin rejects his absolute definition for the success of economic sanctions which “requires that the target state concede ‘to a significant part of the coercer's demands’” (Baldwin and Pape 1998). Baldwin instead prefers a more holistic and qualitative approach that measures the success of sanctions on different levels, as opposed to Pape's which can be boiled down to zeroes and ones.

Definitions for success continue to compete to this day, with both Pape's and Baldwin's preferences remaining at the forefront of sanctions research. Jing et al., for example, utilize a one through sixteen scale rating the relative success of economic sanctions. The authors find, using a Baldwin-like format for success, that 34-percent of the sanctions in their data were successful (Jing, Kaempfer, and Lowenberg 2003). On the other hand, Portela and Mora-Sanquinetti utilize a Pape-like binary measure for success through which they find that aid cutoffs behave much like

economic sanctions, which is to say that they are not often successful. The authors do draw a distinction between regime types in targeted states, noting in line with the broader literature that economic sanctions and aid cutoffs are less successful when imposed against autocratic regimes. Similarly in line with the broader literature, they also find that sanctions and aid cutoffs are most successful when imposed multilaterally by international organizations such as the European Union and United Nations (Portela and Mora-Sanguinetti 2023).

The idea that multilateral sanctions are typically much more effective than unilateral sanctions has become a widely accepted phenomenon. This is largely because multilateral sanctions increase the amount of states inflicting damage on the target state and reduce the amount of alternative partners for the targeted state to turn to (Forrer 2017). Shin et al., meanwhile, find that there is no meaningful difference between multilateral and unilateral sanctions in terms of economic damage inflicted on the target state. Instead, the authors find that none of the sanctions in their data had inflicted any damage at all (Shin, Choi, and Luo 2016).

Similarly, there is a widespread belief that regime type in targeted states is a stronger predictor for success of economic sanctions. Specifically, it is accepted in the literature that sanctions see less success when imposed upon autocratic regimes than democratic regimes. The rationale behind this being that autocratic regimes have smaller winning coalitions than democratic regimes (Lektzian and Souva 2007; Bader and Faust 2014). The term winning coalition comes from international relations and, in short, refers to the group a leader needs to keep happy to keep their position of power (Hardin 1976). In a democratic regime, a leader's winning coalition would be the groups of voters that need to be kept on the side of the leader in order to win reelection. However, in autocratic regimes, a leader's winning coalition is more often a small group of elites who are the only to hold any power to change the leader's employment status. Because autocratic leaders deal with smaller winning coalitions, widespread economic strife inflicted by the imposition of sanctions will not affect the leader's winning coalition as much. This is why many policymakers advocate for more targeted sanctions meant to actually affect an autocratic leader's winning coalition, therefore increasing pressure on the leader to make changes that could lead to the lifting of the sanctions (Peksen 2017). However, there has yet to be convincing literature that displays any meaningful differences in the harm inflicted by targeted and wider sanctions on the general public of an autocratic regime (Shin, Choi, and Luo 2016).

Despite most literature on the effectiveness of sanctions coming from the field of political science, there is some worthwhile literature on the effects of sanctions from the field of economics. Examining the impacts of sanctions on directed trade networks, Joshi et al. find that sanctions are mostly unsuccessful and impose costs on both the target and sender states. Additionally, the authors find that sanctions on both the import and export of goods to and from targeted states work far better than those that solely affect the export of goods to targeted states (Joshi et al. 2024). Looking for changes in specific relationships after the imposition of sanctions, Gutmann, Neuenkirch, and Neumeier do not find any evidence that Chinese trade relationships with states targeted by Western sanctions see increases in overall trade. However, they do find that trade in natural resources and critical goods increases significantly. On this same topic of potential “sanctions-busting,” the authors find no evidence for such activities in Russian trade relationships (Gutmann, Neuenkirch, and Neumeier 2024).

While there is no shortage of literature on sanctions and their effectiveness, few studies aside from Joshi et al. (2024) are available that detail the impacts sanctions have on the trade economies of targeted states. This presents a minor gap in the literature that needs to be filled, which is the purpose of this paper. Much of the existing literature ties the success of sanctions to their ability to achieve the policy goals of the sanctioning state. However, few studies examine the effectiveness of sanctions as a tool of economic warfare, meant to inflict pain on the targeted economy, instead viewing them solely as tools of political coercion. This paper seeks to contribute to filling this gap by studying the possible impacts that the imposition of sanctions has on the trade economies of targeted states.

## **Data**

To assess the impacts of Western sanctions on global trade relationships, this paper combines trade and sanctions data from two sources to construct a comprehensive data set that is built to run a hybrid fixed effects difference-in-difference model. Data on the trade relationships between all states was taken from the Centre d'Etudes Prospectives et d'Informations Internationales International Trade Database (Gaulier and Zignago 2010). This data features the total annual value of trade of a given product type between any two given states, arranged in dyads, from 1995 through 2022. The dataset was trimmed to include only trade from 2000 through 2019. This was done to avoid any external impacts stemming from the COVID-19 pandemic, with a 2000



starting point making the dataset a clean twenty years and limiting this analysis to the twenty-first century.

Trade data in this dataset is broken up into eight product categories, reduced from the more than 5,000 that were present in the original CEPII data. These eight categories were determined based on similarities in products; their descriptions are listed in figure 1. Trade between states is represented through the values of exports and imports. Exports flow from “state1” to “state2” while imports are purchased by “state1” from “state2.” Both values are totaled in USD\$1,000. Additionally, a trade balance variable was created, calculating the difference between exports and imports. A negative trade balance indicates a trade deficit on the part of “state1” and a surplus on the part of “state2.” Given that the value of values imported in a dyad is equal to the value of exports in the inverse dyad, the mean value of trade balance across both inverse dyads should be zero. This also means that a perfectly balanced dataset with no missing values should have an overall mean of zero for the trade balance variable, which this dataset does. The main purpose of the trade balance variable in this analysis is to determine if the data is fully balanced.

**Figure 1**

**Descriptions of Product Categories**

<b>Product Category</b>	<b>Description</b>
1	Agricultural goods (Food, lumber, leather, etc.)
2	Raw chemicals, oils, gases (Excluding petroleum)
3	Chemical, oil, and gas final goods (Excluding petroleum)
4	Agricultural final goods (Textiles, wood products, etc.)
5	Metals
6	All other final goods (Machinery, vehicles, computers, etc.)
7	Medical goods
8	Energy products (Petroleum, coal, electricity, etc.)

Table: Colin Martinez

Data regarding sanctions between states was taken from the Global Sanctions Database (Syropoulos et al. 2024). This data is again organized in dyads of states. However, as it covers 1950 through 2023, all years before 2000 and after 2019 were removed for simplicity. These dyads were then merged with the trade data, matching by year to get the trade values and sanctions data for each correctly matched. The sanctions data itself was binary and was split up into arms, military, trade, finance, travel, and “other” types of sanctions. In every case in which a dyad had trade data but no sanctions data, zeros were inputted into the sanctions portion as a reflection of the presumed lack of sanctions between the states. The sanctions data was built upon to add more variables based on the existing data. In particular, a blanket variable that measures if any of the six types of sanctions were active was created, called “sanctions.” On the other hand, the “full sanctions” variable was active if all six types of sanctions were active in a given year. Meaning the full sanctions variable was only present if all of arms, finance, military, trade, travel, and “other” sanctions were applied on state two in a given year. Additionally, to examine the effects of sanctions beyond the relationships in which sanctions are present, “universal” variables were created for each sanctions variable. These variables have a value of one in every dyad if “state2” had a given sanctions variable present in any other of its dyads. These “universal” variables are what this paper focuses on as they apply to all relationships of “state2.” Sanctions are also grouped by whether they are unilateral or multilateral through the “sender\_mult” variable, with a zero representing unilateral and a one representing multilateral. Unilateral sanctions refer to those imposed solely by one state upon another while multilateral sanctions are those that are imposed by groups of states in concert with one another.

With 229 states being represented in the data, there are 26,106 possible pairings of states, however, there are only 23,132 pairings in which there was any trade activity present between the years 2000 and 2019. This means that there are 2,974 possible pairings that are not represented in the data. The data is represented as strongly balanced panel data, meaning that all observations have full data for each time period. If there is any amount of trade between two states in any number of years, that pairing has complete data for every year from 2000 through 2019, even if it means there are 19 years of zeroes. This was done to best ensure that the data fully captures the behavior unique to each pairing. Within each pairing there are two states, represented as state one and state two. Everything in the data flows from state one to state two:

exports are sent from state one to state two, imports are purchased by state one from state two, and sanctions are imposed by state one on state two.

Identifier variables were created for membership in certain international organizations: the European Union (EU), the North Atlantic Treaty Organization (NATO), the United Nations (UN), as well as a general identifier for the Western world. The Western world in this analysis refers to membership in the EU, NATO, or the Schengen Area, with Australia and New Zealand also included. This definition means that a few states are included in this group that are not traditionally referred to as “Western,” such as Albania, Cyprus, Malta, and Türkiye. Two variables were created for each identifier, with one applying to “state1” and the other for “state2.” These identifiers make it possible to exclude certain groups from regressions to see the impacts of each type of sanction outside of the relationships from sanctioning groups. Five groupings of sanctions variables were created to measure sanctions imposed by the United States, members of the European Union, members of the larger Western world, and those that are imposed unilaterally and multilaterally. The regression results of these variables are what much of this analysis is based upon.

The twelve treatment variables of interest in this analysis are both general and full sanctions imposed by anybody, the United States, members of the European Union, members of the Western world, and those imposed both unilaterally and multilaterally.

While there are 229 states present in the data, the CEPII data is based on data derived from the UN, meaning that there is no data available for the sovereign states of Kosovo, Taiwan, and Vatican City. Furthermore, there was no data available for neither Liechtenstein nor Monaco, despite both being members of the UN. Aside from those five states, data was available for all others in addition to 35 dependencies whose data was not double counted in their parent state’s data (see figure 3 of Appendix II). Given that this dataset includes all but five of the world’s states and accounts for 2,601 instances in which one single dollar worth of goods were exchanged between states, this is a highly comprehensive and sensitive dataset.

## **Model**

This paper utilizes a difference-in-difference model with country-pair and year fixed effects. The difference-in-difference method is a quasi-experimental method that estimates the difference between a selected control group and a selected intervention group (Abadie 2005). In this case,

the control group is all states that do not receive the selected form of sanctions in the data while the intervention group includes all states that receive the form of sanctions at any point within the data. Difference-in-difference treatment variables were thus created to determine when sanctions were imposed on states in order to measure the impacts of them upon imposition. The setup of the model makes it possible to discern the impacts that sanctions have on states when they are imposed, relative to states that were not sanctioned. The variables of interest in this analysis are those “post-” treatment variables for each of the “universal variables.”

In this paper, the control group specifically included all states that have a zero-value in the respective “post-” variable through all years while the intervention group specifically includes all states that have a one-value for the respective “post-” variable in any year in the data. Given this dimension of the model, it is not a traditional difference-in-difference model as there is no sole intervention point. Rather, the intervention point is different with each state in the intervention group, occurring one year after the initial imposition of the selected type of sanctions. This is why the model includes country-pair and year fixed effects; in the absence of a traditional difference-in-difference model that includes a control variable plus a treatment variable plus the product of the two and includes multiple intervention points, a general distinction between control and intervention groups with fixed effects held for categorical variables is necessary.

The difference-in-difference method also relies heavily on the parallel trend assumption, which holds that, in the absence of the selected intervention, the control and intervention groups would remain along a similar data path. While the parallel trend assumption exists in this case, it is a little more intricate than is standard. This paper holds that, in the absence of the imposition of sanctions (the intervention), trade between states would remain along their respective path of growth, degrowth, or lack thereof. It is difficult to assume the direction of a growth path across all trade relationships as there are individual factors that affect each trade relationship. In other words, because there are 23,132 relationships in this data, it is impossible to assume a singular parallel trend.

Using a difference-in-difference model with country-pair and year fixed effects, the following models with two identical processes were used to estimate the change in the value of a sanctioned state’s trade activity relative to those that were unaffected:

$$val\_exp_{ijt} = \beta_0 + \beta_1 postsanctions_{ijt} + u_{ij} + m_t + \varepsilon_{ijt} \quad (1)$$

$$val\_imp_{ijt} = \beta_0 + \beta_1 postsanctions_{ijt} + u_{ij} + m_t + \varepsilon_{ijt} \quad (2)$$

Where  $val\_exp_{ijt}$  is the value of exports from state one to state two,  $val\_imp_{ijt}$  is the value of imports to state one from state two,  $postsanctions_{ijt}$  is a dummy equal to one for country pairs after sanctions were imposed,  $u_{ij}$  are country-pair fixed effects,  $m_t$  are year fixed effects, and  $\varepsilon_{ijt}$  is an error term.

These models estimate the change in a state's trade activity with the sanctioning state when it has sanctions imposed on it. In actuality, there are eighteen regressions for each dependent variable as we decided to examine the individual impacts of each of the six groupings of economic sanctions senders. For example, the actual model would show *posteu\_sanctions* instead of *postsanctions* when analyzing the impacts of general EU sanctions on a given state. In this analysis, there are two regressions each for general and full sanctions, general and full unilateral sanctions, and general and full multilateral sanctions, and four regressions each for general and full EU sanctions, general and full US sanctions, and general and full Western sanctions.

Each regression was run nine times to cover the effects of sanctions on the value of trade in all products as well as in each individual product category. All in all, 792 regressions were run as effects were measured for twelve treatment variables: general and full sanctions for those sent by any state, EU states, the United States, Western world states, and those imposed both unilaterally and multilaterally. Additionally, each model was restricted one to three times to exclude certain pairs. In each case, a regression was run with no exclusions and again when including only pairs in which any sanctions had not yet been imposed. For example, "state2" may have been the target of US sanctions, but not yet the target of Canadian sanctions. Therefore, all years of trade before any Canadian sanctions were imposed were included. Furthermore, in the cases of EU, US, and Western sanctions, regressions were run only including those pairs in which "state1" is respectively a member of the EU, is the United States, or is a Western world state. This was done to measure the impacts of sanctions imposed by an entity on its own trade relationships. In the fourth regression for these three groups of sanctions, all pairs in which any sanctions had been imposed before in the data were excluded in addition to all relationships in which the sanctioning group was involved. For example, when measuring the

impacts of EU sanctions, all relationships that involved an EU member state was included. This was done to try to find any effects sanctions might have on relationships that should not be affected at all in theory.

Working within these two near-identical models, I can hypothesize that there will be some significant negative relationships between the imposition of all types of sanctions, particularly when restricting the data to only include relationships containing sanctioning states. I am additionally certain that there will be some variability in the results for each product category, although I am uncertain which categories will see more negative impacts. However, I also believe that it is highly likely that any effects on trade will be difficult to discern as stemming from sanctions rather than the same root cause for the imposition of sanctions in the first place.

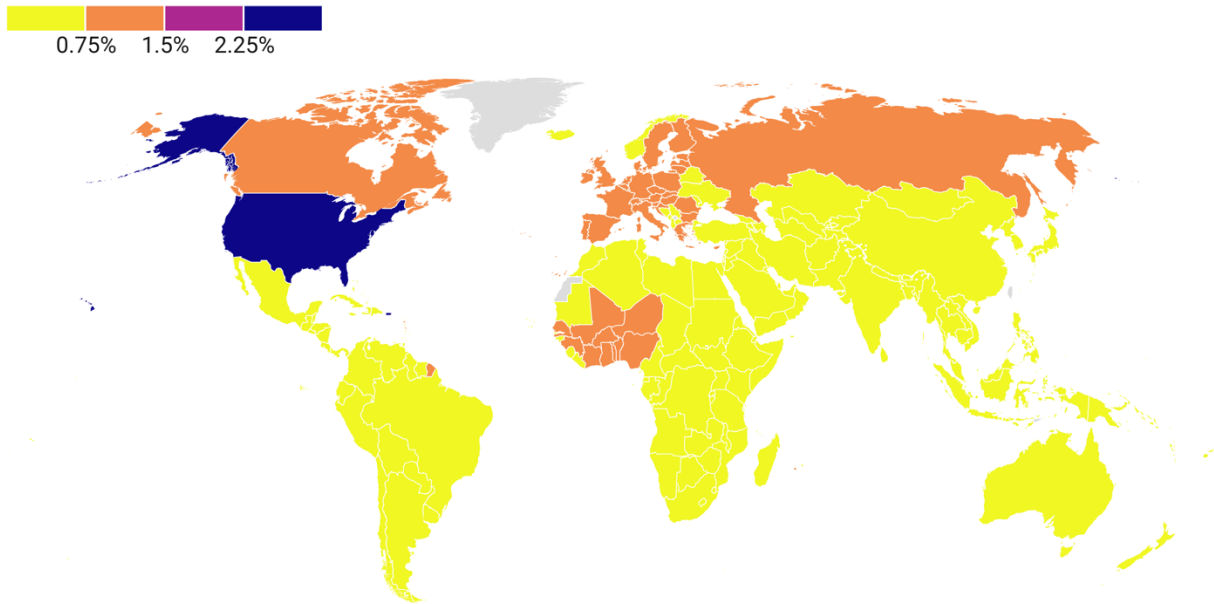
## **Discussion**

It is clear in the data that sanctions are a common tool of foreign policy as there is only one UN member state that is not recorded in the data as having ever imposed sanctions on another state (see figure 2). That state is Timor-Leste, a small Portuguese-speaking island nation in southeast Asia, which is also one of the just 25 states to have not had any sanctions imposed upon it in the data (see figure 2 of Appendix II). Furthermore, sanctions are imposed on “state2” by “state1” in 7.93-percent of all relationships. Meanwhile, in 60.03-percent of all global relationships, “state2” has sanctions imposed upon it by another state.

Looking specifically at the United States’ relationships, the United States has imposed sanctions on “state2” in a remarkable 42.23-percent of relationships. Additionally, the United States is by far the biggest user of sanctions as it accounts for 3.17-percent of all sanctions sent in the data, a share more than double the second largest, which is neighboring Canada at 1.41-percent (see figure 2). The United States is also by far the largest user of unilateral sanctions, accounting for 56.86-percent of all unilateral sanctions sent in the data. These unilateral sanctions account for 81.59-percent of all sanctions imposed by the United States, meaning they are a very common tool of US foreign policy.

Figure 2

## States by Share of Sanctions Sent



Map: Colin Martinez

When looking at how often states have sent sanctions to another state, a clear trend emerges. Excluding Canada, Russia, Switzerland, and the United States, all states that account for more than 0.75-percent of all sanctions sent are members of a supranational economic and political union. In Europe, they are members of the EU while those in West Africa are members of the Economic Community of West African States (ECOWAS). All member states of the EU meet this threshold (the United Kingdom is a member for the entirety of this dataset as Brexit did not take effect until January 2020, immediately after this dataset ends). Interestingly all five European members of NATO that are not members of the EU—Albania, Iceland, Montenegro, Norway, and Türkiye (North Macedonia acceded to NATO in 2020, after the conclusion of this dataset)—do not meet this threshold. The only European states that meet this threshold without being members of the EU are Russia and Switzerland, which anecdotally make sense. Switzerland is actually the only state in the data to have unilaterally imposed full sanctions on another state—in this case, Syria. Peculiarly, around 60-percent of all sanctions imposed by ECOWAS members are imposed upon other ECOWAS members. ECOWAS sanctions are outside the scope of this analysis but could prove to be an interesting case study for future analysis.

Looking specifically to EU sanctions, they are imposed almost exclusively multilaterally with only 0.22-percent of all sanctions imposed by EU members being done so unilaterally. This is quite the stark contrast with the United States, whose sanctions are overwhelmingly imposed unilaterally. Comparing the results of regressions for EU and US sanctions could prove to be useful in determining differences in the impacts of two radically different sanctions strategies. Although, with all sanctions sent by the United States and the EU forming the majority of sanctions imposed by Western states, this could prove somewhat problematic and weaken any results in those regressions.

Now looking to the results of all regressions, it is clear that there is a negative effect of full sanctions on the value of trade between states. In fact, almost every regression of each type of full sanctions yields a statistically significant result, with one glaring exception. Barring a few other examples, the majority of statistically insignificant regressions of full sanctions are on imports of products from category eight, which refers to energy goods such as petroleum, coal, and electricity. Remarkably, only seven of the 18 regressions run on the various types of full sanctions yielded a negative statistically significant result for the import of category eight goods, which include oil, coal, and electricity. The largest result of these was a decrease of nearly \$64 million in the unconstrained regression on full unilateral sanctions. This could have to do with the fact that only thirteen states have been recipients of full sanctions, with four of them—Angola, Iran, Iraq, and Libya—being major oil producers. Furthermore, these four states begin the dataset with full sanctions already imposed upon them, meaning they spend the entire dataset in the treated post full sanctions groups. However, since this model utilizes country-pair and year fixed effects, these states were not included in the results for any regression. This then means that the root cause of the difference in results for category eight in these results lies elsewhere, perhaps with the nature of the markets for oil and other energy products. While imports of energy goods from fully sanctioned states see no significant results, the export of such goods to such states sees a large and statistically significant drop in every regression.



**Table 1: Effects of Full Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Sanctions (Full)	-20,323.24*** (1,910.68)	-8,093.40*** (1,982.87)	-10,962.58*** (1,411.93)	-11,954.39*** (1,217.21)	-8,055.89*** (1,697.11)	-21,603.60*** (2,071.83)	-53,829.34*** (7,644.04)	-9,057.37** (951.48)	-37,994.71*** (3,286.81)
Constant	46,626.15*** (73.78)	28,040.14*** (77.19)	21,283.90*** (54.82)	25,812.56*** (46.78)	28,701.25*** (65.33)	39,337.53*** (79.31)	130,919.00*** (293.91)	16,228.22*** (37.11)	72,047.72*** (127.09)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Sanctions (Full)	-21,135.88*** (2,015.77)	-13,493.92*** (1,708.74)	-8,199.74** (2,505.12)	-10,447.32*** (1,825.62)	-11,723.86*** (1,231.19)	-18,240.28*** (1,714.26)	-61,377.03*** (6,479.04)	-10,993.08*** (896.37)	-28,948.35* (11,359.90)
Constant	46,657.00*** (77.84)	28,250.37*** (66.52)	21,176.63*** (97.27)	25,754.64*** (70.16)	28,842.44*** (47.39)	39,208.78*** (65.62)	131,209.20*** (249.12)	16,303.71*** (34.96)	71,697.92*** (439.26)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8941	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 2: Effects of Full EU Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
EU Sanctions (Full)	-24,596.60*** (1,791.81)	-14,576.84*** (1,444.47)	-13,333.54*** (1,437.50)	-13,901.64*** (1,167.57)	-9,942.28*** (1,896.13)	-24,666.62*** (1,566.04)	-59,973.99*** (6,823.31)	-11,194.62*** (893.62)	-49,035.22*** (3,988.98)
Constant	46,304.26*** (33.72)	28,000.24*** (27.27)	21,204.68*** (26.57)	25,615.11*** (22.00)	28,579.66*** (35.95)	38,970.40*** (29.20)	129,991.60*** (129.97)	16,085.96*** (16.84)	71,496.69*** (74.69)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
EU Sanctions (Full)	-23,743.53*** (2018.96)	-18,729.40*** (1,007.42)	-12,874.73*** (1,577.81)	-16,014.99*** (906.10)	-11,753.07*** (1,479.31)	-24,387.13*** (1,813.18)	-67,497.02*** (6,585.84)	-11,890.61*** (880.24)	-15,533.63 (13,299.60)
Constant	46,288.21*** (38.00)	28,078.62*** (19.02)	21,096.20*** (29.16)	25,654.94*** (17.08)	28,613.99** (28.05)	38,965.19*** (33.80)	130,134.90*** (125.45)	16,099.07*** (16.59)	70,869.42*** (249.02)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Fully sanctioned states see significant decreases in trade activity across the board (see figures 19–36 of Appendix IV). However, is this the fault of the sanctions or the fault of the underlying cause of the sanctions? When looking at which states have been recipients of full sanctions in the data, a story emerges: most fully sanctioned states are victims of internal conflict. Full sanctions were imposed on Afghanistan after a takeover by the Taliban in 1996, on Angola during the Angolan Civil War in 1997, on the Central African Republic after the outbreak of the still-ongoing civil war at the end of 2012, on Syria after the outbreak of the also still-ongoing civil war in 2011—the list goes on. The only states in which full sanctions were

imposed for reasons other than conflict are Eritrea, Iran, Iraq, Libya, North Korea, and Zimbabwe. Although, more full sanctions were imposed upon Iraq and Libya after the outbreak of conflicts in those states in 2003 and 2011. That leaves only four states whose full sanctions have never been tied to conflict in the data: Eritrea, Iran, North Korea, and Zimbabwe. In the cases of Iran and North Korea, both were respectively sent full sanctions in 2012 and 2006 with the stated goal of nuclear nonproliferation, a common goal of UN sanctions (Eckert 2010).

**Figure 3**

## Fully Sanctioned States

	<b>State</b>	<b>First Year Sanctioned in Data</b>
1	Central African Republic	2013
2	Côte d'Ivoire	2010
3	Eritrea	2011
4	Iran	2012
5	Lebanon	2006
6	North Korea	2006
7	Syria	2012
8	Zimbabwe	2002

Table: Colin Martinez

The relationships of Iran and Syria were examined specifically to see any differences between fully sanctioned states that experienced internal armed conflict and those with no armed conflicts to speak of. In doing this, all fully sanctioned states were excluded from the regression except for the state of interest. These two states were selected for brief case studies as they are located in the same region of the world, had somewhat similar economies before the onset of the Syrian Civil War, and received full sanctions in the same year, meaning they have the same intervention point. These results found generally that sanctions against Iran saw little meaningful change in its trade compared to the rest of the non-fully sanctioned world. The only regressions

that saw a significant negative result were on the export of category two, five, and eight goods to Iran and the import of category four, six, and seven goods from Iran. Interestingly, this means that there was a negative impact on Iranian imports of oil and other energy goods but not on Iranian exports of such goods. Meanwhile, Syria saw a significant decrease across the board. This displays what could be a meaningless effect of sanctions directly when compared to the effect of a crippling internal conflict. It would be irrational to assume that full multilateral sanctions had more of a hand in the collapse of Syrian trade than the full-fledged civil war that had a strongly negative impact on every corner of the national economy.

**Table 3: Effects of Full Sanctions on Iranian Trade**

Value of Goods Exported to Iran in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-8,422.23 (8,806.67)	28,305.68* (12,643.85)	-6,283.35* (2,575.66)	-4,075.52 (6,533.91)	5,198.54 (9,724.94)	-24,366.37* (11,579.32)	-29,873.67 (35,459.34)	-3,093.07 (2,232.81)	-31,667.90*** (4,728.81)
Constant	47,970.53*** (16.02)	28,607.90*** (21.96)	21,916.70*** (5.30)	26,509.44*** (11.53)	29,699.81*** (16.33)	40,288.01*** (20.48)	135,096.20*** (57.24)	16,637.95*** (4.37)	73,975.48*** (10.43)
Observations	5,622,582	774,002	571,638	761,622	795,988	740,256	832,596	626,206	520,274
Clusters	43,866	38,875	28,680	38,262	39,995	37,176	41,841	31,430	26,107
R <sup>2</sup>	0.2778	0.8674	0.7375	0.9021	0.8942	0.7695	0.8735	0.7834	0.7776

Value of Goods Imported from Iran in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Full Sanctions	-9,825.04 (10,048.68)	3,125.02 (10,001.34)	11,591.55 (14,579.03)	13,678.91 (12,837.98)	-9,510.08*** (2,381.78)	2,607.73 (7,045.89)	-54,906.02*** (7,004.16)	-9,806.53*** (996.87)	-30,622.55 (66,967.00)
Constant	47,866.01*** (18.28)	29,009.02*** (17.37)	21,921.94*** (29.99)	26,672.41*** (22.65)	29,899.51*** (4.00)	40,391.11*** (12.46)	136,002.00*** (11.31)	16,768.53*** (1.95)	69,945.28*** (147.76)
Observations	5,622,582	774,002	571,638	761,622	795,988	740,256	832,596	626,206	520,274
Clusters	43,866	38,875	28,680	38,262	39,995	37,176	41,841	31,430	26,107
R <sup>2</sup>	0.2786	0.8666	0.7375	0.9019	0.8941	0.7698	0.8735	0.7834	0.7824

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 4: Effects of Full Sanctions on Syrian Trade**

Value of Goods Exported to Syria in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-26,395.52*** (2,018.52)	-17,470.96*** (4,645.21)	-11,414.43*** (1,402.62)	-17,119.06*** (1,882.19)	-14,704.47*** (1,572.20)	-27,523.03*** (3,328.41)	-70,363.94*** (7,568.41)	-10,859.72*** (1,033.71)	-35,783.58*** (4,604.79)
Constant	47,880.15*** (3.26)	28,516.42*** (7.61)	21,911.47*** (2.25)	26,456.14*** (3.10)	29,662.92*** (2.54)	40,109.24*** (5.35)	134,762.90*** (11.77)	16,616.15*** (1.72)	74,074.12*** (7.26)
Observations	5,619,294	773,782	570,904	761,362	795,848	739,916	832,456	625,686	519,340
Clusters	43,858	38,864	28,643	38,249	39,988	37,159	41,834	31,404	26,060
R <sup>2</sup>	0.2778	0.8679	0.7375	0.9022	0.8943	0.7701	0.8736	0.7834	0.7776

Value of Goods Imported from Syria in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Full Sanctions	-27,132.02*** (2,162.35)	-23,641.51*** (3,004.46)	-10,329.97*** (1,355.34)	-14,421.78*** (1,024.45)	-17,640.09*** (1,943.74)	-19,842.40*** (1,397.79)	-59,098.44*** (6,502.57)	-10,885.89*** (985.90)	-63,508.40*** (13,881.59)
Constant	47,704.21*** (3.49)	29,003.79*** (4.92)	21,842.35*** (2.18)	26,648.14*** (1.69)	29,912.92*** (3.15)	40,353.77*** (2.25)	136,010.10*** (10.12)	16,779.42*** (1.64)	68,307.05*** (21.89)
Observations	5,619,294	773,782	570,904	761,362	795,848	739,916	832,456	625,686	519,340
Clusters	43,858	38,864	28,643	38,249	39,988	37,159	41,834	31,404	26,060
R <sup>2</sup>	0.2789	0.8667	0.7378	0.9023	0.8941	0.7699	0.8735	0.7834	0.7857

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Almost all instances of full sanctions being sent to a state are done so multilaterally. As mentioned earlier, the only relationship in which full sanctions were imposed unilaterally is that of Switzerland and Syria. This means that the results of the regressions for unilateral full sanctions are essentially measuring the differences between Swiss-Syrian trade with the rest of the world. As expected, the Swiss-Syrian trade relationship sees a significant drop in activity. However, this is likely less a result of Swiss sanctions being imposed on Syria and more a result of the general economic collapse of Syria following the outbreak of the Syrian Civil War. Given that all but one instance of full sanctions has been done so multilaterally, the results of these regressions could be something of an extension of the results for multilateral sanctions overall.

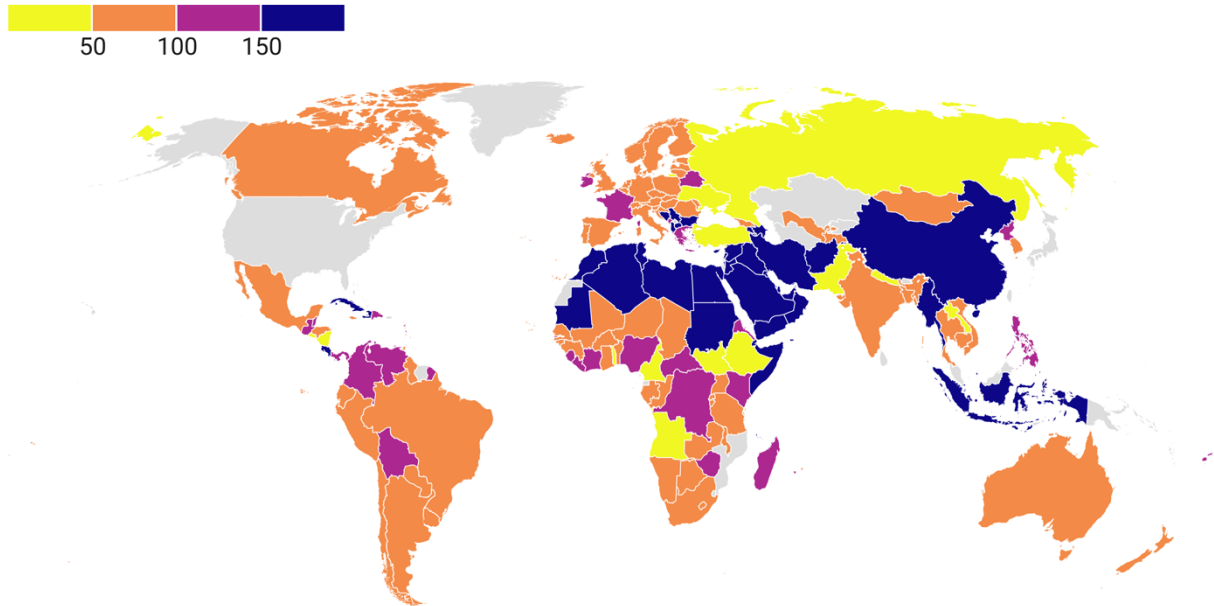
Now looking to the results of the regressions for overall multilateral sanctions, a similar trend emerges, albeit to a lesser degree (see figures 17–18 of Appendix IV). The results yield statistically significant decreases in nearly all product categories, with a few minor exceptions. The decreases in trade are also about 40-percent smaller than those seen from full sanctions. In other words, the results for multilateral sanctions are smaller but just about as statistically significant as those for full sanctions. It could then mean again that the regressions for full sanctions are another representation of results for multilateral sanctions, only looking closer at a handful examples in which the economic collapse in sanctioned states was more severe and tied heavily to long-term internal conflict.

Comparing multilateral sanctions with those that are unilateral, it becomes clear that while there certainly links between the imposition of multilateral sanctions and a decrease in trade activity in the sanctioned state, the same cannot be said for unilateral sanctions. Instead, the only results that are statistically significant in either of the models for unilateral sanctions are all positive with the sole exception of exports of category two goods. The same is mostly true of US sanctions, which makes sense given that the vast majority of US sanctions are unilateral, and a majority of unilateral sanctions are imposed by the United States. Much like the unilateral results, negative statistically significant results are only seen on product categories two and eight (see figures 7–10 of Appendix IV). However, the model which only includes US relationships, meant to determine the efficacy of sanctions on the relationships of sanctions senders, yields not a single negative statistically significant result across the product categories. Those that are statistically significant are positive. This does not tell me that the imposition of US sanctions means an increase in trade with the United States will soon follow. Rather, I believe these results

are a reflection of the expansive nature of US sanctions, which have been applied to almost every state (see figure 4). Instead of reflecting the effects of US sanctions on US trade relationships, this more likely reflects the general growth of US trade relationships in the twenty-first century.

**Figure 4**

## States by Frequency of US Sanctions Received



Map: Colin Martinez

Much like how the results of US sanctions are somewhat analogous with those of unilateral sanctions, with 99.78-percent of EU sanctions being imposed multilaterally, results for EU sanctions should similarly be somewhat analogous to those of multilateral sanctions. With only a handful of instances of statistically insignificant results across the product categories, indeed they are (see figures 3–6 of Appendix IV). Unlike results for US sanctions, there are no positive statistically significant results for EU sanctions. One key difference between these results and those of US sanctions is that while US sanctions account for a majority of unilateral sanctions, EU sanctions account for only 27.79-percent of all multilateral sanctions. This presents a different dynamic in the shaping of these results. These observations tell me that the results for EU sanctions are in line with those of multilateral sanctions while the results for US sanctions largely shape those of unilateral sanctions. Both pairs of variables are in line with one another, but likely for completely different reasons.

Looking to the results for the regressions of sanctions imposed by Western world states presents the opportunity to detrend these results and find any effects relating to the origin of the sanctions rather than the manner in which they are imposed. This is because the Western world in this data accounts for 34.18-percent of all multilateral sanctions and 85.79-percent of all unilateral sanctions. Despite this, multilateral sanctions still outnumber unilateral sanctions in the grouping by nearly a factor of ten. Even so, this is still a far more diverse grouping in terms of the type and origin of sanctions. While the regressions for EU sanctions included those imposed by the 27 EU member states and those for US sanctions included only those imposed by the United States, this grouping of Western sanctions includes a total of 40 states. As stated earlier, inclusion in the Western world is defined as membership in the EU, NATO, or the Schengen Area, with Australia and New Zealand also included. This grouping also includes the four European microstates that effectively participate in the Schengen Area despite not being official members: Andorra, Monaco, San Marino, and Vatican City. However, as there is no data available for Liechtenstein, Monaco, or Vatican City, the number is 40 rather than the complete 43.

The results of the regressions for Western sanctions yield little of substance as almost all results are statistically insignificant. In all four general regression models that were run, the only trade that saw any negative relationship with statistical significance were exports of category two goods, imports of category five goods, and the export and import of category eight goods. Interestingly, all three of those categories largely include natural resources as category two includes raw chemicals, oils, and gases; metals for category five; and energy products for category eight. This tells me that there are no meaningful relationships between the imposition of Western states and the value of trade in sanctioned states.

Looking in the aggregate across all types of regressions, product category eight, energy goods, was the least likely to be negatively impacted by sanctions, failing to register a negative statistically significant result in 21 out the 36 regression models run. While it is difficult to determine if this is important, it is unique as all other product categories yielded negative statistically significant results far more often. For example, product category one, agricultural goods, yielded such a result in 23 of 36 iterations. Given the distinctiveness of the results for energy goods, I am inclined to believe that such goods are the most impervious to any impacts from sanctions. This could also represent the inelasticity of the oil market and the difficulty in

attempting to externally influence it via sanctions. When one buyer of oil departs the market, another will almost always take its place. For example, the United States imposed expansive sanctions on Venezuela in 2017 with the goal of forcing President Nicolás Maduro out of office, namely by crippling Venezuelan oil exports. The most significant sanctions imposed was a ban on all US imports of Venezuelan oil—the United States had been one of the largest buyers of Venezuelan oil until that time. However, the sanctions had little to no impact on the Venezuelan market as exports were redirected elsewhere to India, China, and the EU (Forrer 2017). This tendency for sanctioned oil exporters to be able to redirect exports elsewhere makes sense given the general inelasticity of demand for oil (Nordhaus, Houthakker, and Sachs 1980). Even as it makes sense, the difference in results for energy goods and all other goods is remarkable.

Given all these various results, I am inclined to say that this paper generally finds, in consistency with existing literature, that multilateral sanctions are far more effective in use than unilateral sanctions. However, it is difficult to say this definitively given the facts at hand: many sanctions, both unilateral and multilateral, are imposed upon conflict-stricken states as a result of said conflicts. It is thus difficult to separate any effects on trade stemming from sanctions from those stemming from conflict, the root cause of sanctions in many cases. It is far more likely that a state like Syria has seen significant drops in its global trade activity as a result of the ongoing civil war, not as a result of sanctions imposed by many states as a response to the civil war. A further analysis will need to be done with more refined sanctions data that controls for armed conflicts. Such an analysis could more accurately determine the direct effects of sanctions on the trade relationships of targeted states.

## **Conclusion**

After reviewing a comprehensive set of hybrid fixed effects difference-in-difference regressions run on a robust strongly balanced paneled dataset, it can be determined that there is indeed a general negative relationship between the imposition of sanctions and the value of trade in relationships of targeted states. However, it is impossible to determine causality given the presence of significant confounding variables, such as internal armed conflict, with the potential to influence both the independent variable of sanctions imposition and the dependent variable of trade values. This is largely in line with the hypothesis outlined in this paper. Perhaps most interestingly, and beyond the initial hypothesis, there is some evidence that the trade energy

goods, such as crude oil, coal, and electricity, is significantly less likely to be negatively affected by the imposition of sanctions. Ultimately, this paper helps contribute to filling a gap in the literature on the impacts that sanctions may have on global trade relationships, finding that negative relationships do exist, however difficult to prove, and that energy goods appear to be more resilient to the effects of sanctions than most other types of goods.

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## Appendix

### Appendix I – Graphs

Figure 1

#### Frequency of Sanctions by Sender

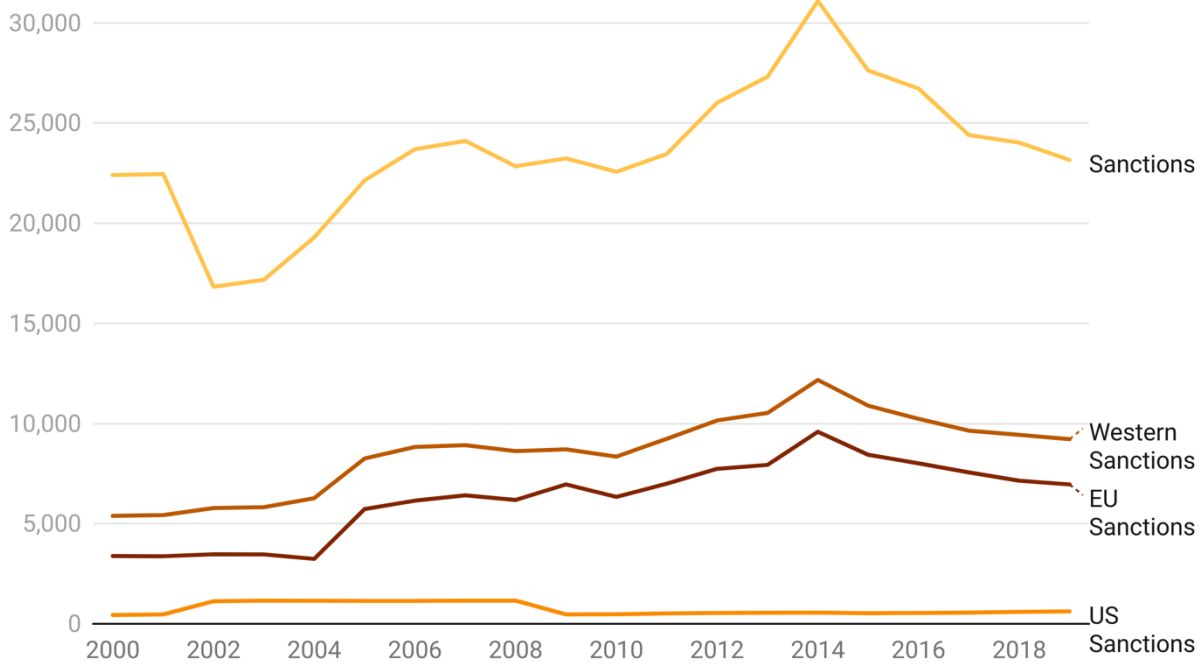


Chart: Colin Martinez

## Appendix II – Data Tables

Figure 1

### Fully Sanctioned States

	<b>State</b>	<b>First Year Sanctioned in Data</b>
1	Central African Republic	2013
2	Côte d'Ivoire	2010
3	Eritrea	2011
4	Iran	2012
5	Lebanon	2006
6	North Korea	2006
7	Syria	2012
8	Zimbabwe	2002

Table: Colin Martinez et al.

Figure 2

## States That Have Not Received Sanctions in the Data

	<b>State</b>	<b>Continent</b>	<b>Region</b>
1	The Bahamas	North America	Caribbean
2	Bhutan	Asia	South Asia
3	Brunei	Asia	Southeast Asia
4	Eswatini	Africa	Southern Africa
5	Grenada	North America	Caribbean
6	Japan	Asia	East Asia
7	Kazakhstan	Asia	Central Asia
8	Kiribati	Oceania	Polynesia
9	Malaysia	Asia	Southeast Asia
10	Maldives	Asia	South Asia
11	Micronesia	Oceania	Micronesia
12	Mozambique	Africa	Southern Africa
13	Palau	Oceania	Micronesia
14	Papua New Guinea	Oceania	Melanesia
15	Saint Kitts and Nevis	North America	Caribbean
16	Saint Vincent and the Grenadines	North America	Caribbean
17	São Tomé and Príncipe	Africa	Central Africa
18	Singapore	Asia	Southeast Asia
19	Solomon Islands	Oceania	Melanesia
20	Sri Lanka	Asia	South Asia
21	Timor-Leste	Asia	Southeast Asia
22	Tonga	Oceania	Polynesia
23	Turkmenistan	Asia	Central Asia
24	Tuvalu	Oceania	Polynesia
25	Vanuatu	Oceania	Melanesia

Table: Colin Martinez

Figure 3

### Dependent States Represented in the Data

	State	Territory of
1	American Samoa	United States
2	Anguilla	United Kingdom
3	Aruba	Netherlands
4	Bermuda	United Kingdom
5	Bonaire	Netherlands
6	British Indian Ocean Territory	United Kingdom
7	British Virgin Islands	United Kingdom
8	Cayman Island	United Kingdom
9	Christmas Island	Australia
10	Cocos Islands	Australia
11	Cook Islands	New Zealand
12	Curacao	Netherlands
13	Falkland Islands	United Kingdom
14	French Polynesia	France
15	French South Antarctic Territory	France
16	Gibraltar	United Kingdom
17	Greenland	Denmark
18	Guam	United States
19	Hong Kong	China
20	Macao	China
21	Mayotte	France
22	Montserrat	United Kingdom
23	New Caledonia	France
24	Niue	New Zealand
25	Norfolk Island	Australia
26	Northern Mariana Islands	United States
27	Pitcairn Islands	United Kingdom
28	Saint Barthelemy	France
29	Saint Helena, Ascension and Tristan da Cunha	United Kingdom
30	Saint Pierre and Miquelon	France
31	Sint Maarten	Netherlands
32	Tokelau	New Zealand
33	Turks and Caicos Islands	United Kingdom
34	US Miscellaneous Pacific Islands	United States
35	Wallis and Futuna	France

Table: Colin Martinez

Figure 4

## States That Are Not Represented in the Data

	State	UN Member?
1	Kosovo	No
2	Liechtenstein	Yes
3	Monaco	Yes
4	Taiwan	No
5	Vatican City	No

Table: Colin Martinez

Figure 5

## Descriptions of Product Categories

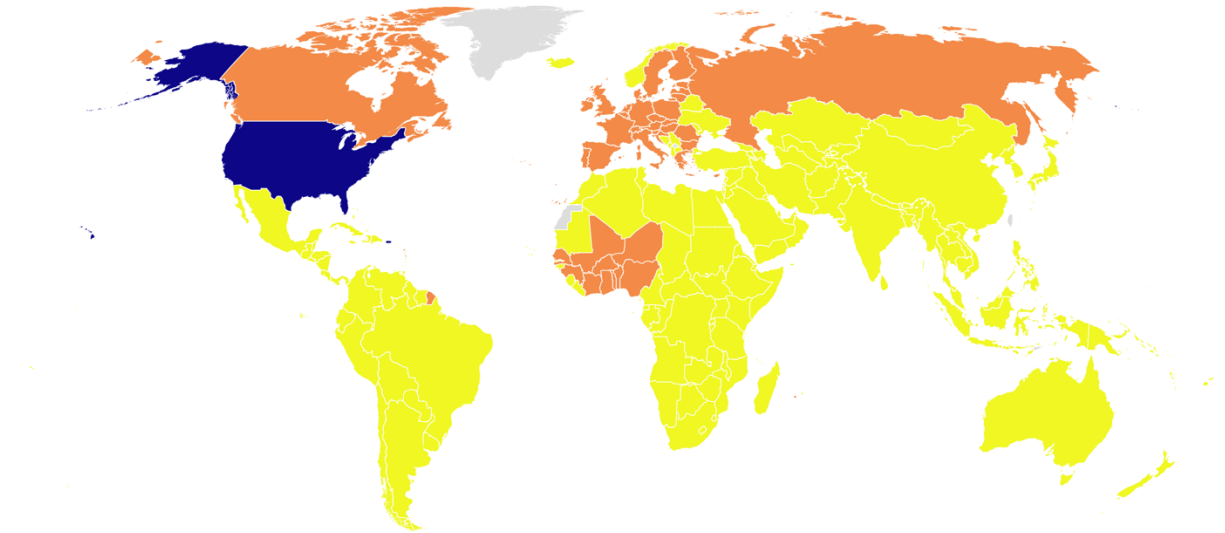
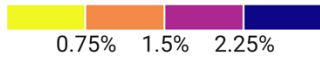
	Product Category	Description
1		Agricultural goods (Food, lumber, leather, etc.)
2		Raw chemicals, oils, gases (Excluding petroleum)
3		Chemical, oil, and gas final goods (Excluding petroleum)
4		Agricultural final goods (Textiles, wood products, etc.)
5		Metals
6		All other final goods (Machinery, vehicles, computers, etc.)
7		Medical goods
8		Energy products (Petroleum, coal, electricity, etc.)

Table: Colin Martinez

## Appendix III – Explanatory Maps

Figure 1

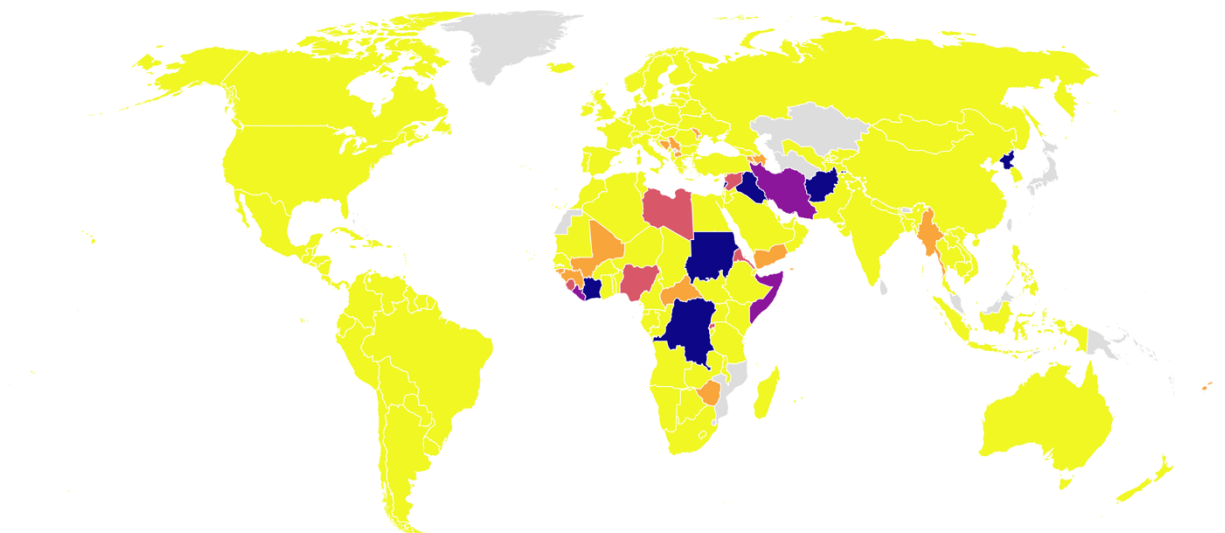
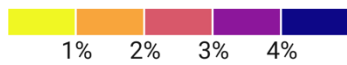
### States by Share of Sanctions Sent



Map: Colin Martinez

Figure 2

### States by Share of Sanctions Received

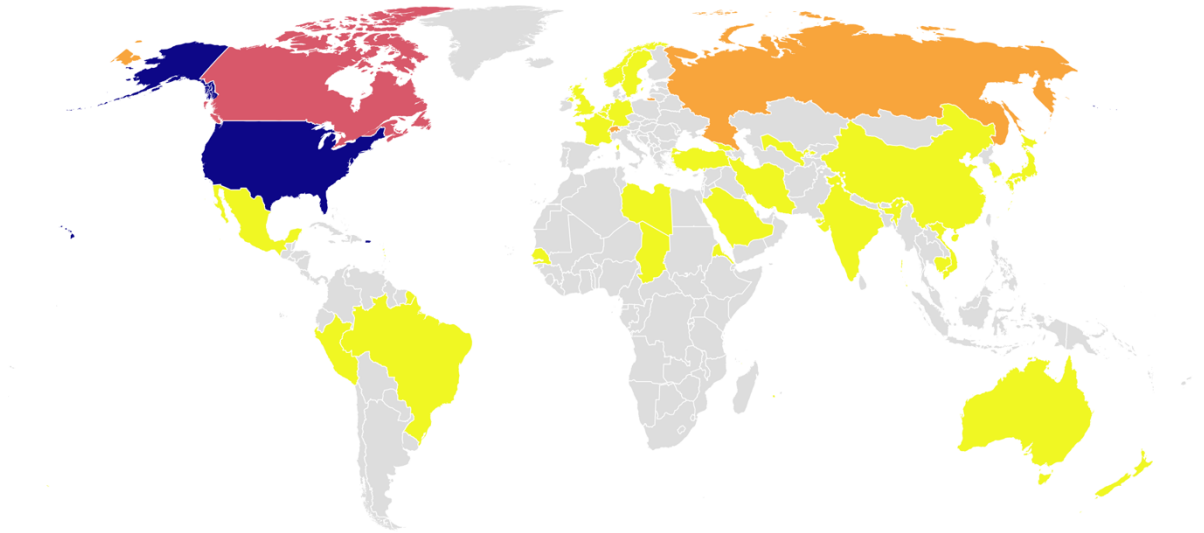
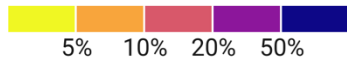


Map: Colin Martinez



Figure 3

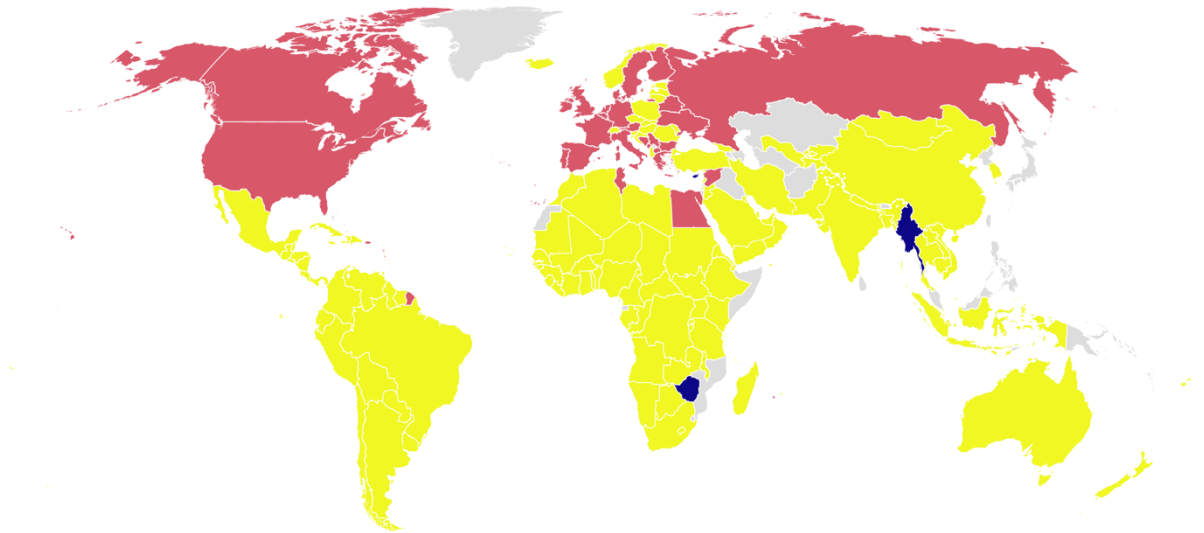
### States by Share of Unilateral Sanctions Sent



Map: Colin Martinez

Figure 4

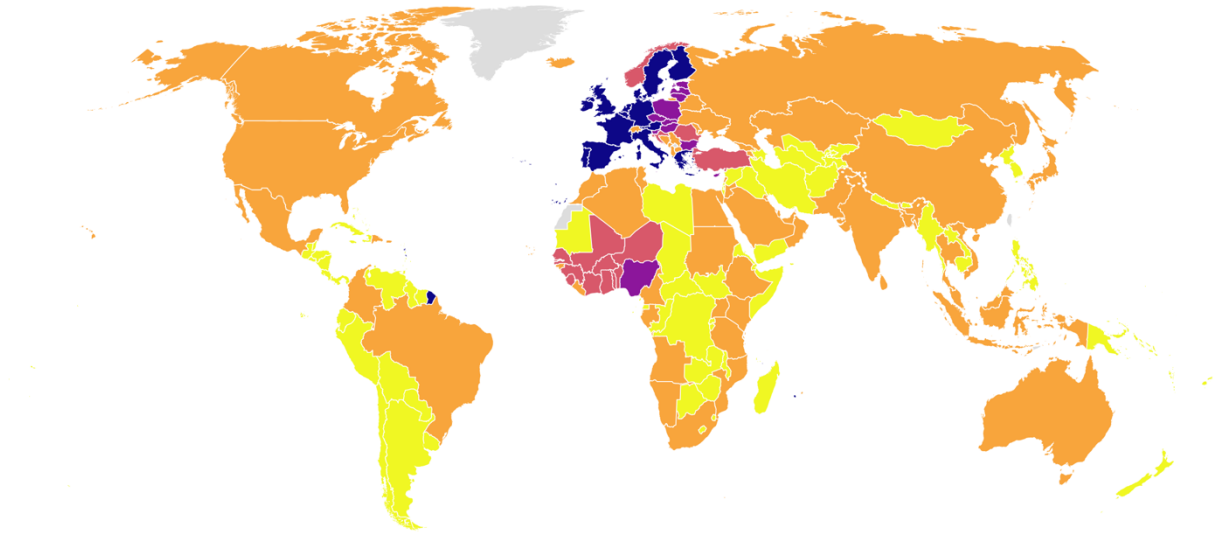
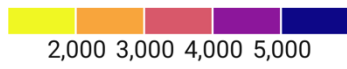
### States by Share of Unilateral Sanctions Received



Map: Colin Martinez

Figure 5

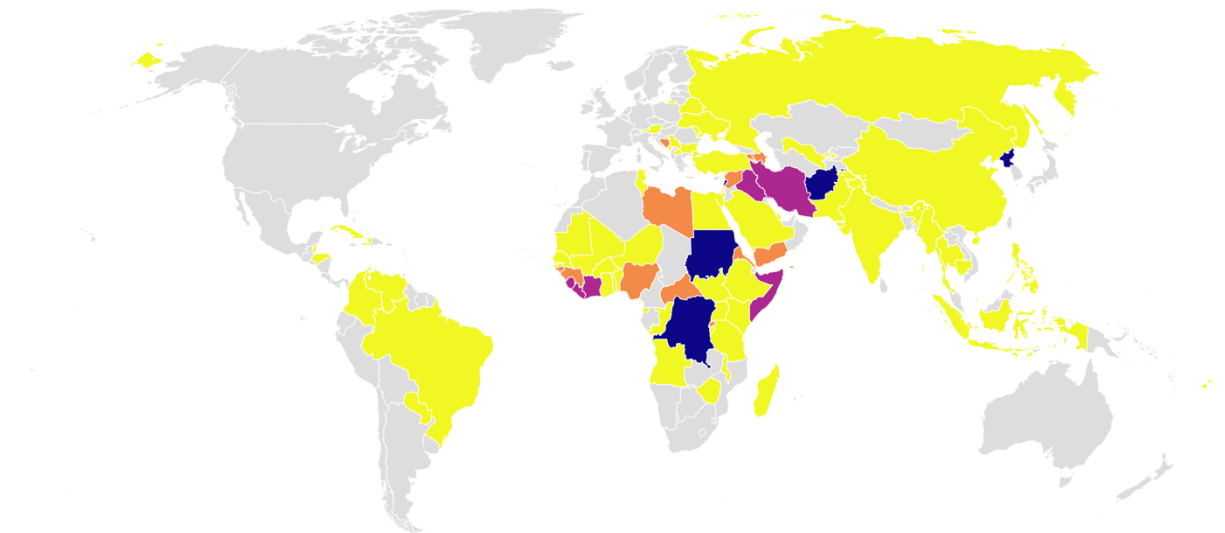
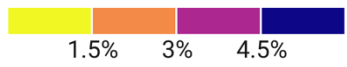
### States by Frequency of Multilateral Sanctions Sent



Map: Colin Martinez

Figure 6

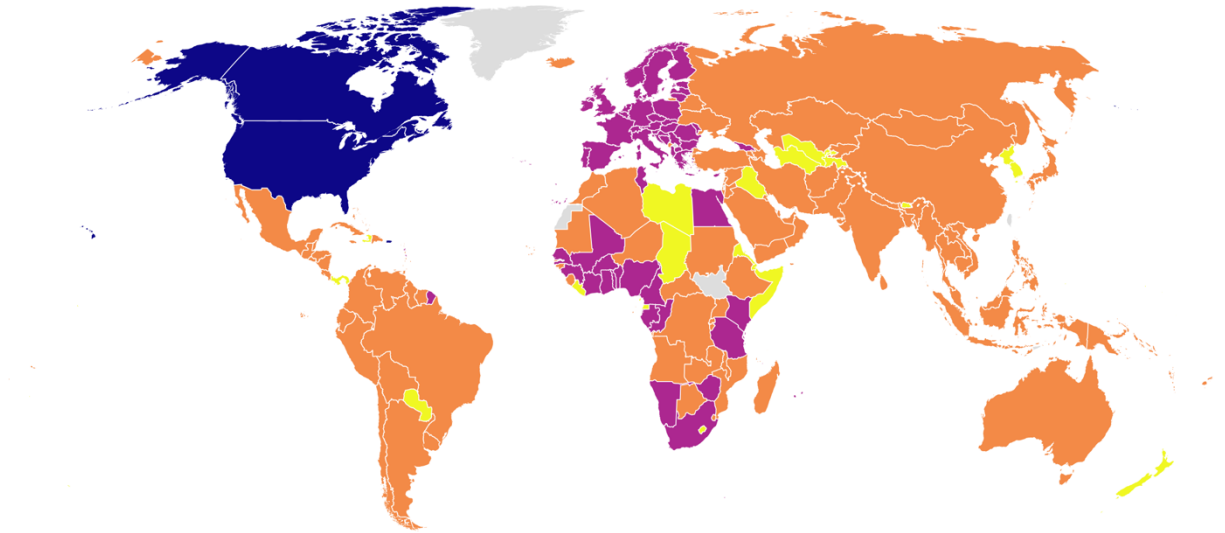
### States by Share of Multilateral Sanctions Received



Map: Colin Martinez

Figure 7

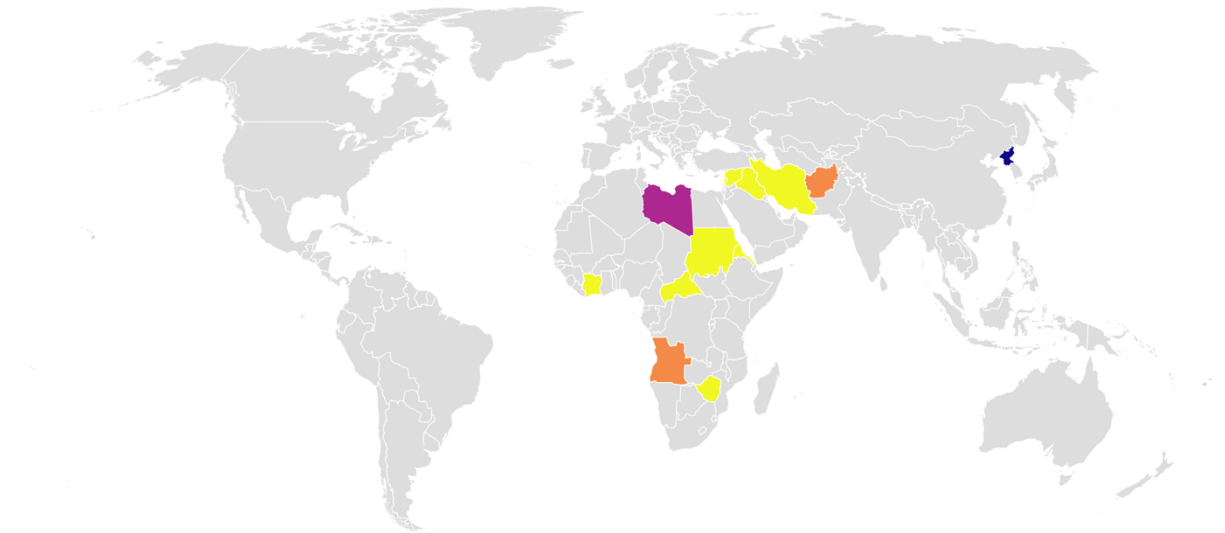
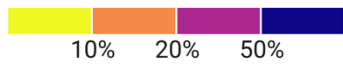
### States by Frequency of Full Sanctions Sent



Map: Colin Martinez

Figure 8

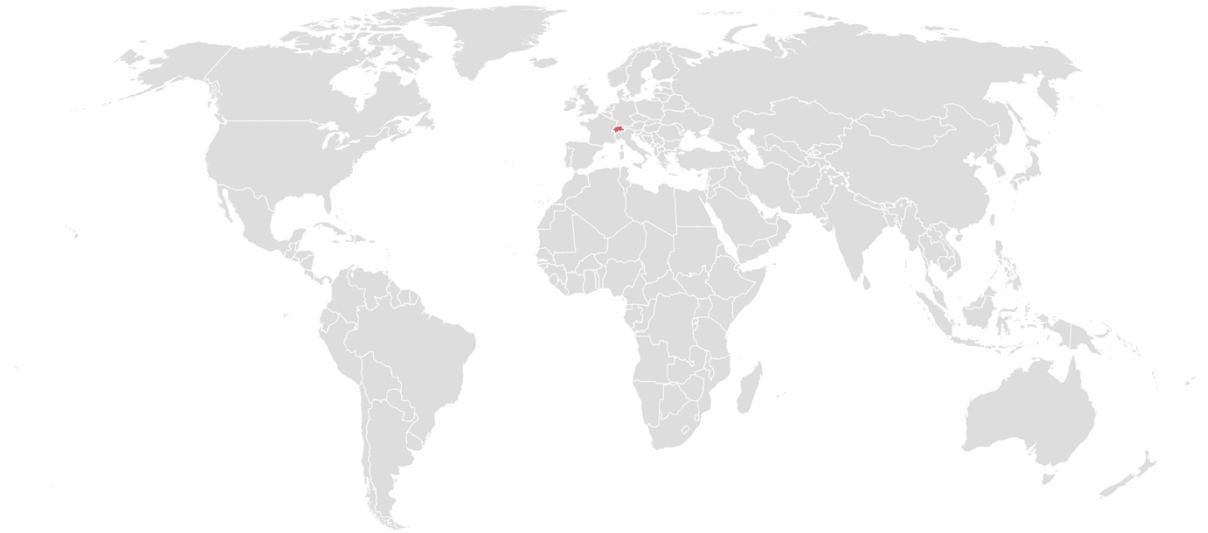
### States by Share of Full Sanctions Received



Map: Colin Martinez

Figure 9

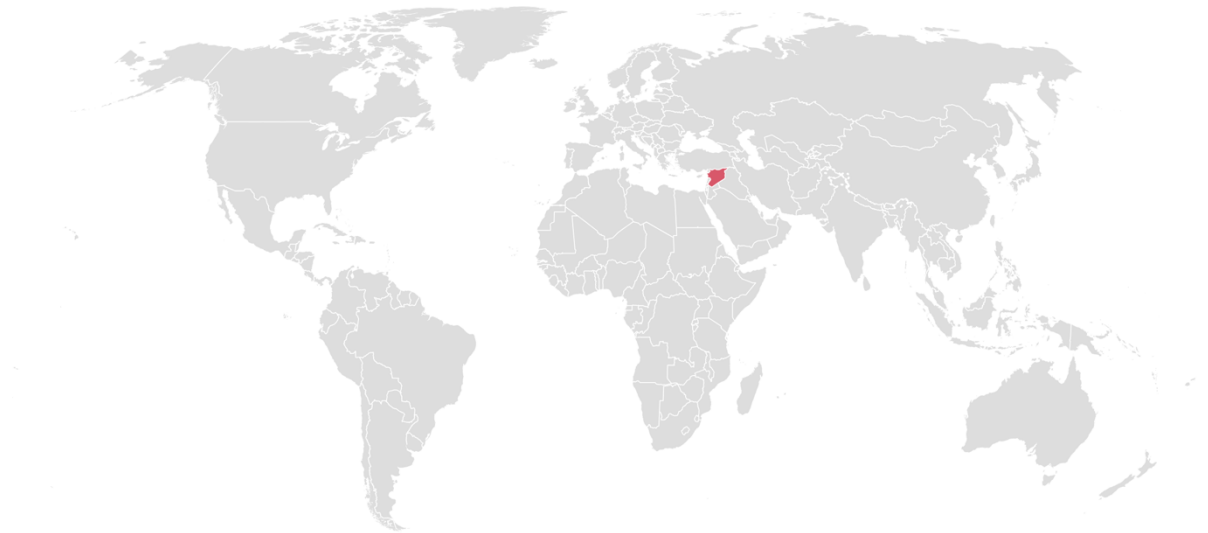
### States by Share of Unilateral Full Sanctions Sent



Map: Colin Martinez

Figure 10

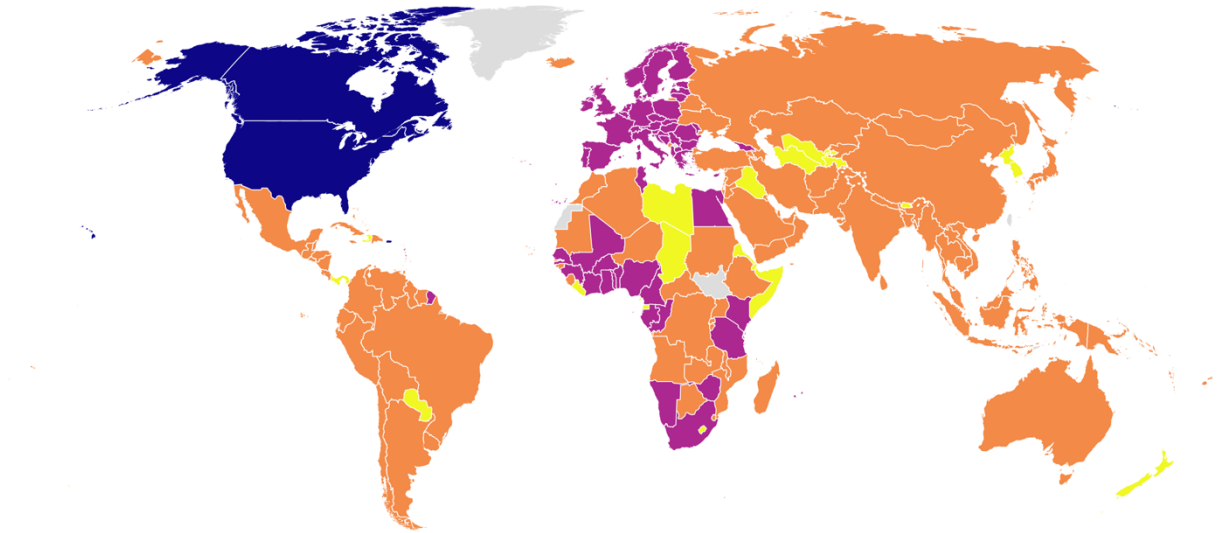
### States by Share of Unilateral Full Sanctions Received



Map: Colin Martinez

Figure 11

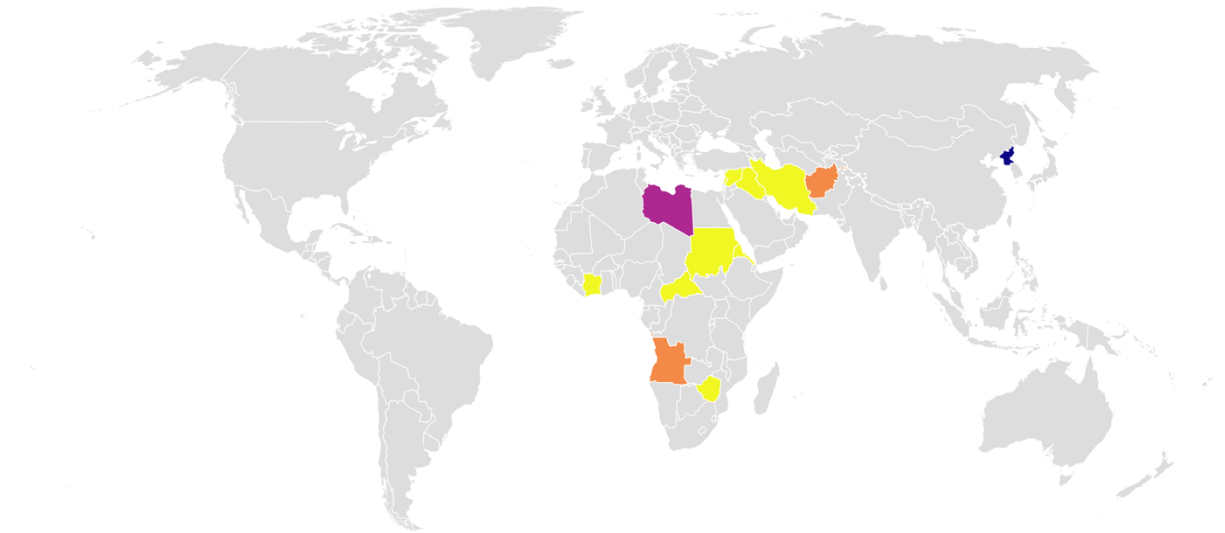
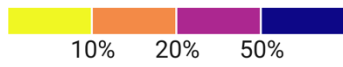
### States by Frequency of Multilateral Full Sanctions Sent



Map: Colin Martinez

Figure 12

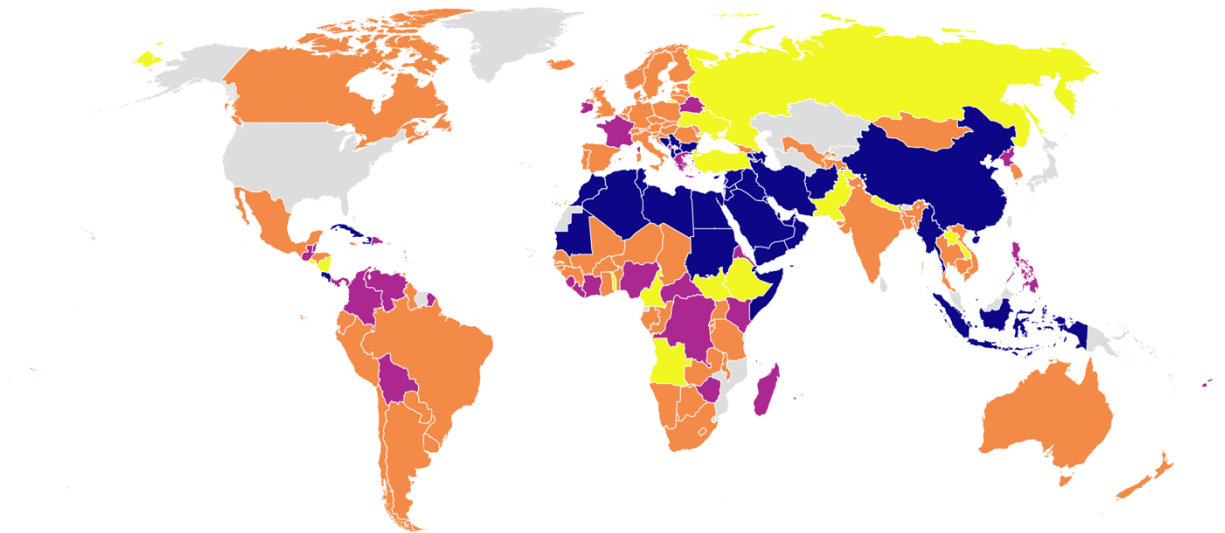
### States by Share of Multilateral Full Sanctions Received



Map: Colin Martinez

Figure 13

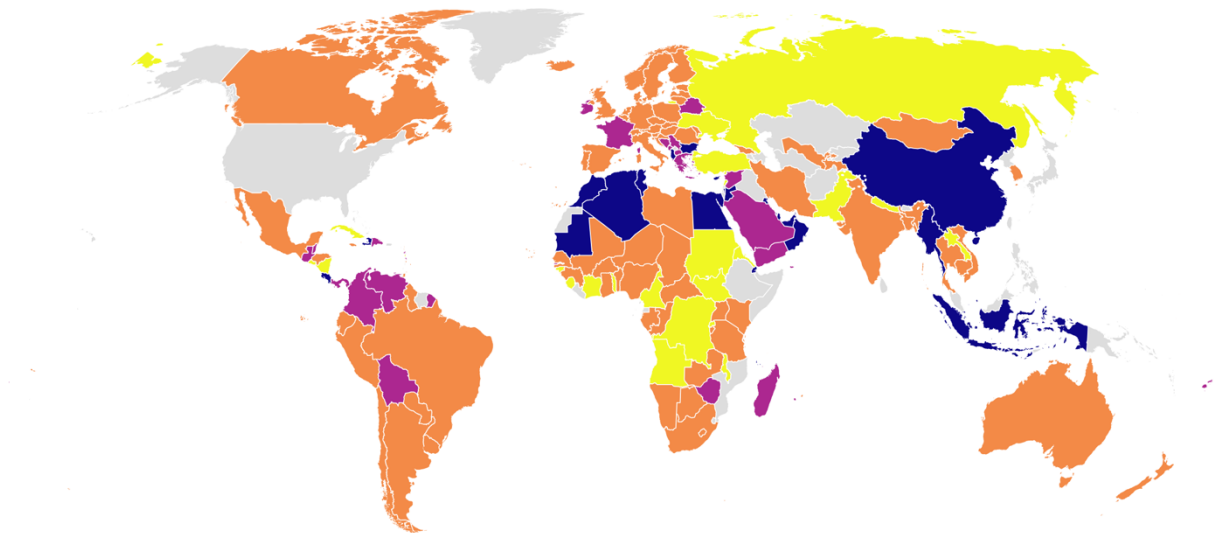
### States by Frequency of US Sanctions Received



Map: Colin Martinez

Figure 14

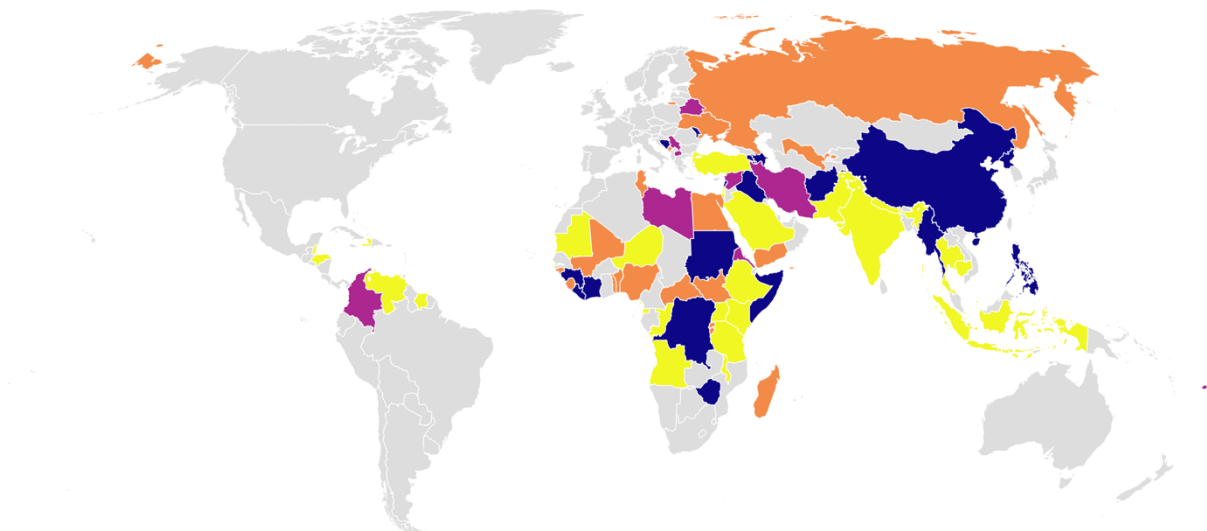
### States by Frequency of Unilateral US Sanctions Received



Map: Colin Martinez • Created with Datawrapper

Figure 15

## States by Frequency of EU Sanctions Received



Map: Colin Martinez

## Appendix IV – Regression Tables

Table 1: Effects of Sanctions on Trade with Sanctioned States

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Sanctions	7,249.03** (3,550.72)	5,015.56** (1,595.49)	-1,921.46 (1,555.82)	5,884.46*** (1,689.58)	5,029.85 (3,053.98)	4,412.08 (2,669.94)	29,050.40 (15,343.04)	5,407.52** (1,710.20)	-427.61 (7,702.36)
Constant	40,779.10*** (2,479.58)	24,267.53 (1,099.88)	22,254.29*** (1,130.38)	21,284.71*** (1,168.15)	24,947.19*** (2,091.08)	35,444.92*** (1,855.13)	109,183*** (10,386.79)	12,008.60*** (1,222.79)	70,891.09*** (5,629.34)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8941	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Sanctions	7,069.69** (2,443.17)	12011.28*** (1,754.80)	5,408.58* (2,269.35)	3,015.01 (1,739.75)	886.03 (1,491.24)	5,698.06* (2,484.18)	11,220.68 (7,890.981)	2,278.86 (1,295.21)	20,387.89* (9,112.63)
Constant	40,904.34*** (1,706.14)	19,444.91*** (1,209.71)	16,928.65*** (1,648.79)	23,268.60*** (1,202.84)	27,784.49*** (1,021.07)	34,551.39*** (1,726.06)	121,253.20*** (5,341.96)	14,245.58*** (926.07)	55,677.90*** (6,660.04)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 2: Effects of Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Sanctions	4,334.92 (3,509.73)	3,158.33* (1,342.24)	-3,920.69* (1,624.97)	3,416.27* (1,491.90)	5,077.29 (3,144.37)	1,698.66 (2,517.87)	25,459.26 (15,890.97)	4,713.41** (1,707.42)	-13,200.74* (5,886.81)
Constant	41,224.82*** (2,312.87)	24,317.09*** (875.99)	23,613.80*** (1,123.38)	21,436.53*** (976.61)	25,152.86*** (2,036.99)	36,767.08*** (1,657.37)	105,152.70*** (10,169.20)	11,598.66*** (1,159.99)	80,005.02*** (4,094.31)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7692	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Sanctions	4,624.58* (2,079.72)	8,906.13*** (1,463.72)	4,110.55 (2,265.15)	794.72 (1,551.30)	1,415.64 (963.44)	2,754.05 (2,319.07)	6,795.17 (6,648.74)	1,165.45 (1,111.75)	14,986.75 (8,461.26)
Constant	38,930.71*** (1,370.51)	20,424.89*** (955.28)	17,376.40*** (1,565.95)	24,068.34*** (1,015.49)	23,831.96*** (624.14)	35,472.74*** (1,526.51)	112,867.30*** (4,254.77)	13,736.37*** (775.31)	50,477.11*** (5,884.86)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7359

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 3: Effects of EU Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-13,902.39*** (1,680.08)	-8,053.91*** (1,131.73)	-4,758.25*** (648.73)	-7,169.14*** (943.87)	-5,532.67*** (1,407.43)	-13,509.23*** (1,517.63)	-39,412.17*** (7,187.21)	-8,498.80*** (1,012.39)	-20,151.45*** (3,195.48)
Constant	49,171.95*** (402.50)	29,665.47*** (272.66)	22,001.16*** (155.82)	27,071.13*** (226.19)	29,717.87*** (337.50)	41,741.54*** (362.97)	138,250.10*** (1,714.34)	17,911.76*** (242.63)	75,386.36*** (762.39)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8941	0.7693	0.8735	0.7834	0.7776

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-13,374.93*** (1,378.73)	-7,975.03*** (1,215.27)	-7,519.26*** (1,549.44)	-7,861.55*** (987.59)	-2,466.10** (752.13)	-14,751.40*** (1,446.65)	-31,188.55*** (4,502.51)	-10,613.57*** (1,005.29)	-25,131.49*** (6,593.85)
Constant	49,045.59*** (330.31)	29,646.47*** (292.79)	22,664.34*** (372.17)	27,237.06*** (236.66)	28,982.52*** (180.36)	41,799.46*** (346.00)	136,288.60*** (1,073.97)	18,418.58*** (240.92)	76,574.52*** (1,573.18)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8940	0.7693	0.8735	0.7835	0.7776

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



**Table 4: Effects of EU Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-11,175.43*** (1,858.74)	-6,938.58*** (1,173.66)	-1,514.64 (1,092.59)	-5,971.11*** (1,024.69)	-5,471.63*** (1,526.57)	-10,438.98*** (1,742.47)	-34,553.10*** (7,994.99)	-8,879.90*** (1,016.19)	-8,496.03** (3,211.27)
Constant	45,742.64*** (276.29)	27,436.86*** (179.05)	21,121.47*** (157.35)	24,601.22*** (154.26)	29,275.65*** (232.58)	39,446.71*** (260.64)	126,722.20*** (1,221.07)	16,100.10*** (148.68)	72,021.15*** (452.56)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.723	0.8830	0.8878	0.7334	0.8535	0.7692	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-9,514.81*** (1,441.71)	-6,106.88*** (1,296.62)	-6,864.79*** (1,574.98)	-6,473.04*** (1,104.25)	-818.48 (776.49)	-11,379.67*** (1,592.21)	-21,541.24*** (4,679.07)	-8,346.40*** (751.60)	-13,626.01 (7,094.46)
Constant	43,392.57*** (214.30)	27,168.99*** (197.81)	21,206.73*** (226.82)	25,563.04*** (166.24)	24,873.74*** (118.301)	38,987.78*** (238.17)	120,505.80*** (714.63)	-15,749.32*** (109.97)	62,820.78*** (999.81)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8012	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 5: Effects of EU Sanctions on Trade with Sanctioned States (Only Including EU-Senders, All EU-Recipients Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-16,946.37*** (2,643.19)	-10,070.03*** (2,194.58)	-3,774.18*** (1,044.08)	-8,103.24*** (1,667.09)	-7,871.02*** (1,540.18)	-19,110.98*** (3,382.91)	-63,448.69*** (11,464.11)	-17,416.87** (5,508.90)	-424.09 (2,922.17)
Constant	51,341.81*** (723.33)	27,657.64*** (593.22)	19,425.74*** (297.85)	32,857.99*** (447.68)	27,465.06*** (410.27)	42,107.12*** (910.26)	189,902.90*** (3,027.92)	37,332.79*** (1,533.84)	20,469.02*** (853.37)
Observations	724,454	93,874	83,218	94,287	95,383	93,635	96,501	88,640	78,916
Clusters	5,806	5,599	4,921	5,621	5,695	5,577	5,771	5,254	4,682
R <sup>2</sup>	0.2747	0.8560	0.9447	0.8992	0.9353	0.7784	0.8869	0.7739	0.7488

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-13,161.86*** (2,414.53)	-1,490.05 (1,872.06)	-8,037.92*** (1,698.45)	-3,924.29** (1,132.85)	-2,336.51 (2,528.90)	-17,348.49*** (4,612.43)	1,749.35 (6,453.21)	-13,396.32*** (3,205.44)	-64,781.99*** (14,447.10)
Constant	53,763.12*** (660.75)	27,122.21*** (506.03)	23,374.48*** (484.52)	20,129.20*** (304.22)	41,460.90*** (673.65)	44,974.33*** (1,241.10)	133,958.90*** (1,704.43)	21,963.31*** (892.49)	120,558.50*** (4,219.02)
Observations	724,454	93,874	83,218	94,287	95,383	93,635	96,501	88,640	78,916
Clusters	5,806	5,599	4,921	5,621	5,695	5,577	5,771	5,254	4,682
R <sup>2</sup>	0.2381	0.8896	0.8210	0.9069	0.8501	0.7362	0.7863	0.8509	0.7769

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 6: Effects of EU Sanctions on Trade with Sanctioned States (All EU and Sanction Sending Relationships Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-6,019.54** (2,265.21)	-1,562.79 (1,204.13)	-1,138.10 (1,002.71)	-1,515.04 (1,090.60)	-2,327.29 (1,854.19)	-7,177.55*** (1,951.26)	-21,205.16* (9,966.54)	-2,734.62** (836.93)	-4,133.62 (3,385.17)
Constant	31,259.46*** (400.00)	16,086.18*** (215.85)	16,539.64*** (176.50)	13,920.38*** (193.54)	18,815.70*** (331.43)	28,864.21*** (346.05)	82,001.18*** (1,773.52)	5,237.00*** (147.75)	67,521.94*** (588.74)
Observations	3,890,915	564,414	370,972	532,935	564,824	513,569	598,875	414,042	330,279
Clusters	39,545	31,862	22,211	31,184	32,902	30,136	34,734	24,683	20,004
R <sup>2</sup>	0.2223	0.8068	0.6803	0.8341	0.8844	0.6834	0.8370	0.7131	0.7313

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions	-4,519.53** (1,548.89)	-613.23 (1,410.25)	-7,149.40** (2,245.54)	-2,101.94 (1,205.16)	1,636.51* (785.07)	-8,102.26*** (1,787.25)	-8,137.80 (4,738.61)	-2,237.31*** (500.05)	-10,728.17 (8,152.07)
Constant	29,539.75*** (273.51)	16,114.45*** (252.79)	17,393.51*** (395.28)	14,984.42*** (213.87)	15,676.10*** (140.33)	28,539.04*** (316.96)	77,996.73*** (843.221)	4,903.80*** (88.28)	57,894.38*** (1,417.78)
Observations	3,890,915	564,414	370,972	532,935	564,824	513,569	598,875	414,042	330,279
Clusters	39,545	31,862	22,211	31,184	32,902	30,136	34,734	24,683	20,004
R <sup>2</sup>	0.2364	0.7725	0.6828	0.8604	0.9060	0.6638	0.8567	0.7725	0.7203

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 7: Effects of US Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	-501.74 (3,030.24)	3,691.32* (1,564.50)	-2,811.51 (1,665.59)	3,423.79* (1,525.59)	3,467.38 (2,511.35)	928.92 (2,459.96)	-1,603.42 (12,658.91)	366.56 (1,616.33)	-14,689.45* (6,835.52)
Constant	46,172.19*** (1,998.23)	25,320.71*** (1,019.06)	22,785.54 (1,141.75)	23,115.65*** (996.99)	26,145.72*** (1,626.33)	37,900.83*** (1,614.58)	129,874.60*** (8,095.39)	15,627.45*** (1,091.35)	80,668.80*** (4,695.34)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	2,915.779 (2,257.44)	10,798.85*** (1,591.70)	1,272.60 (1,842.58)	2,506.20 (1,659.32)	3,136.86 (1,838.81)	1,853.84 (2,275.87)	15,045.50 (7,910.75)	2,978.58* (1,271.84)	-22,152.55** (6,585.54)
Constant	43,918.58*** (1,488.62)	20,691.12*** (1,036.77)	19,985.89*** (1,263.08)	23,715.30*** (1,084.38)	26,359.76*** (1,190.80)	37,293.76*** (1,493.75)	119,227.60*** (5,058.93)	13,863.80*** (858.75)	85,795.23*** (4,523.63)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7776

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 8: Effects of US Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	-1,439.88 (3,196.23)	4,036.43** (1,436.65)	-4,170.75* (1,841.03)	2,564.14 (1,487.03)	3,300.09 (2,714.65)	265.46 (2,494.86)	3,793.13 (13,713.96)	-1,126.70 (1,706.41)	-16,041.06** (5,911.21)
Constant	44,969.66*** (1,971.57)	23,910.88*** (878.83)	23,598.81*** (1,189.82)	22,129.16*** (912.32)	26,436.91*** (1,649.42)	37,721.58*** (1,537.97)	123,718.50*** (8,219.89)	15,517.60*** (1,085.49)	81,202.87*** (3,824.74)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7691	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	2,371.27 (2,007.33)	9,680.65*** (1,463.27)	866.06 (1,916.06)	2,186.82 (1,620.52)	4,216.13*** (1,154.69)	883.36 (2,258.88)	14,957.87* (6,974.19)	2,046.36 (1,141.43)	-25,023.58*** (5,968.57)
Constant	40,515.54*** (1,238.21)	20,319.61*** (894.49)	19,658.40*** (1,238.31)	23,246.91*** (994.22)	22,187.33*** (701.58)	36,741.03*** (1,392.50)	108,250.30*** (4,180.20)	13,226.42*** (726.09)	77,091.51*** (3,861.85)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7359

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 9: Effects of US Sanctions on Trade with Sanctioned States (Only Including US-Senders, All US-Recipients Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	186,715.10 (102,332.80)	145,647.00 (112,253.00)	89,108.77 (48,205.82)	182,222.00 (103,243.60)	45,076.45 (38,896.01)	112,284.30 (115,181.10)	456,133.10 (296,558.90)	152,309.20* (75,237.02)	311,913.70* (148,098.70)
Constant	550,377.10*** (63,031.29)	412,896.20*** (69,123.70)	187,795.10*** (29,819.28)	400,490.70*** (63,575.86)	265,678.90*** (23,951.57)	380,157.40*** (70,926.77)	2,313,116.00*** (182,616.40)	230,206.30*** (46,329.81)	209,437.50* (90,972.05)
Observations	35,336	4,422	4,402	4,422	4,422	4,422	4,422	4,422	4,402
Clusters	222	222	221	222	222	222	222	222	221
R <sup>2</sup>	0.3715	0.8699	0.9065	0.9318	0.9572	0.8752	0.9539	0.8649	0.6735

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	305,365.70 (181,235.40)	263,397.60*** (106,409.00)	42,583.27 (41,227.65)	112,826.70 (89,647.89)	82,279.67 (271,420.60)	179,928.80 (127,384.60)	806,022.80 (831,860.70)	172,548.60 (109,657.80)	782,947.00 (419,009.80)
Constant	850,437.20*** (111,630.90)	300,172.50*** (65,525.04)	259,229.30*** (25,502.70)	354,436.00*** (55,203.80)	726,830.80*** (167,136.70)	569,677.10*** (78,441.48)	3,569,103.00*** (512,247.10)	288,558.70*** (67,525.59)	732,729.10** (257,383.60)
Observations	35,336	4,422	4,402	4,422	4,422	4,422	4,422	4,422	4,402
Clusters	222	222	221	222	222	222	222	222	221
R <sup>2</sup>	0.2556	0.8889	0.9203	0.9066	0.8809	0.9142	0.8791	0.7482	0.8488

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 10: Effects of US Sanctions on Trade with Sanctioned States (All US and Sanction Sending Relationships Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	4,300.46 (2,266.58)	6,917.02*** (1,242.40)	-2,596.55 (1,809.12)	5,203.81*** (1,223.32)	5,745.69*** (1,627.80)	4,193.95 (2,202.80)	13,009.23 (9,595.15)	4,176.66*** (826.18)	-7,256.54 (5,442.43)
Constant	35,138.37*** (1,411.17)	19,252.23*** (765.85)	20,375.77*** (1,182.62)	18,078.29*** (756.94)	20,694.00*** (997.11)	31,464.99*** (1,369.89)	92,263.52*** (5,795.86)	9,004.842*** (531.06)	67,780.84*** (3,566.17)
Observations	5,198,922	715,656	520,178	703,039	737,033	682,485	773,277	573,318	471,542
Clusters	45,739	37,520	27,427	36,881	38,629	35,814	40,481	20,158	24,929
R <sup>2</sup>	0.2648	0.8602	0.6991	0.8845	0.9000	0.7016	0.8421	0.7864	0.7277

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions	5,402.50** (1,832.77)	12,476.25*** (1,188.76)	2,633.33 (1,835.75)	4,765.02** (1,457.23)	4,420.22*** (1,072.03)	4,034.46 (2,114.27)	20,366.02** (6,698.72)	5,451.70*** (792.03)	-19,756.49** (5,864.11)
Constant	34,047.15*** (1,141.07)	16,097.28*** (732.79)	16,680.99*** (1,200.03)	18,906.05*** (901.68)	20,126.76*** (656.68)	31,828.37*** (1,314.84)	88,343.03*** (4,046.30)	8,671.01*** (509.11)	70,793.03*** (3,842.47)
Observations	5,198,922	715,656	520,178	703,039	737,033	682,485	773,277	573,318	471,542
Clusters	45,739	37,520	27,427	36,881	38,629	35,814	40,481	20,158	24,929
R <sup>2</sup>	0.2660	0.8588	0.6988	0.885	0.9100	0.7014	0.8401	0.7826	0.7352

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 11: Effects of Western Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	3,093.70 (3,282.55)	2,133.301 (1,538.54)	-3,216.57* (1,489.50)	3,453.82* (1,571.45)	2,722.64 (2,856.47)	1,331.56 (2,577.30)	16,304.01 (14,127.23)	2,814.70 (1,485.82)	-4,222.03 (7,264.50)
Constant	43,733.55*** (2,236.44)	26,290.14*** (1,034.89)	23,137.92*** (1,055.65)	23,022.63*** (1,060.36)	26,571.45*** (1,909.15)	37,607.81*** (1,747.24)	118,084.50*** (9,327.57)	13,911.27*** (1,036.59)	73,586.27*** (5,175.11)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	2,195.29 (2,250.95)	9,856.49*** (1,642.55)	2,635.05 (1,992.27)	1,265.49 (1,691.18)	940.88 (1,808.09)	881.13 (2,321.14)	7,185.56 (7,623.58)	1,148.20 (1,175.92)	-8,670.27 (6,625.55)
Constant	44,345.65*** (1,533.60)	21,095.19*** (1,194.85)	18,990.73*** (1,411.97)	24,499.23*** (1,141.15)	27,762.31*** (1,208.46)	37,913.17*** (1,573.58)	124,105.00*** (5,033.50)	15,073.91*** (820.39)	76,755.12*** (4,719.93)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 12: Effects of Western Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	990.75 (3,304.71)	794.15 (1,318.26)	-4,862.29** (1,583.14)	1,392.59 (1,448.56)	2,885.48 (2,995.23)	-493.35 (2,484.45)	14,189.25 (14,865.48)	2,177.21 (1,525.40)	-13,571.26* (5,625.08)
Constant	43,446.83*** (2,116.90)	25,874.49*** (836.36)	24,169.81*** (1,063.55)	22,815.78*** (922.16)	26,623.82*** (1,887.37)	38,200.93*** (1,589.89)	112,621.30*** (9,244.16)	13,362.67*** (1,007.64)	79,986.45*** (5,625.08)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.883	0.8878	0.7334	0.8535	0.7692	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	208.98 (1,904.70)	7,044.88*** (1,408.79)	1,676.78 (2,033.01)	-678.51 (1,566.28)	1,234.90 (1,099.66)	1,278.70 (2,192.50)	4,684.97 (6,515.37)	489.87 (1,027.24)	-14,913.78** (5,580.32)
Constant	41,844.38*** (1,220.09)	21,767.79*** (893.79)	19,091.66*** (1,365.76)	25,020.51*** (997.10)	23,970.90*** (692.92)	38,103.87*** (1,403.05)	114,302.40*** (4,051.61)	14,204.56*** (678.57)	70,969.53*** (3,767.55)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7359

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 13: Effects of Western Sanctions on Trade with Sanctioned States (Only Including Western Senders, All Western Recipients Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	-12,38.64 (3,979.79)	-982.61 (4,097.53)	-4,189.64 (5,090.88)	4,898.69 (3,494.71)	-2,582.60 (1,849.82)	-10,201.94 (5,636.79)	2,699.72 (12,724.12)	-930.21 (2,098.78)	3,612.86 (8,587.06)
Constant	41,734.71*** (2,453.10)	33,213.34*** (2,491.69)	24,241.10*** (3,279.02)	23,399.20*** (2,119.89)	22,990.92*** (1,112.26)	42,632.86*** (3,432.98)	130,403.30*** (7,580.10)	17,976.81*** (1,311.93)	27,844.40*** (5,609.75)
Observations	996,178	130,557	111,921	130,529	132,698	128,647	135,401	120,043	106,270
Clusters	7,887	7,461	6,304	7,459	7,608	7,333	7,769	6,777	6,002
R <sup>2</sup>	0.3251	0.8384	0.6586	0.8963	0.9043	0.6582	0.8770	0.7744	0.6957

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	6,076.12 (7,069.30)	21,183.81*** (4,344.01)	-2,114.87 (1,756.21)	2,620.41 (2,815.67)	9,663.24 (10,719.91)	4,971.74 (5,836.10)	47,116.44 (30,798.56)	-901.10 (1,751.45)	-42,524.85* (19,548.08)
Constant	51,971.02*** (4,357.44)	12,674.21*** (2,641.57)	18,044.88*** (1,131.17)	17,684.61*** (1,797.99)	43,050.50*** (6,445.70)	40,717.60*** (3,554.37)	149,137.60*** (18,347.52)	8,165.11*** (1,094.82)	129,079.90*** (12,770.36)
Observations	996,178	130,557	111,921	130,529	132,698	128,647	135,401	120,043	106,270
Clusters	7,887	7,461	6,304	7,459	7,608	7,333	7,769	6,777	6,002
R <sup>2</sup>	0.2132	0.8384	0.7820	0.8384	0.8644	0.8199	0.8612	0.7578	0.7622

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 14: Effects of Western Sanctions on Trade with Sanctioned States (All Western and Sanction Sending Relationships Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	-2,823.25 (2,653.54)	1,305.20 (1,203.47)	-4,285.44** (1,250.47)	1,058.32 (1,208.90)	2,502.71 (1,930.33)	-2,389.45 (2,386.71)	-4,818.29 (11,438.75)	71.36 (211.41)	-22,111.75*** (5,831.28)
Constant	24,813.87*** (1,549.37)	10,752.77*** (699.87)	15,563.60*** (766.29)	10,898.22*** (762.22)	11,508.98*** (1,113.48)	21,582.21*** (1,395.96)	60,693.93*** (6,504.48)	1,827.44*** (127.36)	73,471.94*** (3,561.32)
Observations	3,285,892	465,479	306,092	452,879	482,656	435,939	513,656	343,640	268,477
Clusters	34,068	26,955	18,126	26,315	27,947	25,379	29,627	20,292	16,123
R <sup>2</sup>	0.2120	0.7191	0.7410	0.8111	0.9039	0.6505	0.8049	0.6841	0.7051

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions	-2,674.11 (1,943.23)	5,942.13*** (1,162.44)	-639.70 (1,543.89)	-1,143.65 (1,712.11)	824.57 (1,214.46)	-6,018.10** (2,017.07)	-7,719.19 (7,320.75)	-640.09** (190.87)	-13,365.64* (5,681.63)
Constant	24,826.20*** (1,134.63)	8,590.11*** (676.01)	13,146.49*** (946.11)	12,594.38*** (997.03)	12,822.06*** (700.55)	23,974.25*** (1,179.76)	64,219.24*** (4,162.84)	2,388.38*** (114.99)	63,138.01*** (3,469.92)
Observations	3,285,892	465,479	306,092	452,879	482,656	435,939	513,656	343,640	268,477
Clusters	34,068	26,955	18,126	26,315	27,947	25,379	29,627	20,292	16,123
R <sup>2</sup>	0.2136	0.7169	0.7426	0.8114	0.9024	0.6515	0.8046	0.6841	0.7141

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 15: Effects of Unilateral Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Unilateral Sanctions	2,064.26 (2,878.81)	1,726.10 (1,320.03)	-3,747.52* (1,489.10)	2,802.15* (1,371.00)	2,581.84 (2,421.78)	-625.83 (2,252.44)	13,940.89 (12,408.78)	2,675.41* (1,349.30)	-7,468.31 (6,469.60)
Constant	44,517.43*** (1,846.29)	26,634.86*** (833.75)	23,373.75*** (999.55)	23,577.18*** (868.91)	26,771.19*** (1,519.54)	38,909.45*** (1,435.80)	120,218.30*** (7,682.39)	14,113.24*** (888.49)	75,625.79*** (4,372.27)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Unilateral Sanctions	2,040.80 (2,066.67)	7,871.66*** (1,436.54)	3,065.79 (1,764.81)	-542.08 (1,430.01)	-1,403.05 (1,317.47)	925.01 (2,070.64)	-3,879.55 (6,959.55)	-471.22 (1,073.48)	17,244.07* (7,687.98)
Constant	44,532.48*** (1,325.44)	22,753.20*** (907.35)	18,800.36*** (1,184.62)	25,696.70*** (906.31)	29,271.50*** (826.64)	37,920.88*** (1,319.92)	131,251.10*** (4,308.72)	16,185.24*** (706.87)	58,924.72*** (5,195.68)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 16: Effects of Unilateral Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Unilateral Sanctions	1,616.15 (3,176.15)	1,484.12 (1,243.70)	-4,936.51** (1,633.87)	2,078.52 (1,368.22)	3,726.08 (2,799.23)	-1,155.99 (2,355.18)	17,415.26 (14,275.39)	3,262.62* (1,506.71)	-17,052.85** (5,628.85)
Constant	43,064.66*** (1,998.37)	25,455.31*** (773.49)	24,175.07*** (1,082.87)	22,404.97*** (853.99)	26,140.92*** (1,728.72)	38,610.96*** (1,478.59)	110,839.30*** (8,693.53)	12,679.07*** (979.87)	82,209.13*** (3,758.09)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7692	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Unilateral Sanctions	1,901.93 (1,927.35)	7,429.88*** (1,391.94)	3,187.80 (2,014.91)	-1,163.42 (1,421.54)	232.51 (906.25)	-0.99 (2,139.11)	-1,560.94 (6,322.16)	-311.77 (1,024.23)	12,167.18 (7,730.47)
Constant	40,781.63*** (1,212.61)	21,616.49*** (865.69)	18,105.37*** (1,335.40)	25,314.72*** (887.27)	24,605.45*** (559.67)	37,286.20*** (1,342.20)	118,166.40*** (3,850.12)	14,730.92*** (666.09)	52,777.09*** (5,161.24)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 17: Effects of Multilateral Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Multilateral Sanctions	-12,530.87*** (1,758.10)	-7,069.41*** (1,213.24)	-3,796.95*** (720.53)	-5,620.65*** (1,007.33)	-5,251.24*** (1,438.16)	-12,252.74*** (1,609.04)	-35,120.12*** (7,452.12)	-8,248.31*** (1,029.48)	-19,539.52*** (3,463.67)
Constant	49,300.94*** (485.39)	29,687.40*** (336.77)	21,913.52*** (200.26)	26,903.67*** (277.88)	29,837.41*** (396.08)	41,884.62*** (443.09)	138,483.90*** (2,044.36)	18,147.168*** (283.59)	76,006.20*** (962.13)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8941	0.7693	0.8735	0.7835	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Multilateral Sanctions	-10,737.03*** (1,470.56)	-3,156.50* (1,320.50)	-5,434.73** (1,664.85)	-6,886.40*** (1,067.83)	-953.25 (852.57)	-12,316.65*** (1,514.85)	27,098.28*** (4,869.55)	-10,775.87*** (1,010.40)	-18,267.23** (6,645.97)
Constant	48,805*** (406.00)	28,601.26*** (366.54)	22,368.71*** (462.71)	27,247.32*** (1,067.83)	28,653.70*** (234.81)	41,902.22*** (417.15)	136,283.20*** (1,335.88)	18,184.44*** (278.34)	-75,652.79*** (1,846.10)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7835	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 18: Effects of Multilateral Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Multilateral Sanctions	-9,440.04*** (1,939.79)	-6,261.08*** (1,243.30)	-313.28 (1,222.52)	-4,301.56*** (1,101.38)	-4,822.39** (1,574.08)	-8,567.30*** (1,832.96)	-29,846.41*** (8,264.31)	8,718.64*** (1,022.01)	-6,446.45 (33,915.0)
Constant	45,831.98*** (359.70)	27,567.28*** (236.10)	20,960.39*** (222.60)	24,507.70*** (206.22)	29,350.85*** (296.65)	39,480.22*** (341.25)	127,089.00*** (1,562.81)	16,390.26*** (186.31)	71,986.69*** (611.79)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7692	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Multilateral Sanctions	-6,756.16*** (1,567.86)	-307.46 (1,554.86)	-3,856.87* (1,825.24)	-5,609.99*** (1,172.53)	544.50 (855.04)	-9,488.45*** (1,622.88)	-18,136.52*** (5,130.70)	-8,533.39 (728.38)	-7,201.66 (7,563.07)
Constant	43,231.07*** (290.74)	26,295.73*** (295.26)	20,920.40*** (332.35)	25,638.94*** (219.54)	24,646.42*** (161.14)	39,052.08*** (302.14)	120,645.50*** (970.23)	16,083.77*** (132.78)	62,199.60*** (1,364.30)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8432	0.7106	0.8946	0.9144	0.7216	0.8727	0.8012	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 19: Effects of Full Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Sanctions (Full)	-20,323.24*** (1,910.68)	-8,093.40*** (1,982.87)	-10,962.58*** (1,411.93)	-11,954.39*** (1,217.21)	-8,055.89*** (1,697.11)	-21,603.60*** (2,071.83)	-53,829.34*** (7,644.04)	-9,057.37** (951.48)	-37,994.71*** (3,286.81)
Constant	46,626.15*** (73.78)	28,040.14*** (77.19)	21,283.90*** (54.82)	25,812.56*** (46.78)	28,701.25*** (65.33)	39,337.53*** (79.31)	130,919.00*** (293.91)	16,228.22*** (37.11)	72,047.72*** (127.09)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Sanctions (Full)	-21,135.88*** (2,015.77)	-13,493.92*** (1,708.74)	-8,199.74** (2,505.12)	-10,447.32*** (1,825.62)	-11,723.86*** (1,231.19)	-18,240.28*** (1,714.26)	-61,377.03*** (6,479.04)	-10,993.08*** (896.37)	-28,948.35* (11,359.90)
Constant	46,657.00*** (77.84)	28,250.37*** (66.52)	21,176.63*** (97.27)	25,754.64*** (70.16)	28,842.44*** (47.39)	39,208.78*** (65.62)	131,209.20*** (249.12)	16,303.71*** (34.96)	71,697.92*** (439.26)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8941	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



**Table 20: Effects of Full Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Sanctions (Full)	-24,900.15*** (1,640.57)	-16,509.78*** (891.78)	-12,478.05*** (1,513.24)	-13,950.00*** (887.00)	-12,359.68*** (1,325.45)	-24,129.53*** (1,526.83)	-62,509.14*** (7,059.84)	-10,270.63*** (904.49)	-44,109.14*** (3,495.21)
Constant	44,228.43*** (9.68)	26,485.99*** (5.82)	20,964.79*** (7.45)	23,787.97*** (5.45)	28,521.84*** (8.56)	38,026.81*** (8.96)	121,873.40*** (48.39)	14,857.29*** (4.97)	71,002.09*** (14.13)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7691	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Sanctions (Full)	-17,025.24** (6,272.26)	-16,257.55*** (1,136.69)	-12,483.10*** (1,522.33)	-14,495.37*** (834.22)	-10,432.30*** (713.73)	-22,828.45*** (1,826.21)	-57,797.55*** (5,160.16)	-9,946.03*** (673.03)	57,888.15 (92,502.63)
Constant	42,078.73*** (37.02)	26,343.36*** (7.41)	20,279.59*** (7.50)	24,677.58*** (5.12)	24,816.40*** (713.73)	37,419.54*** (10.72)	117,611.90*** (35.37)	14,582.79*** (3.70)	60,666.53*** (373.86)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 21: Effects of Full EU Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions (Full)	-24,596.60*** (1,791.81)	-14,576.84*** (1,444.47)	-13,333.54*** (1,437.50)	-13,901.64*** (1,167.57)	-9,942.28*** (1,896.13)	-24,666.62*** (1,566.04)	-59,973.99*** (6,823.31)	-11,194.62*** (893.62)	-49,035.22*** (3,988.98)
Constant	46,304.26*** (33.72)	28,000.24*** (27.27)	21,204.68*** (26.57)	25,615.11*** (22.00)	28,579.66*** (35.95)	38,970.40*** (29.20)	129,991.60*** (129.97)	16,085.96*** (16.84)	71,496.69*** (74.69)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions (Full)	-23,743.53*** (2018.96)	-18,729.40*** (1,007.42)	-12,874.73*** (1,577.81)	-16,014.99*** (906.10)	-11,753.07*** (1,479.31)	-24,387.13*** (1,813.18)	-67,497.02*** (6,585.84)	-11,890.61*** (880.24)	-15,533.63 (13,299.60)
Constant	46,288.21*** (38.00)	28,078.62*** (19.02)	21,096.20*** (29.16)	25,654.94*** (17.08)	28,613.99** (28.05)	38,965.19*** (33.80)	130,134.90*** (125.45)	16,099.07*** (16.59)	70,869.42*** (249.02)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 22: Effects of Full EU Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
EU Sanctions (Full)	-27,044.41*** (1,709.32)	-16,544.52*** (901.71)	-13,773.07*** (1,476.83)	-14,760.23*** (921.68)	-12,865.19*** (1,349.57)	-26,378.42*** (1,525.29)	-66,984.06***	10,715.61*** (895.50)	-53,340.40*** (4,208.04)
Constant	44,185.46*** (6.57)	26,445.72*** (3.67)	20,948.97*** (4.89)	23,760.97*** (3.66)	28,496.69*** (5.73)	37,987.86*** (5.94)	121,743.5*** (31.99)	14,838.09*** (3.11)	70,974.05*** (11.85)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	.8830	0.8878	0.7334	0.8535	0.7691	0.741

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
EU Sanctions (Full)	-24,824.35*** (1,489.98)	-16,881.42*** (955.44)	-13,094.27*** (1,542.47)	-15,425.79*** (877.50)	-11,104.86*** (746.47)	-23,954.58*** (2,598.64)	-62,750.64*** (5,301.45)	-10,412.85*** (716.31)	-39,154.56*** (8,465.01)
Constant	42,073.70*** (5.73)	26,306.12*** (3.89)	20,261.49*** (5.11)	24,649.87*** (3.49)	24,796.22 (3.17)	37,378.79*** (10.11)	117,495.50*** (23.63)	14,564.32*** (2.49)	61,010.78*** (23.84)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 23: Effects of Full EU Sanctions on Trade with Sanctioned States (Only Including EU-Senders, All EU-Recipients Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
EU Sanctions (Full)	-29,298.51*** (4,136.02)	-13,650.12*** (3,219.94)	-9,374.38*** (1,512.27)	-21,130.20*** (2,550.76)	-11,864.96*** (1,568.04)	-24,999.88*** (4,075.30)	-104,586.50*** (18,662.59)	-31,866.03*** (5,438.24)	-10,893.41*** (4,924.92)
Constant	47,396.81*** (97.76)	25,251.01*** (74.40)	18,577.97*** (36.93)	31,173.86*** (59.38)	25,641.42*** (36.08)	37,550.85*** (95.53)	175,523.70*** (424.50)	33,260.30*** (132.58)	20,618.73*** (123.63)
Observations	724,454	93,874	83,218	94,287	95,383	93,635	96,501	88,640	78,916
Clusters	5,806	5,599	4,921	5,621	5,695	5,577	5,771	5,254	4,682
R <sup>2</sup>	0.2747	0.8559	0.9447	0.8992	0.9353	0.7783	0.8869	0.7738	0.7488

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
EU Sanctions (Full)	-25,976.74*** (5,658.98)	-21,406.77*** (1,953.43)	-16,299.70*** (1,967.59)	-14,242.65*** (1,664.78)	-27,120.68*** (5,647.18)	-33,178.09*** (4,758.22)	-73,101.20*** (16,835.21)	-17,925.23*** (3,745.46)	883.58 (37,157.80)
Constant	50,775.26*** (133.75)	27,214.05*** (45.13)	21,479.47*** (48.04)	19,406.93*** (38.76)	41,462.62*** (129.96)	41,084.01*** (111.54)	136,083.70*** (382.93)	18,670.39*** (91.31)	101,617.90*** (932.76)
Observations	724,454	93,874	83,218	94,287	95,383	93,635	96,501	88,640	78,916
Clusters	5,806	5,599	4,921	5,621	5,695	5,577	5,771	5,254	4,682
R <sup>2</sup>	0.2381	0.8897	0.8210	0.9069	0.8501	0.7361	0.8797	0.8508	0.7767

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 24: Effects of Full EU Sanctions on Trade with Sanctioned States (All EU and Sanction Sending Relationships Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions (Full)	-21,334.92*** (2,103.25)	-11,002.04*** (866.81)	-13,636.47*** (2,105.51)	-9,953.07*** (995.17)	-9,290.01*** (1,641.11)	-22,638.40*** (1,853.78)	-50,495.40*** (8,998.20)	-3,895.95*** (639.42)	-52,718.28*** (4,928.58)
Constant	30,307.03*** (10.90)	15,865.20*** (4.66)	16,403.31*** (9.88)	13,704.10*** (5.26)	18,451.60*** (9.17)	27,709.30*** (9.66)	78,520.45*** (52.15)	4,773.16*** (3.10)	67,017.40*** (20.04)
Observations	3,890,915	546,414	370,972	532,935	564,824	513,569	598,875	414,042	330,279
Clusters	39,545	31,862	22,211	31,184	32,902	30,136	34,734	24,683	20,004
R <sup>2</sup>	0.2223	0.8068	0.6803	0.8341	0.8844	0.6834	0.8370	0.7131	0.7313

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
EU Sanctions (Full)	-19,551.23*** (1,713.17)	-11,694.04*** (950.59)	-12,905.78*** (2,149.66)	-10,786.80*** (936.99)	-8,513.27*** (879.55)	-20,066.28*** (2,775.11)	-48,325.97*** (6,462.45)	-3,611.28*** (375.77)	-37,737.04*** (8,732.61)
Constant	28,842.97*** (8.88)	16,067.40*** (5.11)	16,195.59*** (10.09)	14,668.40*** (4.95)	16,016.17*** (4.91)	27,206.72*** (14.47)	76,828.72*** (37.46)	4,562.37*** (1.82)	56,182.02*** (35.51)
Observations	3,890,915	546,414	370,972	532,935	564,824	513,569	598,875	414,042	330,279
Clusters	39,545	31,862	22,211	31,184	32,902	30,136	34,734	24,683	20,004
R <sup>2</sup>	0.2364	0.7725	0.6828	0.8604	0.9060	0.6638	0.8567	0.7724	0.7203

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 25: Effects of Full US Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions (Full)	-20,309.46*** (1,595.56)	-12,431.99*** (1,338.27)	-10,983.20*** (1,315.64)	-12,019.87*** (961.96)	-8,368.37*** (1,473.79)	-19,276.42*** (1,449.07)	-52,076.03*** (6,401.93)	-10,333.18*** (888.06)	-37,188.27*** (3,128.39)
Constant	46,356.82*** (40.50)	28045.47*** (34.49)	21,135.20*** (33.17)	25,656.90*** (24.31)	28,603.21*** (37.34)	38,994.97*** (36.42)	130,177.30*** (163.30)	16,140.28*** (22.80)	71,508.76*** (78.25)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions (Full)	-19,417.35*** (1,760.51)	-16,934.20*** (935.03)	-10,511.62*** (1,437.73)	-14,069.98*** (824.80)	-10,459.96*** (1,235.64)	-20,738.50*** (1,420.03)	-59,990.84*** (6,249.51)	-11,120.12*** (881.94)	5640.72 (11,815.31)
Constant	46,334.18*** (44.69)	28,161.49*** (24.10)	21,123.31*** (36.25)	25,708.71*** (20.84)	28,656.21*** (31.31)	39,031.72*** (35.69)	130,379.50*** (159.41)	16,160.49*** (22.65)	70,437.48*** (295.54)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 26: Effects of Full US Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
US Sanctions (Full)	-22,592.99*** (1,1615.91)	-15,624.81*** (873.51)	-11,655.91*** (1,459.65)	-13,267.18*** (848.41)	-10,951.98*** (1,235.13)	-22,230.70*** (1,488.43)	-57,748.18*** (6,709.18)	-10,098.03*** (912.73)	-38,175.34*** (4,948.83)
Constant	44,134.32*** (3.78)	26,419.01*** (2.27)	20,925.79*** (2.81)	23,734.23*** (2.04)	28,469.57*** (3.11)	37,936.66*** (3.44)	121,606.70*** (18.79)	14,823.94*** (2.08)	70,878.66*** (7.11)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.723	0.8830	0.8878	0.7334	0.8535	0.7691	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
US Sanctions (Full)	-19,619.20*** (1,880.32)	-15,956.75*** (898.66)	-11,442.40*** (1,452.52)	-13,645.92*** (846.53)	-9,197.27*** (680.58)	-21,793.47*** (1,540.91)	-52,394.54*** (4,876.80)	-9,633.99*** (675.85)	-1,497.17 (25,923.47)
Constant	42,024.13*** (4.40)	26,278.89*** (2.34)	20,240.15*** (2.80)	24,621.40*** (2.04)	24,772.16*** (1.71)	37,336.01*** (3.57)	117,362.60*** (13.66)	14,550.16*** (1.54)	60,902.64*** (37.24)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 27: Effects of Full US Sanctions on Trade with Sanctioned States (Only Including US-Senders, All US-Recipients Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
US Sanctions (Full)	-239,595.80** (74,807.82)	-243,142.80** (85,089.01)	-84,349.65** (28,339.61)	-218,912.10** (68,199.73)	-47,973.30 (26,903.49)	-224,225.10** (69,363.96)	-500,901.10 (255,091.60)	-193,321.00*** (46,403.18)	-405,258.30*** (105,887.70)
Constant	671,859.10*** (2,021.78)	509,236.60*** (2,328.31)	245,234.70*** (778.99)	518,690.40*** (1,866.16)	294,749.00*** (736.17)	455,435.90*** (1,898.02)	2,607,702.00*** (6,980.12)	329,285.80*** (1,269.74)	410,978.20*** (2,597.88)
Observations	35,336	4,422	4,402	4,422	4,422	4,422	4,422	4,422	4,402
Clusters	222	222	221	222	222	222	222	222	221
R <sup>2</sup>	0.3714	0.8698	0.9061	0.9316	0.9572	0.8751	0.9528	0.8644	0.6726

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
US Sanctions (Full)	-324,952.20* (160,799.00)	-267,109.10*** (73,673.90)	-77,010.25* (30,478.05)	-220,264.50** (68,979.04)	-185,386.90 (171,260.80)	-257,858.50** (80,024.60)	-1,588,996.00 (857,158.50)	-325,792.70** (96,818.37)	578,076.80 (410,743.70)
Constant	1,047,308.00** (4,345.80)	469,677.70*** (2,015.95)	287,687.30*** (837.77)	429,940.10*** (1,887.49)	784,417.50*** (4,686.24)	687,530.40*** (2,189.73)	4,108,920.00*** (23,454.58)	403,726.20*** (2,649.26)	1,199,484.00** (10,077.31)
Observations	35,336	4,422	4,402	4,422	4,422	4,422	4,422	4,422	4,402
Clusters	222	222	221	222	222	222	222	222	221
R <sup>2</sup>	0.2555	0.8884	0.9203	0.9065	0.8809	0.9141	0.8791	0.7480	0.8484

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 28: Effects of Full US Sanctions on Trade with Sanctioned States (All US and Sanction Sending Relationships Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions (Full)	-20,352.39*** (1,257.94)	-14,287.07*** (799.08)	-11,127.44*** (1,446.51)	-12,128.99*** (754.09)	-9,858.36*** (768.59)	-20,761.24*** (1,394.87)	-49,703.24*** (4,794.42)	-7,665.49*** (568.90)	-36,768.83*** (4,506.23)
Constant	37,863.86*** (2.97)	23,553.61*** (2.10)	18,700.08*** (2.82)	21,327.65*** (1.83)	24,238.52*** (1.95)	34,121.61*** (3.26)	100,261.90*** (13.53)	11,707.26*** (1.31)	63,079.47*** (6.56)
Observations	5,198,922	715,656	520,178	703,039	737,033	682,485	773,277	573,318	471,542
Clusters	45,739	37,520	27,427	36,881	38,629	35,814	40,481	30,158	24,929
R <sup>2</sup>	0.2648	0.8602	0.6991	0.8844	0.9000	0.7016	0.8421	0.7864	0.7277

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
US Sanctions (Full)	-18,408.01*** (1,831.48)	-14,719.30*** (806.66)	-10,863.16*** (1,440.51)	-12,548.33*** (774.80)	-9,179.07*** (661.53)	-20,588.37*** (1,484.19)	-50,188.47*** (4,770.61)	-8,189.44*** (581.17)	727.66 (25,878.75)
Constant	37,454.19*** (4.32)	23,826.66*** (2.12)	18,423.55*** (2.81)	21,884.92*** (1.88)	22,857.65*** (1.68)	34,385.41*** (3.46)	100,786.60*** (13.47)	12,194.23*** (1.34)	57,846.48*** (37.65)
Observations	5,198,922	715,656	520,178	703,039	737,033	682,485	773,277	573,318	471,542
Clusters	45,739	37,520	27,427	36,881	38,629	35,814	40,481	30,158	24,929
R <sup>2</sup>	0.2660	0.8587	0.6988	0.8850	0.9100	0.7014	0.8401	0.7825	0.7352

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 29: Effects of Full Western Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-19,746.79*** (2,192.06)	-6,421.96* (2,592.96)	-10,358.24*** (1,374.23)	-11,702.75*** (1,462.71)	-7,476.83*** (2,050.68)	-22,306.52*** (2,492.67)	-52,816.28*** (8,484.10)	-9,054.61*** (976.37)	-37,017.47*** (3,022.23)
Constant	46,486.47*** (71.62)	27,937.28*** (85.6433)	21,297.13*** (44.96)	25,733.75*** (47.57)	28,635.43*** (67.00)	39,230.83*** (80.49)	130,577.60*** (277.64)	16,175.10*** (32.36)	71,769.23*** (97.21)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-19,706.26*** (2,396.14)	-14,631.59*** (2,037.12)	-6,086.57 (3,267.26)	-9,370.96*** (2,418.33)	-11,691.24*** (1,246.26)	-16,608.41*** (1,853.87)	-59,957.62*** (6,322.65)	-10,848.72*** (890.76)	-19,817.08 (16,623.07)
Constant	46,485.14*** (78.28)	28,208.53*** (67.31)	21,057.38*** (106.89)	25,657.92*** (78.65)	28,773.12*** (40.72)	39,046.83*** (59.86)	130,811.30*** (206.91)	16,234.57*** (29.53)	71,215.98*** (534.68)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8941	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 30: Effects of Full Western Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-24,511.54*** (1,641.79)	-15,891.48*** (874.45)	-12,245.30*** (1,476.07)	-13,744.37*** (921.49)	-12,303.11*** (1,322.97)	-23,683.31*** (1,519.82)	-62,096.67*** (6,970.67)	-10,241.54*** (900.50)	-44,071.39*** (3,826.35)
Constant	44,207.66*** (8.45)	26,467.82*** (4.92)	20,959.06*** (6.72)	23,774.80*** (4.86)	28,510.58*** (7.37)	38,005.51*** (7.72)	121,811.10*** (41.10)	14,851.51*** (4.45)	70,979.97*** (13.56)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	.7230	0.8830	0.8878	0.7334	0.8535	0.7691	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-13,856.85 (8,666.91)	-15,331.16*** (1,299.42)	-12,309.00*** (1,494.52)	-14,274.78*** (835.71)	-10,280.56*** (701.30)	-21,712.90*** (2,103.44)	-57,541.84*** (5,070.19)	-9,929.78*** (675.50)	100,020.5 (129,923.70)
Constant	42,049.58*** (44.61)	26,323.68*** (7.32)	20,274.12*** (6.80)	24,663.86*** (4.41)	24,806.32*** (3.91)	37,395.87*** (10.69)	117,555.10*** (29.90)	14,577.25*** (3.34)	60,546.10*** (460.35)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 31: Effects of Full Western Sanctions on Trade with Sanctioned States (Only Including Western Senders, All Western Recipients Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-22,984.90*** (3,883.65)	-439.34 (7,984.91)	-14,992.75* (6,342.77)	-13,770.94*** (3,026.15)	-6,164.50* (2,994.00)	-28,364.55*** (5,328.85)	-75,109.24*** (13,705.85)	-9,882.78*** (2,185.49)	-33,428.98*** (5,822.94)
Constant	41,960.94*** (167.23)	32,634.30*** (335.83)	22,215.45*** (284.66)	26,946.68*** (126.56)	21,697.03*** (125.79)	37,628.92*** (227.20)	135,137.50*** (570.40)	17,831.76*** (96.51)	31,754.16** (269.91)
Observations	996,178	130,557	111,921	130,529	132,698	128,647	135,401	120,043	106,270
Clusters	7,887	7,461	6,394	7,459	7,608	7,333	7,769	6,777	6,002
R <sup>2</sup>	0.3251	0.8384	0.6586	0.8963	0.9043	0.6582	0.8770	0.7745	0.6958

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-29,769.07*** (6,692.56)	-15,568.22*** (2,440.76)	-9,826.69*** (1,463.66)	-11,107.75** (3,255.60)	-26,390.42*** (6,667.98)	-22,687.54*** (3,967.59)	-91,105.50** (31,624.83)	-6,836.91*** (1,437.89)	-51,747.91* (22,606.36)
Constant	56,998.11*** (288.18)	26,210.84*** (102.65)	17,123.71*** (65.69)	19,738.70*** (136.16)	49,969.57*** (280.14)	44,712.85*** (169.16)	180,997.70*** (1,316.13)	7,903.75*** (63.50)	103,698*** (1,047.89)
Observations	996,178	130,557	111,921	130,529	132,698	128,647	135,401	120,043	106,270
Clusters	7,887	7,461	6,394	7,459	7,608	7,333	7,769	6,777	6,002
R <sup>2</sup>	0.2133	0.8405	0.7820	0.8384	0.8645	0.8199	0.8612	0.7578	0.7622

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 32: Effects of Full Western Sanctions on Trade with Sanctioned States (All Western and Sanction Sending Relationships Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-17,180.19*** (1,659.55)	-9,049.44*** (854.11)	-10,442.42*** (1,316.79)	-8,718.39*** (976.81)	-7,729.61*** (940.09)	-16,122.77*** (1,653.78)	-41,857.63*** (7,083.64)	-1,421.93*** (174.36)	-45,619.37*** (4,804.47)
Constant	23,301.93*** (13.19)	11,587.98*** (7.19)	13,017.02*** (10.03)	11,584.54*** (7.84)	13,016.79*** (7.80)	20,308.84*** (12.74)	58,314.83*** (61.05)	1,882.00*** (1.42)	60,241.45*** (28.83)
Observations	3,285,892	465,479	306,092	452,879	482,656	435,939	513,656	343,640	268,477
Clusters	34,068	26,955	18,126	26,315	27,947	25,379	29,627	20,292	16,123
R <sup>2</sup>	0.2120	0.7191	0.7410	0.8111	0.9039	0.6505	0.8049	0.6839	0.7051

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Western Sanctions (Full)	-7,514.44 (9,103.99)	-8,637.48*** (1,304.06)	-10,465.39*** (1,346.21)	-9,332.32*** (907.56)	-7,916.95*** (875.17)	-14,282.07*** (2,278.82)	-44,826.58*** (7,043.58)	-1,754.43*** (152.69)	107,765.70 (136,739.40)
Constant	23,324.53*** (72.34)	12,118.44*** (10.98)	12,834.21*** (10.26)	12,003.34*** (7.29)	13,363.40*** (7.26)	20,564.34*** (17.55)	60,216.18*** (60.71)	2,017.04*** (1.24)	54,318.61*** (820.51)
Observations	3,285,892	465,479	306,092	452,879	482,656	435,939	513,656	343,640	268,477
Clusters	34,068	26,955	18,126	26,315	27,947	25,379	29,627	20,292	16,123
R <sup>2</sup>	0.2136	0.7168	0.7426	0.8114	0.9024	0.6515	0.8046	0.6841	0.4306

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 33: Effects of Full Unilateral Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Unilateral Sanctions (Full)	-25,609.16*** (1,965.13)	-17,243.50*** (4,636.08)	-10,971.29*** (1,337.85)	-16,676.84*** (1,864.77)	-14,089.32*** (1,531.32)	-26,746.90*** (3,302.27)	-67,912.41*** (7,279.81)	-10,436.42*** (986.36)	-34,727.56*** (4,522.32)
Constant	45,880.49*** (3.01)	27,751.83*** (7.19)	20,874.94*** (2.04)	25,379.14*** (2.91)	28,412.77*** (2.35)	38,551.28*** (5.03)	128,949.30*** (10.73)	15,891.43*** (1.56)	70,630.43*** (6.76)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Unilateral Sanctions (Full)	-26,273.21*** (2,113.27)	-22,987.73*** (2,988.66)	-9,969.87*** (1,290.94)	-13,891.20*** (992.77)	-17,103.68*** (1,909.40)	-19,173.35*** (1,333.69)	-56,078.14*** (6,161.02)	-10,331.37*** (936.01)	-63,655.69*** (13,888.49)
Constant	45,881.50*** (3.23)	27,760.74*** (4.63)	20,873.42*** (1.96)	25,374.80*** (1.55)	28,417.39*** (2.93)	38,539.74*** (2.03)	128,931.90*** (9.08)	15,891.26*** (1.48)	70,673.64*** (20.74)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7692	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 34: Effects of Full Unilateral Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Unilateral Sanctions (Full)	-22,330.63*** (2,490.66)	-15,226.47*** (903.65)	-9,442.36*** (1,464.08)	-15,215.69*** (3,289.20)	-16,039.97** (5,218.78)	-19,680.49*** (1,570.65)	-60,232.33*** (7,784.16)	-9,323.68*** (1,006.57)	-24,709.53*** (3,803.91)
Constant	44,083.30*** (0.20)	26,379.95*** (0.10)	20,904.10*** (0.12)	23,703.51*** (0.26)	28,442.39*** (0.44)	37,886.82*** (0.13)	121,450.90*** (0.77)	14,801.44*** (0.06)	70,824.90*** (0.17)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7691	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Unilateral Sanctions (Full)	-19,427.78*** (1,222.53)	-15,537.80*** (896.86)	-9,012.46*** (1,442.64)	-11,873.88*** (738.99)	-9,083.52*** (736.48)	-18,301.97*** (1,385.54)	-48,483.94*** (4,849.53)	-8,687.18*** (694.81)	-34,814.10*** (6,989.54)
Constant	41,979.83*** (0.10)	26,239.00*** (0.10)	20,218.84*** (0.12)	24,589.50*** (0.06)	24,749.81*** (0.06)	37,287.07*** (0.11)	117,220.60*** (0.48)	14,528.68*** (0.04)	60,902.03*** (0.31)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 35: Effects of Full Multilateral Sanctions on Trade with Sanctioned States**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Multilateral Sanctions (Full)	-20,323.24*** (1,910.68)	-8,093.40*** (1,982.87)	-10,962.58*** (1,411.93)	-11,954.39*** (1,217.21)	-8,055.89*** (1,697.11)	-21,603.60*** (2,071.83)	-53,829.34*** (7,644.04)	-9,057.37*** (951.48)	-37,994.71*** (3,286.81)
Constant	46,626.15*** (73.78)	28,040.14*** (77.19)	21,283.90*** (54.82)	25,812.56*** (46.78)	28,701.25*** (65.33)	39,337.53*** (79.31)	130,919.00*** (293.91)	16,228.22*** (37.11)	72,047.72*** (127.09)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8664	0.7375	0.9019	0.8940	0.7693	0.8735	0.7834	0.7775

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Multilateral Sanctions (Full)	-21,135.88*** (2,015.77)	-13,493.92*** (1,708.74)	-8,199.74** (2,505.12)	-20,447.32*** (1,825.62)	-11,723.86*** (1,231.19)	-18,240.28*** (1,714.26)	-61,377.03*** (6,479.04)	-10,993.08*** (896.37)	-28,948.35*** (11,359.90)
Constant	46,657.53*** (77.84)	28,250.37*** (66.52)	21,176.63*** (97.27)	25,754.64*** (70.16)	28,842.44*** (47.39)	39,208.78*** (65.62)	131,209.20*** (249.12)	16,303.71*** (34.96)	71,697.92*** (439.26)
Observations	5,932,040	816,984	602,768	803,504	840,004	780,796	878,732	660,856	548,396
Clusters	46,264	41,028	30,238	40,360	42,200	39,206	44,152	33,164	27,514
R <sup>2</sup>	0.2779	0.8665	0.7375	0.9019	0.8941	0.7693	0.8735	0.7834	0.7775

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$



**Table 36: Effects of Full Multilateral Sanctions on Trade with Sanctioned States (All Sanction Senders Excluded)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Multilateral Sanctions (Full)	-24,900.15*** (1,640.57)	-16,509.78*** (891.78)	-12,478.05*** (1,513.24)	-13,950.00*** (887.00)	-12,359.68*** (1,325.45)	-24,129.53*** (1,526.83)	-62,509.14*** (7,059.84)	-10,270.63*** (904.49)	-44,109.14*** (3,495.21)
Constant	44,228.43*** (9.68)	26,485.99*** (5.82)	20,964.79*** (7.45)	23,787.97*** (5.45)	28,521.84*** (8.56)	38,026.81*** (8.96)	121,873.40*** (48.39)	14,857.29*** (4.97)	71,002.09*** (14.13)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2502	0.8681	0.7230	0.8830	0.8878	0.7334	0.8535	0.7691	0.7410

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Multilateral Sanctions (Full)	-17,025.24** (6,272.26)	16,257.55*** (1,136.69)	-12,483.10*** (1,522.33)	-14,495.37*** (834.22)	-10,432.30*** (713.73)	-22,828.45*** (1,826.83)	-57,797.55*** (5,160.16)	-9,946.03*** (673.03)	57,888.15 (92,502.63)
Constant	42,078.73*** (37.02)	26,343.36*** (7.41)	20,279.59*** (7.50)	24,677.58*** (5.12)	24,816.40*** (4.61)	37,419.54*** (10.72)	117,611.90*** (35.37)	14,582.79*** (3.70)	60,666.52*** (373.86)
Observations	5,247,405	721,668	526,150	709,051	743,045	688,497	779,289	579,330	477,534
Clusters	46,183	37,908	27,813	37,269	39,017	36,202	40,869	30,546	25,316
R <sup>2</sup>	0.2729	0.8544	0.7106	0.8946	0.9144	0.7216	0.8727	0.8011	0.7358

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 37: Effects of Sanctions on Trade with Sanctioned States (3-Year Post-Sanctions Limit)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Full Sanctions	4,003.49*** (1,022.58)	2,964.63*** (338.36)	724.281* (363.65)	2,627.83*** (454.27)	2,663.81*** (730.87)	3,849.85*** (867.43)	10,085.21* (3,983.39)	2,227.62*** (346.93)	5,875.82 (3,649.40)
Constant	27,748.45*** (141.08)	13,753.06*** (67.60)	11,818.64*** (83.67)	12,945.13*** (91.46)	17,160.07*** (143.57)	21,150.50*** (176.95)	81,532.79*** (760.32)	6,517.81*** (76.38)	49,450.38*** (854.02)
Observations	2,255,688	317,147	214,082	310,481	329,593	299,346	350,818	241,518	192,688
Clusters	46,042	40,834	30,120	40,167	41,997	39,032	43,934	33,033	27,409
R <sup>2</sup>	0.2416	0.9490	0.8728	0.9382	0.9614	0.7615	0.8739	0.8633	0.7826

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Sanctions	3,623.86*** (682.67)	2,889.52*** (276.39)	1,253.77* (485.23)	1,852.12*** (461.31)	2,285.66*** (316.35)	2,985.46*** (735.37)	7,028.77** (2,253.56)	1,909.76*** (329.17)	9,347.87** (3,323.17)
Constant	25,212.57*** (141.08)	10,170.61*** (55.22)	11,106.10*** (111.64)	13,613.32*** (92.87)	13,615.90*** (62.14)	21,052.64*** (150.01)	81,876.44*** (430.15)	4,749.62*** (72.47)	33,141.51*** (777.67)
Observations	2,255,688	317,147	214,082	310,481	329,593	299,346	350,818	241,518	192,688
Clusters	46,042	40,834	30,120	40,167	41,997	39,032	43,934	33,033	27,409
R <sup>2</sup>	0.2595	0.9462	0.8630	0.9184	0.9732	0.6673	0.9526	0.7826	0.7890

Robust standard errors in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 38: Effects of Sanctions on Trade with Sanctioned States (5-Year Post-Sanctions Limit)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Full Sanctions	5,860.40*** (1,618.73)	4,004.46*** (556.35)	754.15 (589.91)	3,623.90*** (720.80)	3,556.35** (1,220.54)	5,449.62*** (1,393.15)	16,335.81* (6,493.19)	3,276.81*** (569.28)	8,265.52 (4,959.43)
Constant	28,031.26*** (553.00)	14,075.72*** (184.73)	12,260.63*** (220.10)	13,487.24*** (240.89)	17,975.74*** (399.54)	21,334.37*** (470.69)	83,294.56*** (2,074.97)	6,816.62*** (204.87)	46,805.53*** (1,876.02)
Observations	2,718,080	379,935	262,924	372,439	393,735	359,870	417,166	294,236	237,397
Clusters	46,106	40,839	30,123	40,172	42,002	39,037	43,939	33,038	27,411
R <sup>2</sup>	0.2533	0.9456	0.8739	0.9356	0.9507	0.7832	0.8815	0.8515	0.7896

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Full Sanctions	5,825.77*** (1,133.54)	4,769.76*** (503.11)	2,406.36** (795.11)	2,513.86** (725.54)	2,256.19*** (452.59)	4,613.94*** (1,089.60)	9,039.46** (3,108.60)	1,947.68*** (435.78)	22,664.7** (6,649.65)
Constant	25,843.29*** (387.25)	11,145.02*** (167.05)	11,429.53*** (296.66)	14,185.11*** (242.47)	15,305.35*** (148.15)	21,455.59*** (368.14)	83,642.49*** (993.39)	5,715.31*** (156.83)	31,002.23*** (2,515.39)
Observations	2,718,080	379,935	262,924	372,439	393,735	359,870	417,166	294,236	237,397
Clusters	46,106	40,839	30,123	40,172	42,002	39,037	43,939	33,038	27,411
R <sup>2</sup>	0.2752	0.9423	0.8555	0.9229	0.9728	0.7038	0.9510	0.8418	0.7765

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 39: Effects of Sanctions on Trade with Sanctioned States (10-Year Post-Sanctions Limit)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Full Sanctions	6,178.54* (2,511.42)	4,705.98*** (995.35)	-188.71 (1,021.43)	4,614.06*** (1,153.66)	3,843.95 (2,102.76)	4,743.56* (2,046.41)	18,562.43 (10,361.31)	3,971.58*** (972.79)	7,129.79 (7,540.94)
Constant	33,08.00*** (1,351.67)	17,222.55*** (525.20)	15,914.82*** (584.41)	16,432.01*** (611.54)	20,873.42*** (1,098.37)	26,898.11*** (1,093.06)	95,538.52*** (5,320.06)	8,930.71*** (542.90)	54,984.17*** (4,354.94)
Observations	3,875,160	537,281	385,247	527,701	554,473	511,488	583,411	426,206	349,345
Clusters	46,200	40,980	30,209	40,310	42,146	39,162	44,090	33,124	27,487
R <sup>2</sup>	0.2729	0.9090	0.8241	0.9175	0.9175	0.8017	0.8831	0.8228	0.7845

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Overall	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Category 7	Category 8
Full Sanctions	6,619.58*** (1,716.30)	9,128.25*** (1,135.95)	3,664.12** (1,395.85)	3,168.30* (1,252.10)	1,783.80* (828.95)	5,394.93** (1,915.05)	9,146.57 (4,856.87)	2,279.97** (822.94)	21,872.54** (8,231.82)
Constant	31,564.12*** (923.73)	13,945.36*** (599.39)	14,082.17*** (798.64)	17,328.79*** (663.72)	20,027.31*** (433.00)	26,706.30*** (1,022.90)	97,036.83*** (2,493.78)	8,891.52*** (459.27)	42,726.23*** (4,753.93)
Observations	3,875,160	537,281	385,247	527,701	554,473	511,488	583,411	426,206	349,345
Clusters	46,200	40,980	30,209	40,310	42,146	39,162	44,090	33,124	27,487
R <sup>2</sup>	0.2935	0.8912	0.7279	0.9109	0.9284	0.7455	0.9208	0.8261	0.7755

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 40: Effects of Full Sanctions on Trade with Sanctioned States (3-Year Post-Sanctions Limit)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-14,308.36*** (1,688.64)	2,892.5 (2,227.35)	-8,090.17*** (995.16)	-8,172.37*** (1,124.85)	-5,115.17** (1,598.41)	-14,789.64*** (2,803.84)	-34,542.1*** (5,650.28)	-5,146.98*** (535.80)	-39,803.76*** (3,223.25)
Constant	47,109.63*** (9.96)	28,120.88*** (13.19)	21,540.59*** (5.88)	26,037.42*** (6.61)	29,154.46*** (9.40)	39,553.61*** (16.42)	132,505.20*** (33.19)	16,334.04*** (3.20)	72,858.49*** (19.07)
Observations	5,736,800	789,857	582,810	777,192	812,448	755,330	849,937	638,897	530,329
Clusters	46,257	41,021	30,235	40,354	42,193	39,201	44,145	33,163	27,512
R <sup>2</sup>	0.2778	0.8674	0.7375	0.9021	0.8942	0.7695	0.8736	0.7834	0.7776

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Sanctions	-15,586.43*** (1,849.35)	-8,720*** (1,288.20)	-4,898.94 (2,605.37)	-6,085.45*** (1,476.51)	-8,055.95*** (802.15)	-14,598.28*** (1,398.02)	-38,161.51*** (3,899.86)	-6,258.70*** (460.34)	-40,102.80** (12,417.65)
Constant	46,988.28*** (10.91)	28,556.12*** (7.6)	21,514.51*** (15.40)	26,177.29*** (8.68)	29,362.03*** (4.72)	39,661.50*** (1,398.02)	133,384.60*** (22.91)	16,454.88*** (2.75)	68,694.50*** (73.48)
Observations	5,736,800	789,857	582,810	777,192	812,448	755,330	849,937	638,897	530,329
Clusters	46,257	41,021	30,235	40,354	42,193	39,201	44,145	33,163	27,512
R <sup>2</sup>	0.2787	0.8666	0.7375	0.9021	0.8941	0.7699	0.8735	0.7834	0.7835

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 41: Effects of Full Sanctions on Trade with Sanctioned States (5-Year Post-Sanctions Limit)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-14,748.74*** (1,699.60)	-5,152.46** (1,888.01)	-8,033.48*** (1,007.73)	-8,665.65*** (1,100.31)	-5,422.664** (1,704.96)	-15,771.90*** (2,351.46)	-37,217.01*** (6,236.91)	-6,101.27*** (634.07)	-33,425.06*** (2,911.71)
Constant	46,967.10*** (19.93)	28,061.28*** (22.22)	21,471.82*** (11.85)	25,966.05*** (12.86)	29,048.51*** (19.94)	39,462.48*** (27.38)	132,074.30*** (72.84)	16,294.12*** (7.53)	72,626.39*** (34.25)
Observations	5,770,643	794,533	586,256	781,760	817,226	759,754	854,929	642,713	533,467
Clusters	46,258	41,021	30,235	40,354	42,193	39,201	44,145	33,163	27,512
R <sup>2</sup>	0.2779	0.8674	0.7375	0.9021	0.8942	0.7695	0.8736	0.7834	0.7776

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Full Sanctions	-15,940.62*** (1,817.59)	-9,348.39*** (1,484.42)	-4,833.83* (2,383.45)	-6,337.60*** (1,652.58)	-8,699.27*** (914.66)	-14,272.28*** (1,374.18)	-41,580.41*** (4,501.95)	-7,408.92*** (565.36)	-35,505.15** (12,328.26)
Constant	46,857.97*** (21.32)	28,485.74*** (17.47)	21,442.62*** (28.02)	26,085.94*** (19.31)	29,253.66*** (10.70)	39,537.64*** (16.00)	132,882.10*** (52.57)	16,408.77*** (6.71)	68,815.97*** (145.04)
Observations	5,770,643	794,533	586,256	781,760	817,226	759,754	854,929	642,713	533,467
Clusters	46,258	41,021	30,235	40,354	42,193	39,201	44,145	33,163	27,512
R <sup>2</sup>	0.2786	0.8665	0.7375	0.9020	0.8941	0.7699	0.8735	0.7834	0.7832

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 42: Effects of Full Sanctions on Trade with Sanctioned States (10-Year Post-Sanctions Limit)**

Value of Goods Exported to Sanctioned States in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-18,752.46*** (1,822.00)	-7,193.33*** (1,980.41)	-10,030.88*** (1,279.73)	-11,046.19*** (1,177.94)	-7,382.50*** (1,641.55)	-20,307.37*** (2,044.83)	-48,775.69*** (7,185.18)	-8,135.25*** (851.42)	-36,957.13*** (3,079.88)
Constant	46,771.80*** (44.46)	27,996.10*** (48.48)	21,377.91*** (31.37)	25,871.36*** (28.63)	28,864.31*** (39.91)	39,371.16*** (49.54)	131,455.20*** (174.39)	16,251.59*** (21.01)	72,311.96*** (75.56)
Observations	5,845,590	804,886	593,922	791,874	827,796	769,550	865,962	651,150	540,450
Clusters	46,263	41,027	30,237	40,359	42,199	39,205	44,151	33,163	27,513
R <sup>2</sup>	0.2779	0.8672	0.7375	0.9021	0.8942	0.7695	0.8736	0.7834	0.7776

Value of Goods Imported from Sanctioned States in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Full Sanctions	-19,529.26*** (1,932.78)	-11,667.90*** (1,711.31)	-7,034.55** (2,526.52)	-8,935.92*** (1,859.29)	-10,701.72*** (1,129.69)	-16,729.31*** (1,629.59)	-55,200.24*** (5,809.70)	-9,852.09*** (788.83)	-32,801.12** (11,446.25)
Constant	46,713.28*** (47.16)	28,385.01*** (41.90)	21,329.47*** (61.93)	25,937.56*** (45.20)	29,059.31*** (27.47)	39,346.14*** (39.48)	132,071.80*** (141.00)	16,354.05*** (19.47)	69,682.82*** (280.81)
Observations	5,845,590	804,886	593,922	791,874	827,796	769,550	865,962	651,150	540,450
Clusters	46,263	41,027	30,237	40,359	42,199	39,205	44,151	33,163	27,513
R <sup>2</sup>	0.2784	0.8665	0.7375	0.9019	0.8941	0.7698	0.8735	0.7834	0.7814

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 43: Effects of Full Sanctions on Iranian Trade**

Value of Goods Exported to Iran in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-8,422.23 (8,806.67)	28,305.68* (12,643.85)	-6,283.35* (2,575.66)	-4,075.52 (6,533.91)	5,198.54 (9,724.94)	-24,366.37* (11,579.32)	-29,873.67 (35,459.34)	-3,093.07 (2,232.81)	-31,667.90*** (4,728.81)
Constant	47,970.53*** (16.02)	28,607.90*** (21.96)	21,916.70*** (5.30)	26,509.44*** (11.53)	29,699.81*** (16.33)	40,288.01*** (20.48)	135,096.20*** (57.24)	16,637.95*** (4.37)	73,975.48*** (10.43)
Observations	5,622,582	774,002	571,638	761,622	795,988	740,256	832,596	626,206	520,274
Clusters	43,866	38,875	28,680	38,262	39,995	37,176	41,841	31,430	26,107
R <sup>2</sup>	0.2778	0.8674	0.7375	0.9021	0.8942	0.7695	0.8735	0.7834	0.7776

Value of Goods Imported from Iran in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Full Sanctions	-9,825.04 (10,048.68)	3,125.02 (10,001.34)	11,591.55 (14,579.03)	13,678.91 (12,837.98)	-9,510.08*** (2,381.78)	2,607.73 (7,045.89)	-54,906.02*** (7,004.16)	-9,806.53*** (996.87)	-30,622.55 (66,967.00)
Constant	47,866.01*** (18.28)	29,009.02*** (17.37)	21,921.94*** (29.99)	26,672.41*** (22.65)	29,899.51*** (4.00)	40,391.11*** (12.46)	136,002.00*** (11.31)	16,768.53*** (1.95)	69,945.28*** (147.76)
Observations	5,622,582	774,002	571,638	761,622	795,988	740,256	832,596	626,206	520,274
Clusters	43,866	38,875	28,680	38,262	39,995	37,176	41,841	31,430	26,107
R <sup>2</sup>	0.2786	0.8666	0.7375	0.9019	0.8941	0.7698	0.8735	0.7834	0.7824

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Table 44: Effects of Full Sanctions on Syrian Trade**

Value of Goods Exported to Syria in USD\$1,000									
	(1) Overall	(2) Category 1	(3) Category 2	(4) Category 3	(5) Category 4	(6) Category 5	(7) Category 6	(8) Category 7	(9) Category 8
Full Sanctions	-26,395.52*** (2,018.52)	-17,470.96*** (4,645.21)	-11,414.43*** (1,402.62)	-17,119.06*** (1,882.19)	-14,70.47*** (1,572.20)	-27,523.03*** (3,328.41)	-70,363.94*** (7,568.41)	-10,859.72*** (1,033.71)	-35,783.58*** (4,604.79)
Constant	47,880.55*** (3.26)	28,516.42*** (7.61)	21,911.47*** (2.25)	26,456.14*** (3.10)	29,662.92*** (2.54)	40,109.24*** (5.35)	134,762.90*** (11.77)	16,616.15*** (1.72)	74,074.12*** (7.26)
Observations	5,619,294	773,782	570,904	761,362	795,848	739,916	832,456	625,686	519,340
Clusters	43,858	38,864	28,643	38,249	39,988	37,159	41,834	31,404	26,060
R <sup>2</sup>	0.2778	0.8679	0.7375	0.9022	0.8943	0.7701	0.8736	0.7834	0.7776

Value of Goods Imported from Syria in USD\$1,000									
	(10) Overall	(11) Category 1	(12) Category 2	(13) Category 3	(14) Category 4	(15) Category 5	(16) Category 6	(17) Category 7	(18) Category 8
Full Sanctions	-27,132.02*** (2,162.35)	-23,641.51*** (3,004.46)	-10,329.97*** (1,355.34)	-14,421.78*** (1,024.45)	-17,640.09*** (1,943.74)	-19,842.40*** (1,397.79)	-59,098.44*** (6,502.57)	-10,885.89*** (985.90)	-63,508.40*** (13,881.59)
Constant	47,704.21*** (3.49)	29,003.79*** (4.92)	21,842.35*** (2.18)	26,648.14*** (1.69)	29,912.92*** (3.15)	40,353.77*** (2.25)	136,010.10*** (10.12)	16,779.42*** (1.64)	68,307.05*** (21.89)
Observations	5,619,294	773,782	570,904	761,362	795,848	739,916	832,456	625,686	519,340
Clusters	43,858	38,864	28,643	38,249	39,988	37,159	41,834	31,404	26,060
R <sup>2</sup>	0.2789	0.8667	0.7378	0.9023	0.8941	0.7699	0.8735	0.7834	0.7857

Robust standard errors in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$