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Political limits on the World Oil Trade: Firm-level evidence from US firms

Mila Kashcheeva*
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International politics affect trade patterns, especially for firms in extractive industries. We construct the firm-level dataset for the U.S. oil-importing companies over 1986-2010 to test whether the state of international relations with the trading partners of the U.S. affect importing behavior of the U.S. firms. To measure "political distance" between the U.S. and her trading partners we use voting records for the UN General Assembly. We find that the U.S. firms, in fact, import significantly less oil from the political opponents of the U.S. Our conjecture is that the decrease in oil imports is mainly driven by large, vertically-integrated U.S. firms that engage in foreign direct investment (FDI) overseas.

* *Research Fellow, Inter-disciplinary Studies Center, Institute of Developing Economies, Japan External Trade Organization, Japan*

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Abstract:

International politics affect trade patterns, especially for firms in extractive industries. We construct the firm-level dataset for the U.S. oil-importing companies over 1986-2010 to test whether the state of international relations with the trading partners of the U.S. affect importing behavior of the U.S. firms. To measure "political distance" between the U.S. and her trading partners we use voting records for the UN General Assembly. We find that the U.S. firms, in fact, import significantly less oil from the political opponents of the U.S. Our conjecture is that the decrease in oil imports is mainly driven by large, vertically-integrated U.S. firms that engage in foreign direct investment (FDI) overseas.

1. Introduction

There is evidence that international politics affects trade patterns, especially for firms in extractive industries. In recent studies Mityakov et al. (2011, 2012) use disaggregated import flows at a sectoral level into the United States and find that the US imports significantly less crude oil from its political opponents, even after controlling for wars, sanctions, and tariffs.[1] Given that the crude oil trade is often associated with backward vertical FDI, oil-firms face hold-up and expropriation risks, which likely rise when the political relationship between the US and its trading partner worsens, thus affecting the final oil imports. At the same time oil is a strategic commodity, imports of which are not only driven by profit-maximizing motives, but also by strategic and security consideration of the governments. The authors confirm that both economic and political forces explain the finding that the US imports less oil from its political opponents.

In this paper I use *firm-level oil import*s by the companies that operated in the US during the period 1986-2010 to further test if: (*i*) US firms import significantly less oil from the political opponents of the US government; (*ii*) large, vertically integrated US oil firms are the most sensitive to changes in political relationships between the US government and oil exporting states; (*iii*) the effect is more pronounced for the subsample of countries that have a history of nationalizations in the oil sector; and (*iv*) the effect is

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[1] Mityakov et al. (2012) find that among 10 aggregate categories of US imports, - namely: petroleum, raw materials, forest products, tropical agriculture, animal products, cereals, etc., labor intensive, capital intensive, machinery, and chemicals, - only crude oil and some chemical products are affected by international politics.

more pronounced during the cold war period and the period after the 9/11 terrorist attacks. To measure the degree of political misalignment between the US and oil exporting countries I use the voting records from the United Nations General Assembly, similarly to Dreher and Strum (2012).

I confirm the finding of Mityakov et al. (2011, 2012) that US firms import significantly less oil from the political opponents of the United States. In the preferred Poisson pseudo-maximum likelihood (PPML) specification with fixed effects and oil reserves as a control variable I find that a one standard deviation reduction in political distance increases US oil imports by more than 13 percent. I also find that the negative effect of political distance on oil imports by US firms is more pronounced for the cold-war period and the period post the 9/11 terrorist attacks, suggesting that US oil-firms diversified their sources of oil supply away from the political opponents of the US most actively during these two periods.

Without data on foreign direct investment (FDI) for the US companies in our sample I opt for another approach to test the *hold-up risk hypothesis* proposed by Mityakov et al. (2012). In particular, I divide the US firms in our sample by their size, assuming that large firms in the sample engage more often in FDI than small firms. I use two different methods to divide the firms in our sample: (i) based on the mean value of firms' annual imports in the 1986-2012 period, and (ii) based on the mean value of firms' total oil imports throughout the whole period. Our results suggest that the large firms in our sample appear to drive the baseline finding that US firms import less from the countries politically more distant from the US. The negative effect of political distance on

oil imports by US firms is larger and more significant for the subsample of large firms, identified either way, while this effect is not observable for the subsample of small firms. This relationship determines potential economic costs of hold-up.

The organization of this paper is as follows. Section 2 describes the data, section 3 presents the results of our analysis, and section 4 offers concluding remarks.

2. Data

I use the following sources of data for our analysis. Firm-level oil imports by companies that operate in the US are sourced from the US Energy Information Administration (EIA). The EIA original dataset is a monthly time-series for the period of 1986-2010, and it includes information on firms' imports of petroleum and other liquids in thousands of barrels. I use monthly EIA data to construct annual time-series of crude oil imports, and I use this in panel regressions as a dependent variable with control variables which also have annual frequency.

Data on the Political Distance between the US and oil exporting countries in our dataset are sourced from Dreher and Strum (2012). The authors have used voting data from the United Nations General Assembly to construct several indexes which measure the degree of political alignment between different states. These indexes vary in the way in which they weight abstentions and absences in the voting procedures - in particular, the weights can be 0, 0.5 or 1. I follow the logic of Dreher and Strum (2012) in not choosing the corner solutions and favor the index constructed according to the definition

by Thacker (1999), where the votes in agreement with the United States are coded as 1, votes in disagreement as 0, and abstentions and absences as 0.5. The index lies between 0 and 1, where a higher value reflects closer political interests of the US and the other country. In our regressions I use a political distance variable which equals 1 minus the original index, such that a higher value for the variable represents more politically distant governments.

I also use annual oil reserves and oil production data for the period 1980-2011 from the EIA as control variables in our regressions. Crude oil proven reserves are measured in billions of barrels, and production of crude oil including lease condensate is measured in thousands of barrels per day. While our preferred control variable is oil reserves as it is less subject to the endogeneity problem than the oil production variable, as a robustness check I use oil production as well. I also use such traditional controls for a gravity model as GDP and population, taken from the Penn World Tables, version 7.0.

Table 1 presents the descriptive statistics for the variables used in the regressions. The base dataset has 6,322 observations and includes oil imports by US firms from 59 oil-exporting countries. During 1986-2010, there are 156 oil-importing firms operating in the US with on average 60 firms co-existing within the same year. For the list of oil exporting countries in our sample please see Section I of the Appendix B.[2]

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2 The G7 countries are not included in our final dataset because the data on political distance do not cover the G7 countries.

The variation in the quantity of oil imports is significant: the maximum annual oil import quantity is 197,479 thousand barrels, imported by "Motiva Enterprises LLC"[3] from Saudi Arabia in 2001, while at the same time there are about 20 zero observations in our baseline dataset. Political distance also has substantial variation and ranges from 0.420 between the US and Australia in 2005 to 0.956 between the US and Algeria in 2007.

3. Empirical Analysis

The purpose of the empirical analysis is to test if (i) US firms import significantly less oil from the political opponents of the United States; (ii) large, vertically integrated US oil firms are the most sensitive to changes in political relationships between the US and oil exporting states; (iii) the effect is more pronounced for the subsample of countries that have a history of nationalizations in the oil sector; (iv) the effect is more pronounced during the cold war period as well as the period after the 9/11 terrorist attack.

I do not have data on the life spans of the US companies in our dataset and this information is important if I want to properly account for years with zero oil imports for the firms that exist but choose not to import, or import only in certain years from chosen countries. Instead, I construct three additional datasets using different assumptions about the life spans of the firms in our baseline dataset. While no dataset by itself resolves the

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[3] "Motiva Enterprises, LLC", is a 50–50 joint venture between "Shell Oil Company" (the wholly owned American subsidiary of Royal Dutch Shell) and "Saudi Refining" (controlled by Saudi Aramco). Formed in 1998, Motiva Enterprises LLC operates primarily in the eastern and southern United States. For more information see http://www.motivaenterprises.com.

data limitation issue that I have, their joint analysis makes it possible to have robust findings that do not depend on a particular assumption about the life spans of the firms.

I add zeros to our baseline Dataset-1 with 6,322 observations using the following imputation schemes. First, I assume that all the firms in our sample exist during the whole period of 1986-2010 and choose not to import in years before or after the firm's actual existence. Therefore, I add zero observations to all the firm-countries-years not originally present in the baseline Dataset-1. This procedure produces Dataset-2 with 270,504 observations. I then change zeros into missing values for the years before the US firms in our sample imported for the first time. This procedure imputes that the firms did not exist before making their first imports and it reduces the number of observations to 186,949 in our Dataset-3. Finally, to construct Dataset-4, I also change zeros into missing values after firms imported for the last time within the period 1986-2010. This implies that the lifetime of a firm starts with its first import and ends with its last import. This step further reduces the number of observations to 105,994.

I adopt the standard gravity model for trade to test our hypotheses. In a standard model (1), the value of oil imports from country i to the US in year t, denoted by $M_{i,t}^{US}$ is inversely proportional to $D_{i,t}$, the distance between the US and the other country, and proportional to the product of the two countries' GDPs, denoted by $Y_{i,t}$ and Y_t^{US}:

(1) $M_{i,t}^{US} = e^a \times (D_{i,t})^\beta \times (Y_{i,t})^\gamma \times (Y_t^{US})^\delta \times e^{\eta_{i,t}^{US}},$

where a, β, γ and δ are unknown parameters, and $n_{i,t}^{US}$ is an error term. Provided $M_{i,t}^{US}$ is strictly positive, I can log-linearize the above equation to obtain the standard gravity equation:

(2) $\ln M_{i,t}^{US} = a + \beta \ln D_{i,t} + \gamma \ln Y_{i,t} + \ln Y_t^{US} + \eta_{i,t}^{US}$,

where instead of $D_{i,t}$ which typically measures geographic distance as well as cultural distance, I include the one year lag of political distance between the US and country i. Our coefficient of interest is β and it measures the impact of political distance on the log of the value of oil imports by US firms. Following the conventions from literature on trade, other control variables are measured in year t. In our baseline specification I control for oil reserves and population.[4] I also include year fixed effects to capture time-specific characteristics (e.g., global oil price, US GDP and political distance to the rest of the world), and oil exporter fixed effects to capture time-invariant characteristics (e.g., geographical distance and cultural distance to the US).

Given that equation (2) can only be used to estimate regressions with strictly positive no-zaro oil imports, I also use the Poisson pseudo-maximum-likelihood estimator (PPML) proposed by Santos Silva and Tenreyro (2006) to estimate equation (1), thus zero oil imports can also be included in the analysis. While the PPML estimates are consistent even in the presence of heteroscedasticity, if certain oil imports are incorrectly reported as zeros, the PPML estimates may be biased. Thus, I report both OLS and PPML estimates.

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[4] As a robustness check I also tried to control for oil production instead of oil reserves.

3.1. Political distance and US oil imports: panel analysis with fixed effects

Table 2 presents our basic results. In the first two columns I report the estimates of simple fixed effects OLS regressions, where the dependent variable is the logarithm of oil imports by US firms in our sample. In column (1) the regressions include exporter's fixed effects and in column (2) year fixed effects are included as well. When both fixed effects are included the estimate of the political distance coefficient becomes marginally significant and has a negative sign, i.e. greater political distance between the US and oil-exporting countries leads to US firms importing significantly less oil.

The rest of Table 2 includes regressions estimated with the Poisson pseudo-maximum-likelihood (PPML) estimator. The level of oil imports is the dependent variable in PPML regressions which allows the inclusion of zero values in the estimation. I prefer the PPML specification and employ it to run our baseline regression using the datasets that I constructed. The negative and statistically significant coefficient for political distance in all of the PPML regressions shows that political distance has a negative effect on oil imports.

I also test whether the results of Table 2 are robust to the oil production control variable included instead of oil reserves. In the specifications with oil production (not reported in this paper) the negative coefficient for the political distance also prevails, but the coefficient is often insignificant, or it has lower levels of significance on several occasions. This also affects the estimates of GDP and population variables, causing them to become insignificant. I explain this result by endogeneity of the oil production variable.

3.2. Large firms drive the results

In Table 3 and Table 4 I present the results for the subsamples of large firms to test the hypothesis that mainly large, vertically integrated US oil firms react to changes in political relationships between the United States and oil exporting countries.[5] In Table 3 the firm is large if its average annual oil imports are greater than the average annual imports for the whole sample. In Table 4 the firm is large if its total imports are bigger than the average total imports for the whole sample. While the two dummy variables often coincide, if a firm imports a large quantity of oil but only for a couple of years within the overall period, these two dummy variables may serve to put this firm into different categories, i.e. large versus small firms.

As both tables show larger than average firms in our sample appear to drive the baseline results. The estimate of the coefficient for political distance is negative and significant and also greater in magnitude. The regressions for the subsample of small firms defined by using both approaches (the results are not reported) result in insignificant estimates for the political distance coefficient.

3.3. Analysis of Different Subsamples

Table 5 reports the results specifically for the cold-war period. As expected, the effect of political distance on oil imports is more pronounced than that for the period 1986-2010. The coefficient for political distance is negative, significant and larger in

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[5] I am collecting information on overseas investments by the US firms in our sample to directly test the hypothesis that the hold-up problem and the risk of expropriation influence import behavior of the US large, vertically integrated oil-importing firms.

magnitude, thus suggesting that US oil-firms diversified their sources of oil supply away from the political opponents of the US more actively during the cold-war period. The same pattern re-appears for the period after the terrorist attacks of 9/11 as shown in Table 6 where I can observe that the negative coefficients for political distance tend to be larger and more significant.

Another way I restrict our sample is by retaining only the countries that have a history of oil nationalizations. I take the list of such countries from Guriev et al. (2011). Mityakov et al. (2012) show that the effect of political distance on US oil imports is higher for the subsample defined as in Guriev (2011). Table 7 reports our results for the subsample of countries with a history of oil nationalizations. While the coefficients on political distance are similar in magnitude and significance levels to those of the overall sample, the regressions for the rest of the subsample of countries that did not nationalize (the results are not reported) tend to produce insignificant coefficients on political distance.

4. Conclusion

I confirm the finding of Mityakov et al (2011, 2012) that US firms imports significantly less oil from the political opponents of the United States. In our preferred Poisson pseudo-maximum likelihood (PPML) specification with fixed effects and controlling for oil reserves I find that a one standard deviation reduction in political distance increases US oil imports by more than 13 percent. I also find that the negative

effect of political distance on oil imports by US firms is more pronounced for the cold-war period and the post 9/11 terrorist attack period, suggesting that US oil-firms diversified their sources of oil supply away from the political opponents of the US most openly during these two periods.

Moreover, it appears that the negative effect of political distance on oil imports by US firms is more pronounced for the subsample of large oil-importing firms compared to that for the overall sample. Assuming that large US oil firms[6] are more likely to have overseas investments in oil exploration than small US oil firms, large firms tend to be more sensitive to the hold-up and expropriation risks imposed by foreign governments. Such risks likely rise when the political relationship between the US and oil exporting countries worsens, thus leading to lower oil imports to the US. While data on FDI matched to the US firms in our sample would help to quantify the economic costs of oil dependence, the findings of this study contribute to the growing literature that identifies the influence of international politics on trade patterns.

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[6] Large firms are identified by either annual quantity of oil imports or, as an alternative, by total quantity of oil they have imported.

Table 1.: Descriptive Statistics

Variable	Mean	Standard Deviation	Min	Max
Dataset 1: 59 countries (6322 observations, 1986-2008)				
US Oil Imports	8294.305	18030.72	0	197479
Political distance (UNGA voting)	.776	.114	.42	.956
Log exporter's oil reserves	2.452	1.974	-5.006	5.587
Log exporter's production	6.886	1.364	0	9.164
Log exporter's GDP	8.539	1.056	5.226	11.370
Log exporter's population	9.880	1.532	5.415	14.091

Table 2.: Distances and US Oil Imports: Different imputation schemes

Dependent variable	FE-OLS $\ln M^{US}_{i,t}$ (1)	FE-OLS $\ln M^{US}_{i,t}$ (2)	FE-PPML $M^{US}_{i,t}$ (3)	FE-PPML $M^{US}_{i,t}$ (4)	FE-PPML $M^{US}_{i,t}$ (5)	FE-PPML $M^{US}_{i,t}$ (6)	FE-PPML $M^{US}_{i,t}$ (7)	FE-PPML $M^{US}_{i,t}$ (8)	FE-PPML $M^{US}_{i,t}$ (9)	FE-PPML $M^{US}_{i,t}$ (10)
	Dataset-1				Dataset-2		Dataset-3		Dataset-4	
Political distance (UNGA voting)	0.020	-1.015	-1.072	-1.053	-1.262	-1.174	-1.335	-1.174	-1.006	-1.174
	(0.02)	(-1.61)	(-1.93)	(-1.42)	(-2.26)	(-2.02)	(-2.40)	(-2.02)	(-1.76)	(-2.02)
Log exporter's oil reserves	0.281	0.001	-0.030	-0.025	0.036	0.048	0.052	0.048	0.041	0.048
	(6.13)	(0.02)	(-0.95)	(-1.39)	(1.51)	(1.46)	(1.95)	(1.46)	(1.56)	(1.46)
Log exporter's GDP	-0.031	0.185	0.381	-0.126	0.287	0.158	0.115	0.158	0.353	0.158
	(-0.22)	(1.44)	(3.36)	(-0.79)	(2.46)	(0.97)	(0.96)	(0.97)	(2.86)	(0.97)
Log exporter's population	0.034	0.046	0.626	-0.450	0.887	0.029	-0.522	0.029	0.626	0.029
	(0.37)	(0.11)	(1.93)	(-0.87)	(1.74)	(0.04)	(-1.28)	(0.04)	(1.20)	(0.04)
Year fixed effects	yes	yes	no	yes	no	yes	no	yes	no	yes
Exporter fixed effects	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	6,047	6,047	6,058	6,058	183,768	183,768	127,312	127,312	72,010	72,010
Countries	59	59	54	54	59	59	59	59	59	59
R^2	0.118	0.256								

Note: Robust t-values (or z-values for FE-PPML regressions), calculated with standard errors clustered by country are in parentheses. Political distance is included in the regressions with a one-year lag. Dataset-1 refers to the original constructed dataset without additional modifications. Dataset-2 refers to the dataset where zero values are imputed for all firms-countries-years from Dataset-1. Dataset-3 is a further transformation of Dataset-2, where missing values are included instead of zeros for the periods before a firm imported for the first time. Dataset-4 is a transformation of Dataset-3, where missing values are also included instead of zeros for the periods after the firm imported for the last time. As a robustness check all regressions in this table and the other tables were repeated with the log (exporter's oil production) in place of log (exporter's oil reserves). While negative coefficient for the political distance variable remains in most of the regressions, the coefficient is often insignificant, or has lower significance levels in several regressions. I prefer the specification with log (exporter's oil reserves) because it is less likely to be subject to the endogeneity problem.

Table 3.: Distances and US Oil Imports: Large firms as measured by average annual imports

Dependent variable	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$
	Dataset-1		Dataset-2		Dataset-3		Dataset-4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political distance (UNGA voting)	-1.171	-1.959	-1.429	-1.463	-1.513	-1.004	-0.818	-0.955
	(-2.25)	(-3.10)	(-2.51)	(-2.68)	(-2.72)	(-1.69)	(-1.45)	(-1.47)
Log exporter's oil reserves	-0.026	-0.008	0.019	0.029	0.032	0.029	0.023	0.043
	(-0.68)	(-0.40)	(0.92)	(1.03)	(1.18)	(0.83)	(0.89)	(1.23)
Log exporter's GDP	0.366	-0.195	0.309	0.149	0.216	0.090	0.412	0.078
	(2.35)	(-1.35)	(2.86)	(0.89)	(1.99)	(0.49)	(3.20)	(0.41)
Log exporter's population	0.687	-0.147	0.940	-0.009	0.553	-0.049	1.402	-0.012
	(1.53)	(-0.21)	(1.68)	(-0.01)	(1.03)	(-0.06)	(2.08)	(-0.01)
Year fixed effects	no	yes	no	yes	no	yes	no	yes
Exporter fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Observations	3,452	3,452	34,162	34,162	27,399	27,399	21,008	21,008
Countries	51	51	59	59	58	58	58	58

Note: Robust t-values (or z-values for FE-PPML regressions), calculated with standard errors clustered by country are in parentheses. Political distance is included in the regressions with a one-year lag. Dataset-1 refers to the original constructed dataset without additional modifications. Dataset-2 refers to the dataset where zero values are imputed for all firms-countries-years from Dataset-1. Dataset-3 is a further transformation of Dataset-2, where missing values are included instead of zeros for the periods before a firm imported for the first time. Dataset-4 is a transformation of Dataset-3, where missing values are also included instead of zeros for the periods after the firm imported for the last time.

Table 4.: Distances and US Oil Imports: Large firms as measured by total imports

Dependent variable	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$
	Dataset-1		Dataset-2		Dataset-3		Dataset-4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political distance (UNGA voting)	-1.032	-1.485	-1.429	-1.463	-1.526	-1.463	-0.710	-1.463
	(-1.54)	(-2.09)	(-2.51)	(-2.68)	(-2.70)	(-2.68)	(-1.27)	(-2.68)
Log exporter's oil reserves	-0.45	-0.02	0.019	0.029	0.025	0.029	0.002	0.029
	(-0.83)	(-0.61)	(0.92)	(1.03)	(1.16)	(1.03)	(0.10)	(1.03)
Log exporter's GDP	0.354	-0.165	0.309	0.149	0.274	0.149	0.469	0.149
	(1.99)	(-0.92)	(2.86)	(0.89)	(2.60)	(0.89)	(3.83)	(0.89)
Log exporter's population	0.896	-0.207	0.940	-0.009	0.499	-0.009	1.296	-0.009
	(2.07)	(-0.24)	(1.68)	(-0.01)	(0.96)	(-0.01)	(1.98)	(-0.01)
Year fixed effects	no	yes	no	yes	no	yes	no	yes
Exporter fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Observations	2,648	2,648	34,162	34,162	31,343	31,343	26,756	26,756
Countries	50	50	59	59	59	59	59	59

Note: Robust t-values (or z-values for FE-PPML regressions), calculated with standard errors clustered by country are in parentheses. Political distance is included in the regressions with a one-year lag. Dataset-1 refers to the original constructed dataset without additional modifications. Dataset-2 refers to the dataset where zero values are imputed for all firms-countries-years from Dataset-1. Dataset-3 is a further transformation of Dataset-2, where missing values are included instead of zeros for the periods before a firm imported for the first time. Dataset-4 is a transformation of Dataset-3, where missing values are also included instead of zeros for the periods after the firm imported for the last time.

Table 5.: Distances and US Oil Imports: Cold-war period (1986-1989)

Dependent variable	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$
	Dataset-1		Dataset-2		Dataset-3		Dataset-4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political distance (UNGA voting)	-4.608	-4.681	-5.298	-5.478	-6.152	-5.478	-5.322	-5.478
	(-1.96)	(-2.04)	(-4.92)	(-3.03)	(-1.45)	(-3.03)	(-2.08)	(-3.01)
Log exporter's oil reserves	-0.059	-0.043	-0.043	-0.037	-0.067	-0.037	-0.030	-0.037
	(-0.37)	(-0.27)	(-0.62)	(-0.36)	(-0.24)	(-0.36)	(-0.44)	(-0.33)
Log exporter's GDP	0.713	0.657	0.829	0.774	0.718	0.774	0.788	0.774
	(2.54)	(2.36)	(6.70)	(6.51)	(2.41)	(6.51)	(6.11)	(6.51)
Log exporter's population	5.941	5.354	9.331	8.814	7.952	8.814	9.021	8.814
	(2.67)	(1.84)	(6.74)	(2.19)	(1.76)	(2.16)	(3.66)	(2.16)
Year fixed effects	no	Yes	no	yes	no	yes	no	yes
Exporter fixed effects	yes	Yes	yes	yes	yes	yes	yes	yes
Observations	825	825	16,536	16,536	7,496	7,496	6,220	6,220
Countries	34	34	36	36	36	36	36	36

Note: Robust t-values (or z-values for FE-PPML regressions), calculated with standard errors clustered by country are in parentheses. Political distance is included in the regressions with a one-year lag. Dataset-1 refers to the original constructed dataset without additional modifications. Dataset-2 refers to the dataset where zero values are imputed for all firms-countries-years from Dataset-1. Dataset-3 is a further transformation of Dataset-2, where missing values are included instead of zeros for the periods before a firm imported for the first time. Dataset-4 is a transformation of Dataset-3, where missing values are also included instead of zeros for the periods after the firm imported for the last time.

Table 6.: Distances and US Oil Imports: Post 9/11 period (2001-2008)

Dependent variable	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$
	Dataset-1		Dataset-2		Dataset-3		Dataset-4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political distance (UNGA voting)	-2.223	-0.045	-1.983	0.083	-2.011	0.083	-1.328	0.083
	(-2.64)	(-0.06)	(-2.31)	(0.09)	(-2.39)	(0.09)	(-1.51)	(0.09)
Log exporter's oil reserves	-1.132	-0.001	1.171	0.230	0.193	0.230	0.118	0.230
	(-1.18)	(-0.02)	(1.27)	(1.73)	(1.44)	(1.73)	(0.90)	(1.73)
Log exporter's GDP	0.475	-0.182	0.464	0.034	0.376	0.034	0.393	0.034
	(2.35)	(-1.03)	(1.90)	(0.15)	(1.56)	(0.15)	(1.60)	(0.15)
Log exporter's population	3.201	-0.192	-0.226	-1.055	-0.891	-1.055	1.576	-1.055
	(2.46)	(-0.07)	(-0.13)	(-0.36)	(-0.52)	(-0.36)	(0.94)	(-0.36)
Year fixed effects	no	yes	no	yes	no	yes	no	yes
Exporter fixed effects	yes	yes	yes	yes	yes	yes	yes	yes
Observations	2,365	2,365	59,748	59,748	53,016	53,016	23,868	23,868
Countries	48	48	50	50	50	50	50	50

Note: Robust t-values (or z-values for FE-PPML regressions), calculated with standard errors clustered by country are in parentheses. Political distance is included in the regressions with a one-year lag. Dataset-1 refers to the original constructed dataset without additional modifications. Dataset-2 refers to the dataset where zero values are imputed for all firms-countries-years from Dataset-1. Dataset-3 is a further transformation of Dataset-2, where missing values are included instead of zeros for the periods before a firm imported for the first time. Dataset-4 is a transformation of Dataset-3, where missing values are also included instead of zeros for the periods after the firm imported for the last time.

Table 7.: Distances and US Oil Imports: Oil nationalization subsample

Dependent variable	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$	FE-PPML $M_{i,t}^{US}$
	Dataset-1		Dataset-2		Dataset-3		Dataset-4	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political distance (UNGA voting)	-0.735	-0.659	-0.873	-1.029	-1.063	-1.029	-0.636	-1.029
	(-1.16)	(-0.95)	(-1.36)	(-1.69)	(-1.61)	(-1.69)	(-0.95)	(-1.69)
Log exporter's oil reserves	-0.003	-0.017	0.055	0.055	0.053	0.55	0.060	0.055
	(-0.13)	(-0.78)	(1.97)	(1.19)	(1.66)	(1.19)	(1,93)	(1.19)
Log exporter's GDP	0.332	-0.118	0.198	-0.012	0.059	-0.012	0.272	-0.012
	(3.12)	(-0.65)	(1.75)	(-0.07)	(0.53)	(-0.07)	(2.20)	(-0.07)
Log exporter's population	0.552	-0.336	0.919	-0.162	-0.454	-0.162	0.653	-0.162
	(1.80)	(-0.51)	(1.85)	(-0.18)	(-1.16)	(-0.18)	(1.28)	(-0.18)
Year fixed effects	no	Yes	no	Yes	No	Yes	No	Yes
Exporter fixed effects	yes	Yes	yes	Yes	Yes	Yes	Yes	Yes
Observations	4439	4439	92664	92664	63608	63608	36267	36267
Countries	27	27	28	28	28	28	28	28

Note: Robust t-values (or z-values for FE-PPML regressions), calculated with standard errors clustered by country are in parentheses. Political distance is included in the regressions with a one-year lag. Dataset-1 refers to the original constructed dataset without additional modifications. Dataset-2 refers to the dataset where zero values are imputed for all firms-countries-years from Dataset-1. Dataset-3 is a further transformation of Dataset-2, where missing values are included instead of zeros for the periods before a firm imported for the first time. Dataset-4 is a transformation of Dataset-3, where missing values are also included instead of zeros for the periods after the firm imported for the last time.

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Appendix A: Details on the essay "Political limits on the World Oil Trade: Firm-level Evidence from US firms"

A. 1. Sample of oil exporting countries (59 countries)

Algeria, Angola, Azerbaijan, Argentina, Australia, Bolivia, Brazil, Belize, Brunei, Belarus, Cameroon, Chad, Chile, China, Colombia, Congo (Republic of), Congo (Dem. Rep.), Benin, Denmark, Ecuador, Equatorial Guinea, Gabon, Georgia, Guatemala, India, Indonesia, Iran, Iraq, Cote d`Ivoire, Kazakhstan, Kuwait, Kyrgyzstan, Libya, Malaysia, Mauritania, Mexico, Oman, Netherlands, New Zealand, Nigeria, Norway, Papua New Guinea, Peru, Philippines, Qatar, Russia, Saudi Arabia, Vietnam, South Africa, Spain, Syria, Thailand, Trinidad &Tobago, United Arab Emirates, Tunisia, Turkey, Egypt, Venezuela, Yemen.