

## **International Politics and Oil Trade: Evidence from Russian Firms**

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### **Abstract**

It is widely argued that oil exporters could use their natural resources as a weapon to punish adversaries and reward allies. Yet empirical analysis of these claims has been elusive due to lack of data. Using a novel dataset on Russian companies' oil exports over 1999–2011, we show that a decline in relations between Russia and another country, measured by divergence in their United Nations General Assembly (UNGA) voting patterns, considerably reduces the value of Russian oil exports to that country. The effect is more pronounced for state-owned companies. A deterioration in political relations and associated decrease in oil exports are costly for Russian companies. They experience a decline in profitability following a breakdown in political relations between Russia and those companies' main export destination countries. Finally, we show that a deterioration in political relations with Russia is costly for the countries importing oil from Russia as their total oil imports decline, suggesting that, at least in the short run, it is costly for these countries to find close substitute for Russian oil. Notably, such adverse effect of political relations on oil importers is pretty recent phenomenon observed over 2000–2011, which coincide with the rise of Vladimir Putin to power, such patterns are absent in the earlier 1992–1999 period.

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## 1. Introduction

It is widely accepted that free trade increases prosperity of the countries involved. Free trade improves the efficiency of global allocation of resources and allows people to buy more and better quality goods at lower prices. International political relations could foster or become an impediment to free trade that distorts the trade flows and limits the gains from trade. Yet empirical investigation of the impact of politics on international trade and costs involved has been limited for lack of data.<sup>2</sup>

This paper examines how international politics affects exports of crude oil and analyzes the economic costs imposed on trading partners for the case of one of the largest oil exporters: Russia. Crude oil is the most traded commodity in the world by value. It is one of the primary sources of energy used to power global economy and as such it is considered a strategic commodity that is closely related to international politics. Since Saudi Arabia imposed an embargo on oil exports to Britain and France during the Suez Crisis, it has been widely believed that oil can be used as a political weapon. Presently there are numerous stories in the news suggesting that Russia uses its natural resources, such as oil and natural gas, as weapons to punish political adversaries and reward loyal allies.

To analyze these questions, we use the gravity model and several novel datasets from Russia that have not been explored by the researchers before. In particular, we consider a unique firm-level dataset derived from the universe of customs declarations submitted to the Russian Customs Service. This dataset contains information about all crude oil shipments by individual exporters to different countries over the years 2000-2011, which allows us to analyze the firm-level heterogeneity in the impact of political relations on oil exports. We supplement our trade data with a political distance measure based on Gartzke (2010) affinity index, which shows the similarity of country votes in the United Nations General Assembly (UN GA), to measure the political relation between Russian and other countries.

We have four main results. First, as political relations between Russia and some foreign country worsen, the value of Russian oil exports to that country considerably decreases. The effect is not only statistically significant, but also large in economic sense: for a one standard deviation increase in political distance exports decline by 37 percent. Second, oil importing countries have

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<sup>2</sup> See Michaels and Zhi (2010) for a notable exception.

trouble compensating for the decline in Russian oil exports following a decline in political relations, at least in the short-run. Third, the use of “oil weapon” is costly to Russian firms as well: total value of sales and their profitability decline. We also present evidence that our estimates are likely to have a causal interpretation, at least in the Granger sense. Moreover, the effect is stronger for state-owned companies further supporting the interpretation that decline in political relations cause a decline in exports and firm performance. Finally, the adverse effect of political relations between Russia and other countries on oil exports is pretty recent phenomenon observed over 2000-2011, which coincide with the rise of President Putin to power, such patterns are absent in the earlier 1992-1999 period.

This paper contributes to several strands of literature. First, it contributes to the growing literature that explores the effects of international politics on trade. An early contribution by Summary (1989) documents several political factors, such as transfer of arms and the number of foreign agents registered in the United States, which affect bilateral trade flows between the United States and other countries. Blomberg and Hess (2006) show that political violence (e.g. interstate war) has a negative effect on trade. More recently, Michaels and Zhi (2010) find that the deterioration of relations between the United States and France from 2002-2003 significantly reduced bilateral trade, because private firms did not always choose the cheapest suitable inputs. Unlike previous literature, our firm-level dataset allows exploring heterogeneity in the political distance impact on international trade by firm type further supporting the causal interpretation of the estimated effects. Furthermore, our data allow us to estimate the costs of the negative effects of a decline in political relations at the level of individual company.

Second, this paper contributes to the literature on international trade in natural resources. Namely, it challenges a popular view among the economists that crude oil is fungible and oil market is “one great pool” (Nordhaus, 2009) where oil moves to the nearest market to minimize transportation cost, and cost minimization prevents the market from distinguishing sources from friendly and hostile regimes. Our results indicate that political relations do have sizeable effects on economic performance of oil exporting companies and oil importing countries. We find that oil importing countries and, even more so, Russian oil exporters have trouble compensating for the decline in their trade relations following a breakdown in political relations.

This paper proceeds as follows: Section 2 discusses the importance of Russian oil industry Section 3 describes the data. Section 4 presents our empirical framework. Section 5 documents our

results, Section 6 provides the robustness analysis, and Section 7 concludes.

## 2. Background Information

Crude oil trade is quite often involved in international politics. This was clearly illustrated on numerous occasions since Saudi Arabia imposed embargo on oil exports to UK and France during the Suez Crisis in 1956. Oil trade and international politics were intertwined during Arab oil embargo in 1973, Iran-Iraq War in 1980, and the two Gulf Wars in 1990 and 2003. More recently in 2000s Russia was on a news for the alleged use of its energy weapon against European countries, Belarus, and Ukraine.

Oil is one of the major sources of energy, we rely on it in almost all aspects of our life: in transportation, electricity generation, industrial production, etc. While other fossil fuels can be used in electricity generation, oil and its products cannot be easily substituted in transportation and industrial production. In 2000 demand for oil amounted to around 75 million barrels per day. International Energy Agency (IEA) predicts that this figure would double by 2030.

Oil exports were important part of the late Soviet economy. Since the 1973 Arab oil embargo and the associated increase in the price of oil, Soviet Union heavily relied on oil exports as a means of balancing its budget and the source of funds to pay for Western technology and consumer products.

After the collapse of Soviet Union in 1991 its successor Russia continued to rely (and according to some estimates even increased its dependence on) oil exports as the source of government revenues. Production and exports of oil by Russia increased considerably since 1990s up to the point that in late 2000s Russia became world largest producer and exporter of oil. Russia is not a member of OPEC, as such it often tries to position itself to its Western trading partners as a viable alternative to middle eastern producers (though in recent years it was seen coordinating its efforts with OPEC). According to U.S. Energy Information Administration Russia was producing around 9-10 million bbl/day over 2000-2011. Russian economy continues to be heavily reliant of exports of fossil fuels as exports of crude oil and natural gas constitute more than 40% of state budget revenue.

Most of Russian oil exports (more than 70%) go to Europe, in particular to Germany, Netherlands, Belarus and Poland. At the same time many European countries are heavily dependent on Russian oil as well. In 2015 Russia accounts for almost 30% of crude oil imports

into the European Union, with some countries like Slovakia, Latvia and Lithuania importing 90% of oil from Russia (Eurostat).

Russia produces oil of several different grades, the main export grade being the Urals blend, which is a mix of heavy-sour crude from Urals-Volga region and light sweet crudes from West Siberia. The quality of the mixture could vary slightly but Urals blend is generally a medium (about 31°) gravity sour (about 1.4% sulfur content) crude oil blend. The Urals blend trades at a discount for Northern Sea Brent grade, as it is a heavier crude that makes it costlier to produce gasoline from. As oil refining process is highly specialized to the type of oil used, it makes Urals blend rather difficult to substitute from in the short-run by the imports of other crudes. Thus, oil trade between Russia and European countries represent a strong bilateral dependence relationship potentially making any disruption in trade particularly costly for the parties involved.

The case of Russia is of interest also because there is considerable variation in political relations between Russia and its trading partners in recent years. For example, our sample covers both the pre-Putin and Putin periods. It also covers both the Georgia's Rose Revolution in 2003 and the Ukraine's Orange Revolution in 2004. In addition, unlike in other major oil exporting countries like Saudi Arabia where oil exporters are owned by the state, there is considerable variation in ownership of Russian oil exporters, both in cross section and over time of our sample period. At the end of our sample period (2008-2011) the largest Russian oil exporting company is state-owned Rosneft, but other major oil exporters include privately-owned Lukoil, Tatneft, who are not far behind in terms of production and exporting volume. At the beginning of our sample period (in early 2000s) we have even more diversity in ownership of oil exporters: there are very large privately owned companies like UKOS, and even some joint ventures with foreigners like TNK-BP.

To sum up, Russia is one of the largest oil producers who exports to many different markets with considerable variation in both political relations and dependence on Russian oil. Given all these the case of Russia provides an ideal environment to evaluate the relationship between international politics and fuel exports.

### 3. Data Description and Summary Statistics

In our paper we combine several novel datasets to analyze the impact of political relations on oil exports from Russia.

### 3.1. Oil exports to different countries.

In our analysis we use dataset of company level oil exports to different countries which comes from the whole universe of export/import transactions conducted in Russia over the years 1999-2011. Those entries are constructed from individual customs forms submitted to the Russian Customs Services every time any good crosses the border legally. These datasets are available for purchase from several online vendors in Russia: see e.g. [www.russbd.com](http://www.russbd.com). Aggregated versions of these statistics are available from Russian Customs Service as well.

This dataset was leaked from the Federal Customs Service of Russia. Similarly obtained datasets have already been used in prior research on Russian economy.<sup>3</sup> Russian government does not publicly admit that the data were ever leaked, but it is willing to support and use research done on the basis of such data in the design of its policy. Some government officials even called for providing a legal title to the use of such leaked **data (footnote here)**.

This dataset contains the following information about each export/import transaction: description of the shipment (type, value, and weight of the goods), sending/receiving domestic company identifying information (company name, address, taxpayer identification number), foreign counterpart to the transaction (name of the foreign company and its address in the foreign country).

For the purposes of our analysis we focus on the transactions related to the exports of oil. The data classify goods according to Harmonized System Nomenclature 2007 employed by the World Customs Organization. We extract all entries pertaining to the following categories: 2709 “Petroleum Oils and Oils Obtained from Bituminous Minerals (Crude)”. We use domestic company taxpayer identification number to identify individual exporters in our dataset. We then sum all (values and weights of) exports of oil to a particular country by a given Russian exporter within each year from 1999-2011.

### 3.2. Political distance measure.

We supplement our company by country annual export data with a measure of political distance between Russia and other countries. This measure is based on the Affinity of Nations Index (Gartzke, 2010). The Affinity of Nations index provides a metric that reflects the similarity of state preferences based on voting positions of country pairs in the United Nations General

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<sup>3</sup> See e.g. Mironov 2014, 2013, Braguinsky, Mityakov (2015)

Assembly since 1946. To interpret this measure as a political distance (to better fit it into international trade gravity equation framework) we construct a Political Distance measure which lies between 0 and 1, calculated as  $d/d_{\max}$ , where  $d$  is the sum of metric distances between votes by a country-pair in a given year and  $d_{\max}$  is the largest possible metric distance for those votes.<sup>4</sup> For instance, when two countries always cast the same vote for any proposal, their Political Distance is 0. Alesina and Dollar (2000) argue that UN votes are a reliable indication of the political alliances between countries, as the pattern of the votes is strongly correlated with alliances and similarity of economic and geopolitical interests. Following Dreher and Sturm (2012) and the majority of the literature, we focus on all votes (that is, both key and nonkey votes).

To get a better idea about political measure variable, Figure 1 plots the political distance between Russia and Belarus, and Russian and France over years. Political distance with Belarus varies from 0.06 to 0.14, where is the political distance with France varies from 0.02 to about 0.35 suggesting that the political relation between Russia and Belarus is much better than between Russia and France. Political relation between Russia and France has worsened during our study period, while political relation with Belarus on average stays the same, even though there is a considerable variation over time.

### 3.3. Oil exporting companies' performance and profitability data

In our analysis of political relations effects on Russian exporters' performance and profitability we use data from SPARK INTERFAX database (<http://www.spark-interfax.ru>). This dataset contains company financial statements for 1998-present and is available for all companies registered in Russia. From this dataset we select the value of total sales and return on assets (ROA) of all companies present in our oil exporters dataset over 1999-2011. We also use this dataset to assign ownership information to oil exporting companies.

### 3.4. Country level oil imports.

Finally, in our analysis of the effect of political relations on oil importing countries we use country level oil import data from UN-COMTRADE database (<http://comtrade.un.org>) and the National Bureau of Economic Research–United Nations (NBER-UN) world trade data compiled by

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<sup>4</sup> Votes are coded as either 1 (“yes” or approval for an issue), 2 (abstain), or 3 (“no” or disapproval for an issue).

Feenstra et al. (2005). We use this data set to construct total imports and other trade aggregates, according to Leamer (1984), Nunn (2007), and Fernandes and Tang (2012).

This dataset contains bilateral annual trade statistics from 1962-present at annual frequencies. To analyze the relationship between political distance from Russia and oil imports of a given country we select from this dataset information pertaining to trading in energy sources (oil and natural gas) for 1992-2011. Unlike in the company level export data which are available only starting from 1999, this dataset is available for longer time horizon. To explore potential time heterogeneity effects in the impact of political relations on trade in energy we start at 1992 since this a first year for which data for Russia are available. In our analysis we use information about individual country imports of oil from Russia, as well as country total oil and natural gas imports in a given year.

### 3.5 Summary statistics.

Table 1 contains summary statistics for all variables used in our analysis. Namely, Table 1 Panel A. presents summary statistics for exports for all companies, private and state-owned companies. The average annual value of oil export is 8.52 million rubles, and the average weight is 24.58. the State-owned companies have higher values and weights of oil exports than privately owned firms, 29.94 and 70.82 for state-owned vs 7.67 and 25.28 for private companies. However, the average political distance is about the same across different groups, -0.225 with a standard deviation of 0.10, suggesting that state and private companies are selling to the same countries.

Panel B. in Table 1 shows the firms characteristics from SPARK INTERFAX Database and company specific political distance. Average return on assets (ROA) in 16.7%, with state-owned firms having lower ROA (13.36%) than private firms (17.28%). Log sales are on average 13.69 on average, with state owned firms have a higher value of sales 15.06, and state company log of sales is 13.71.

## 4. Empirical Framework

We start by analyzing the connection between political relations and oil exports from Russia. In our analysis we use both value of oil shipments as well as weight. We correlate company level annual exports into a given country with a political distance measure using the



standard model in international trade: the gravity equation, which has had great empirical success in explaining bilateral trade flows.<sup>5</sup>

In its simplest form, the gravity equation links trade flows between countries to distance between them and their (economic and/or demographic) sizes. Distance in this model can be understood quite generally. It includes not only geographical distance but also could account for other factors that reduce trade. In our paper we focus on political relations as an impediment to trade. In its multiplicative constant-elasticity form, the gravity equation for trade states that oil exports of firm  $i$  from Russia to country  $j$  at year  $t$ , denoted by  $E_{ijt}$  is inversely proportional to their distance  $PD_{jt}$  (which typically includes all factors that might create trade resistance), and proportional to the product of the two countries' GDPs, denoted by  $Y_{jt}$  and  $Y_t^{Russia}$ :

$$E_{ijt} = e^\alpha \times (D_{jt})^\beta \times (Y_{jt})^\gamma \times (Y_t^{Russia})^\delta \times e^{\eta_{ijt}} , \quad (1)$$

where  $\alpha$ ,  $\beta$ ,  $\gamma$ , and  $\delta$  are unknown parameters, and  $\eta_{ijt}$  is an error term.

Provided trade flows  $E_{ijt}$  are strictly positive, one can log-linearize the equation above to obtain the standard representation of the gravity equation:

$$\ln E_{ijt} = \alpha + \beta \ln D_{jt} + \gamma \ln Y_{jt} + \eta_{ijt} . \quad (2)$$

Our point of departure from the traditional gravity model is the focus on international politics, and hence  $\ln D_{jt}$  represents the one-year lag of political distance between Russia and country  $j$  at year  $t$ :  $PD_{j,t-1}$ . The coefficient of interest is  $\beta$ , the estimated impact of Russian foreign relations on the log of oil exports from firm  $i$  to country  $j$ . Namely we consider the following empirical specification:

$$\ln E_{ijt} = \alpha + \beta PD_{j,t-1} + \gamma \ln Y_{jt} + \phi_j + f_t + g_i + \eta_{ijt} . \quad (3)$$

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<sup>5</sup> Started in the 1960s as a purely empirical proposition to explain bilateral trade flows, the gravity equation had little or no theoretical underpinnings. During the 1970s, a series of articles were published to provide theoretical foundations of the gravity equation. See Anderson (2011) for discussion. Recently, the literature provides different micro theoretical foundations underlying gravity equations, see Melitz (2003), Eaton and Kortum (2002), Anderson and Van Wincoop (2003), Bernard, Eaton, Jensen, and Kortum (2003), Chaney (2008), and Eaton, Kortum, and Kramarz (2011), Arnaud Costinot and Andrés Rodríguez-Clare (2015).

In our specification, we also control for country fixed effects  $\phi_j$ , year fixed effects  $f_t$ , and firm fixed effects  $g_i$ . Controlling for firm fixed effects allows us to take into consideration unobserved heterogeneity across firms that is potentially correlated with their export decision. In other words, by exploiting within-firm variation in fuel exports, our study provides the empirical analysis to understand how individual firms change their oil exports decision in response to changes in international politics.

One consequence of the log-linearization is that zero trade observations are dropped from the sample. Dropping these observations not only results in a loss of potentially useful information, it may also introduce bias to our estimation. Following Santos Silva and Tenreyro (2006), we estimate the multiplicative form (1) using the Poisson pseudo-maximum-likelihood (PPML) estimator. The main advantages of the PPML estimator are that while it provides a natural and convenient way to deal with zero values of the dependent variable, it is also consistent in the presence of heteroskedasticity.

## 5. Results

### 5.1. Political relations and Russian Oil Exports

Table 2 contains estimation of the gravity equation specification (1) using PPML. Columns 1 and 2 of Table 2 present the results for the effect of political distance on value and weight of company oil exports. Estimated effects are not only statistically significant but also imply economic effects of sizeable magnitudes. An increase in political distance by one standard deviation (0.1) translates into a decrease in value of oil exports by around 50 percent ( $=1-\exp(-6.8*0.1)$ ), the effect for weight is similar in magnitude: 54 percent decrease for the same one standard deviation increase in political distance.

To examine the heterogeneity in responses according to the characteristics of oil-exporting firms, we divide the sample into (1) private firms, (2) state-owned firms, and (3) foreign-owned ones.<sup>6</sup> Estimation results presented in columns 3-8 of Table 2 indicate that political distance is particularly important in the case of state owned companies. Effect for private companies is much smaller. An increase in political distance by one standard deviation translates into around 40%

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<sup>6</sup> Not that many companies change ownership over the years, so ownership can be thought of a company specific characteristics which does not change over the years.

lower value of exports in case of private companies, and into around 65% decrease in the case of state-owned establishments. The pattern for oil imports in terms of weight is similar.

So far we have documented a correlation between worsening of political relations between Russia and some country and the decrease in oil exports by Russian companies into that country. Such correlations, while interesting in their own right, do not have an immediate causal interpretation, that the worsening of political relations is causing a drop in oil exports from Russia. A reverse causality argument could be made where changes in oil exports from Russia change countries political relations with Russia. Below we present some suggestive evidence that the latter interpretation is less likely to be valid. Namely, we show that political relations seem to cause oil trade in the Granger sense, while oil trade does not Granger-cause political relations. To test the Granger causality, we include leads and lags of political distance  $PD_{jt-1}$  in our main regression equation (2). Namely, we estimate the following specification:

$$\ln E_{ijt} = \alpha + \beta_1 PD_{jt-1} + \beta_2 PD_{jt-2} + \beta_3 PD_{jt-3} + \beta_{-1} PD_{jt+1} + \gamma \ln Y_{jt} + f_t + g_i + \phi_j + \eta_{ijt} . \quad (4)$$

Table 3 contains estimates of specification (4). We see that 1-2 years lags of political distance have significant and large effects on oil exports, while a one year lead is statistically insignificant and estimated coefficient implies smaller effects. Thus, we argue that causality (at least in the Granger sense) seem to go from political relation to oil trade and not the other way around.

Thus, we conclude that as a result of the worsening of political relations between Russia and some country Russian oil exporters considerably decrease their exports of oil into that country, the effect being much stronger for the state-owned companies. In the next sections we would like to investigate whether such decrease in oil exports has an impact on parties involved: Russian companies and foreign countries. First, we analyze what are the effects of worsening in political relations on performance and profitability of Russian companies. Second, we look at whether oil importing countries are able to substitute for the loss of Russian oil due to the worse political relations.

## 5.2. Political relations and Russian exporting companies' performance

Above we found that worsening of political relations negatively affect oil exports of Russian companies. In this section we would like to investigate whether such drastic changes in

exporting behavior has an impact on company performance: total exports i.e. whether the oil exporters can substitute into other markets when political relations with some countries worsen, total sales, and eventually company profitability. We measure total company exports from the trade data by aggregating all oil exports in a given year at the company level. Total sales and company return on assets (ROA) are taken from official Russian statistical service: SPARK-INTERFAX database.

Our political distance measure is country specific, different exporters might have different exposure to different foreign markets: e.g. if political relations between Russia and some country A worsen, exporters who specialize in oil exports to another country B might be not affected much, while those for whom country A is the focus export market are likely to be affected considerably.

To incorporate this reasoning in our analysis we construct a company specific political distance measure as the weighted average of political distances for all the countries this company exports oil to, with weights being proportional to the market share of a given country in total company oil exports. Namely, we define company  $i$  specific political distance to its trading destinations  $CPD_{i,t}$  as:

$$CPD_{i,t} = \sum_c PD_{c,t} f_{c,i,t-1} \quad (3)$$

where  $f_{c,i,t} = \frac{E_{i,c,t}}{\sum_j E_{i,j,t}}$  is the share of company  $i$  oil exports to country  $c$  ( $E_{i,c,t}$ ) relative to total oil exports of that company in year  $t$  ( $\sum_j E_{i,j,t}$ ). To avoid automatic correlation between shares  $f_{c,j,t}$  and company  $j$  total exports we use shares from previous year  $f_{c,i,t-1}$ .<sup>7</sup>

We then investigate the relations between changes in this weighted company specific distance its trading partners measure and company performance measures, such as total company exports (into all countries), total company sales and profitability (return on assets). Namely, we consider the following empirical specification:

$$Perf_{i,t} = f_i + f_t + \beta CPD_{i,t} + \epsilon_{j,t} \quad (4)$$

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<sup>7</sup> Alternatively we fix export shares at the level observed at the beginning of the sample period  $f_{c,i,1999}$ . The results are similar and are presented in Appendix.

As before we include company  $i$  fixed effects  $f_i$ , and time fixed effects  $f_t$ .<sup>8</sup> So, estimated coefficient  $\beta$  would show the effect of changes in political exposure measure on company performance indicator  $Perf_{i,t}$ . Table 4 contains estimation results of equation (4) by FE-OLS.

Results presented for total company exports (in Panel A) of Table 4 suggest that as political distance to company's major export markets increases its total exports considerably decline. Estimated coefficients suggest that as company specific political distance increases by one standard deviation company total exports drop by 8% ( $=-0.8*0.1$ ).<sup>9</sup> As before the effect is much stronger for state-owned establishments (40% decline in total exports), but private companies are affected as well (5% decline the total exports).

Then we investigate whether companies are able to recoup some of their losses in exports by selling on the domestic market. Results presented in Panel B of Table 4 indicate the (log) value of total sales of Russian oil exporting companies drop. However, the effect for all companies is rather small: for a one standard deviation increase in company specific political distance measure (by 0.1) company total sales drop by 1.3 percent ( $=-0.13*0.1$ ).

This coefficient, however, masks important differences between private and state-owned companies. Estimates presented in columns 2 and 3 of Panel B Table 4 suggest that domestic private companies seem to increase their total sales slightly after an increase in political distance to the company's major export destinations. Given that at the same time total exports decrease, these results suggest that when political relations worsen private companies start to sell more of their products internally, on the domestic market. At the same time for state-owned establishments we find that the value of their total sales (even including sales on the domestic market) decline when political relations deteriorate. In this case for a one standard deviation increase in political distance total sales of state-owned companies drop by 3%. The effects are not precisely estimated, however.

Finally, in Panel C of Table 4 we look at the eventual effect of such changes in exports and sales on overall profitability of Russian oil exporters. We find that following a worsening of political relations between Russia and particular company major export destinations, company's

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<sup>8</sup> Including company fixed effects allows to account for company specific heterogeneity. In Russian context it also allows to account for company specific underreporting of profits and sales to the extent that those might be constant characteristic of a given company.

<sup>9</sup> We use OLS estimation here since company total exports conditionally on a company being an oil exporter are positive most of the time.

return on assets (ROA) falls down considerably for both private and state-owned establishments. The effects are not only statistically significant but the implied effects are large in economic sense. For a one standard deviation increase in company specific political distance measure (by 0.1) ROA falls by 1.6 percentage points for state owned and 1 percentage point for private oil exporters.

It is worth noting that profitability of privately owned oil companies falls down even though the value of their total sales slightly increase. This is not very surprising, given that, as we argued above, such an increase in values of sales is coming from domestic market, which is less profitable for companies than foreign markets.

Overall, we conclude that deterioration of political relations between Russian and its major oil exports destinations have a considerable detrimental effect on overall profitability of Russian oil exporters, the effect being stronger for state-owned oil exporting companies. While privately owned exporters seem to be able to avoid some of those costs by expanding their sales in the domestic market, their profitability falls down also.

### 5.3. Country level results

Above we documented the adverse effects of deterioration of political relations on oil exports and performance of Russia oil exporters. In this section we would like to investigate whether oil importing countries are affected by the decrease in oil imports from Russia. Namely, we would like to assess whether oil importing countries can compensate for the decline in oil exports from Russia when political relations worsen. To do this we consider the following empirical specification based on a gravity equation model:

$$\text{LogImports}_{c,t} = f_c + f_t + \beta PD_{c,t} + \epsilon_{c,t} \quad (5)$$

Here *LogImports* are total imports of country *c* in year *t*. Those data are available from UN COMTRADE database. As before to account for possibility of zeros on total imports observations we use PPML estimator. Estimation results are presented in Table 5.

In Panel A of Table 5 we look at the country oil imports from Russia only, and in parallel with our findings for company by country level data we find that as political relations between Russia and a given country deteriorate this country oil imports from Russia significantly decline. The effect is not only statistically significant but implies effects of considerable economic magnitudes: for a one standard deviation increase in political distance the oil imports from Russia falls by 30 percent ( $=1-\exp(-3.739*0.1)$ ). We also investigate the heterogeneity of the effect depending on country reliance on oil imports from Russia. Namely, we estimate specification (5)

for subsamples of countries that are moderately dependent on Russia oil imports (those for whom Russia oil imports constitute at least 1 percent of total oil imports in column (2), 10 percent of total oil imports in column (3)), and for those that are heavily dependent on Russia oil (Russia oil share in total oil imports larger than 40 percent in column (4)). To avoid automatic correlation between the selection criteria (share of Russia in total oil imports of a given country) and dependent variable (country total oil imports) we construct those subsamples using initial period (1999) share of oil imports from Russia. The implied effects are about the same.

In Panel B of Tale 5 we look at a given country total oil import from all sources, not only from Russia and find that as political relations with Russia worsen then total oil imports for this country drop as well.

Countries that are initially (in 1999) importing more oil from Russia are affected considerably more by the worsening of political relations with Russia. The effects are much smaller for countries that have small share of Russian Oil. Namely, if a country imported at least 1 percent of its total oil imports from Russia in 1999, then an increase in political distance by one standard deviation (by 0.1) translates into less than three percent lower total oil imports from all destinations ( $=1-\exp(-0.377*0.1)$ ), whereas if the country initially is importing at least 40 percent of its oil from Russia the effect is 35 percent lower total oil imports ( $=1-\exp(-4.315*0.1)$ ).

These results suggest that the countries importing oil from Russia are also significantly impacted by the deterioration of political relations. At least in the short run, they cannot fully compensate for the decline in oil imports from Russia. The effect is stronger for countries that are more heavily dependent on Russian oil.

## 6. Extensions and robustness checks

### 6.1. Costs of political relations for Russia.

We can also do some back on the envelope calculations about the total cost for Russia from worsening of political relations.

Suppose company weighted political distance increased by 0.1 on average (this is roughly the changes in average in company level political distance from 2000 to 2011). Such a change translates into 0.46 percentage points lower return on assets for Russian oil exporters for each year. Given that current (2011) level of company assets was around 785 billion dollars, this translates into 35 billion dollars loss per year.

## 6.2. Total energy exports

In the result section above we find that countries buy less oil as the political relation with Russia worsens. Of course, those countries might substitute Russian oil with different sources of energy. Table 6 shows the effect of political relation with Russia on total energy imports. Countries that buy more than 10 percent of total oil from Russian experience a decline in the total of energy imports as well. However, the estimated effects are smaller than the effects for the decline in total oil imports suggesting that countries can partially substitute for Russian oil by importing more of other energy. To further explore this substitution pattern, we look at the other important commodity: natural gas.

Table 7 presents the effect of political relation with Russian and imports of natural gas. Top panel of the Table 7 presents the results for the gas imports from Russia. Similar to the results for the oil, decline in political relation has a negative effect of gas imports from Russia. However, there is an increase in imports of natural gas not from Russia, as documented in the bottom panel of Table 7.

## 6.3. Heterogeneity of the effect over time: Is there a “Putin effect”?

Our analysis in the main text was performed over 1999-2011 because company level exports data were not available for earlier periods. However, country level oil imports data from COMTRADE database are available for the years prior to 1999. This allows us to investigate whether there was any heterogeneity of political distance effect prior to 1999. This time heterogeneity is particularly interesting given the internal political shift in Russia associated with the change in political leadership in Russia that happened in 2000 when Vladimir Putin became, at first, prime minister and subsequently the President of Russia.

In table 8 we estimate specification (2) separately for 1992-1999 and 2000-2011 (we choose 1992 as a starting year since this was the first year after the Soviet Union break up). Our estimates indicate the the negative effect of political distance on total imports is much smaller and not significant in the years prior to 2000.

## 7. Conclusion

In this paper we analyze the effect of political relations on exports of oil from Russia. We further analyze the costs of worsening of political relations with Russia for Russian oil exporting companies and countries that import oil from Russia. We find that as political relations between



Russia and some other country importing oil from Russia worsen, Russian companies significantly decrease oil exports into that country. Our estimates suggest that for a one standard deviation increase in political distance measure between Russia and some country, Russian companies decrease oil exports into that country by 50 percent in terms of value. The effect is stronger for state-owned oil exporting companies: a 64 percent decrease in value of oil exports. I present some suggestive evidence that the effect of politics on oil trade is causal, at least in the Granger causality sense.

We also find that the worsening of political relations entails significant costs for the parties involved in oil trade: Russian oil exporters and countries relying on oil imports from Russia. We show that as political relations between Russia and other countries deteriorate the profitability of Russian oil exporters serving those markets considerably decrease, with state-owned establishments profitability being affected more. In addition, for state-owned exporters the value of total sales decline as a result as well. Thus, Russian oil exporters have trouble compensating for the losses incurred on their major export destination countries when political relations with those countries worsen. Our calculations suggest that as a result of the recent breakdown in political relations between Russia and Western countries Russian oil companies could be losing as much as 35 billions dollars per year, at least in the short run.

At the same time, we show that countries importing oil from Russia are also affected by the decline in political relations with Russia, at least in the short run. Their total oil imports (not only those from Russia) considerably decline following a deterioration of political relations with Russia. The effect is stronger for the countries that are dependent more on oil imports from Russia.

Overall our paper presents the empirical evidence on the effect of political relations on oil exports from Russia and the costs of breakdowns in those relations for Russia and other countries.

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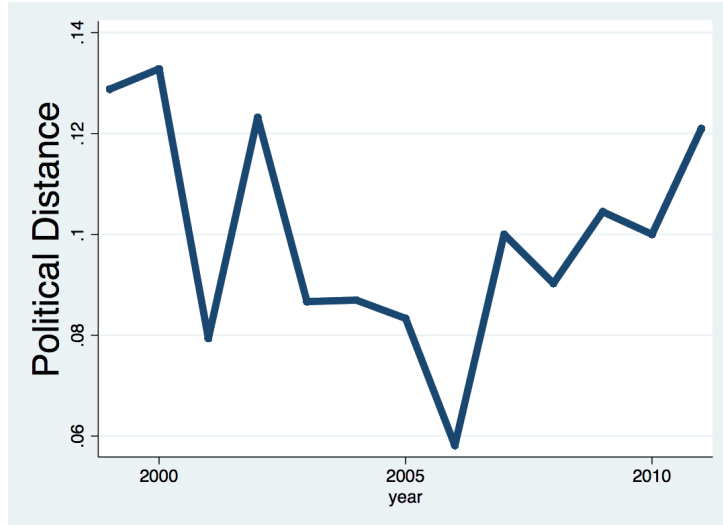
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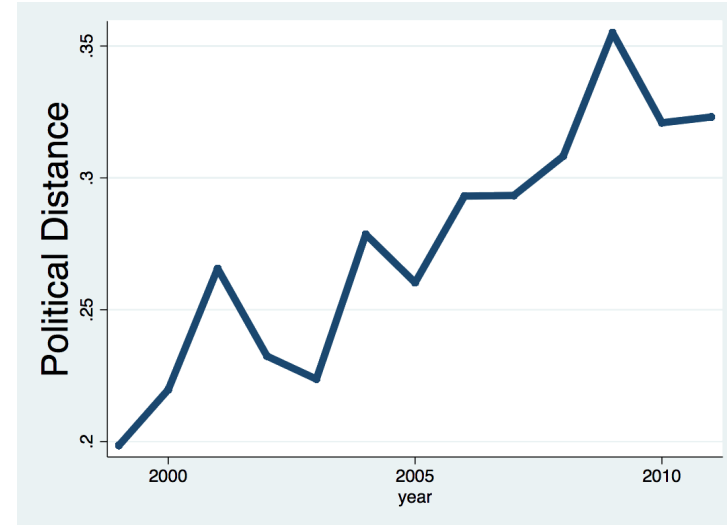
## Tables and Figures

**Figure 1: Political Relation**

**Russian and Belarus**



**Russian and France**



Notes: These figures plot the political relation between Russian and Belarus and Russia and France over the main study period 1999-2011. Political distance measured by the dissimilarity of the voting between country pairs in the UN General Assembly as described in the data section.

**Table 1. Summary Statistics**

	<i>ALL</i>	<i>Private</i>	<i>State-owned</i>	<i>Foreign-owned</i>
<b>Panel A.</b>				
Weight	24.58 (400.80)	25.28 (440.41)	70.83 (625.09)	16.40 (261.46)
Value	8.52 (148.68)	7.67 (132.91)	29.94 (319.32)	7.08 (137.52)
Political distance	-0.21 (0.10)	-0.21 (0.10)	-0.21 (0.10)	-0.21 (0.10)
Number of observations	141,457	85,211	9,743	30,805
<b>Panel B.</b>				
Return on assets(ROA)	16.70 (20.51)	17.28 (19.05)	13.36 (15.43)	16.37 (25.36)
log(Sales)	13.69 (2.64)	13.71 (2.66)	15.06 (2.60)	13.12 (2.39)
Company specific political distance	0.26 (0.10)	0.26 (0.10)	0.26 (0.10)	0.26 (0.10)

Notes: Data are for 1999-2011, results are presented for All companies, as well a by company ownership: private, state-owned and foreign-owned. Value and weight are in millions.

**Table 2. Heterogeneity of political distance impact on crude oil exports by ownership type**

VARIABLES	weight	value	weight	value	weight	value	weight	value
	<i>All</i>		<i>Private</i>		<i>State-Owned</i>		<i>Foreign-owned</i>	
Political distance	-6.803*** (2.139)	-7.669*** (1.476)	-5.270*** (1.806)	-5.602*** (1.294)	-10.117*** (3.750)	-11.194*** (2.506)	-4.409 (2.903)	-7.654** (3.411)
Observations	137,980	137,980	72,882	72,882	8,813	8,813	25,413	25,413
R-squared	0.02	0.023	0.457	0.457	0.839	0.839	0.659	0.704
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GPD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variables are as indicated in column headers. All specifications are estimated by Poisson Pseudo Maximum Likelihood (PPML) estimator to account for zeros in export observations, as described in Santos and Tenreyro (2006). All specifications include log importer's GDP, destination country, time fixed effects. Robust standard errors clustered at the destination country level are reported in parenthesis. \*\*\*, \*\*, And \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table 3. Lags and Leads in Political Distance Effects on Crude Oil Exports**

VARIABLES	(1) weight	(2) weight	(3) weight	(4) weight	(5) value	(6) value	(7) value	(8) value
Political distance	-6.803*** (2.139)			-1.446 (2.284)	-7.669*** (1.476)			-5.016*** (1.496)
Political distance (t-1)		-5.638*** (1.439)		-3.161* (1.709)		-4.947*** (1.498)		-2.928 (2.101)
Political Distance (t-2)			-3.954** (1.684)	-0.897 (1.345)			-2.887** (1.379)	1.115 (1.567)
Political distance (t+1)				-2.269 (3.124)				0.709 (2.948)
Observations	137,980	100,608	76,084	53,793	137,980	100,608	76,084	53,793
R-squared	0.020	0.023	0.027	0.030	0.023	0.026	0.030	0.035
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
GDP	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Sample includes all observations on crude oil exports from Russia over the period 1999-2011. Dependent variables are indicated at the top of respective columns. All specifications are estimated by PPML. Destination country, time and exporter fixed effects are included in all specifications. Robust standard errors clustered at the destination country level are reported in parenthesis. \*\*\*, \*\*, And \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table 4. Effect of Political Relation of Russian Company Performance**

VARIABLES	(1) All	(2) Private	(3) State Owned	(4) Foreign Owned
<b>A. Value of Export</b>				
Company Specific Political Distance	-0.843* (0.490)	-0.523 (0.618)	-4.126** (1.831)	-0.671 (0.891)
Observations	1,118	725	117	276
<b>B. Sales</b>				
Company Specific Political Distance	-0.126 (0.284)	0.046 (0.319)	-0.372 (1.154)	-0.775 (0.628)
Observations	1,254	817	126	311
<b>C. Return on Assets (ROA)</b>				
Company Specific Political Distance	-10.16** (4.33)	-10.84** (5.51)	-16.06 (12.52)	-8.12 (8.56)
Observations	1,254	817	126	311
Year FEs	Yes	Yes	Yes	Yes
Exporter FEs	Yes	Yes	Yes	Yes

Notes: Sample includes all observations on crude oil exports from Russia over the period 1999-2011. Dependent variables are company specific political distance that is weighted average of political distance with weights being proportional to the exports in the previous year constructed as discussed in section 3.2. Independent variable in the top panel is total value of export, in panel B is the log value of sales, in the bottom panel is the return on assets(ROA). Time fixed effects and company fixed effects are included in all specifications. Robust standard errors are reported in parenthesis. \*\*\*, \*\*, And \* indicate statistical significance at 1%, 5%, and 10% respectively.



**Table 5. Effect of Political Relation on Other Countries' Oil Imports**

	(1)	(2)	(3)	(4)
	<b>Oil Imports from Russia</b>			
VARIABLES	Share of Russian Oil>0	Share of Russian Oil>0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	-3.739*** (0.911)	-4.129*** (0.885)	-3.260** (1.416)	-4.092** (2.071)
<b>B. Total Oil Imports</b>				
VARIABLES	Share of Russian Oil>0	Share of Russian Oil >0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	-0.377 (0.782)	-0.518 (0.779)	-1.926** (0.767)	-4.315** (1.991)
Observations	753	675	474	286
Year FEs	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes

Notes: Sample includes all observations on crude oil imports from Russia in the top panel, and total imports from all countries in the bottom panel, over the period 1999-2011. All specifications are estimated by PPML. Destination country and time fixed effects are included in all specifications. Share of Russian oil is the same year share of Russian oil out of total oil imports. Robust standard errors are reported in parenthesis. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table 6. Effect of Political Relation on Other Countries' Total Energy Imports**

VARIABLES	(1)	(2)	(3)	(4)
	Share of Russian Oil>0	Share of Russian Oil >0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	0.285 (0.868)	0.400 (0.879)	-1.120** (0.520)	-2.074** (0.951)
Observations	491	453	333	201
Year FEs	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes

Notes: Sample includes all observations for all energy sources. (coded as 27 using the Harmonized System Nomenclature 2007: "Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes"). The study period is 2000-2011. All specifications are estimated by PPML. Destination country and time fixed effects are included in all specifications. Share of Russian oil is the same year share of Russian oil out of total oil imports. Data used in this table are from the UN Comtrade database. Standard errors, reported in parenthesis, are clustered at a country level. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table 7. Effect of Political Relation on Other Countries' Gas Imports**

	(1)	(2)	(3)	(4)
<b>A. Gas Imports from Russia</b>				
VARIABLES	Share of Russian Oil>0	Share of Russian Oil>0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	-5.244** (2.192)	-4.648** (2.055)	-3.778** (1.807)	-2.819 (1.765)
<b>B. Gas Imports NOT from Russia</b>				
VARIABLES	Share of Russian Oil>0	Share of Russian Oil >0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	3.633** (1.701)	4.140** (1.928)	-0.649 (0.987)	-0.926 (1.848)
Observations	491	453	333	201
Year FEs	Yes	Yes	Yes	Yes
County FEs	Yes	Yes	Yes	Yes

Notes: Sample includes all observations of natural gas imports (coded as 2711 using the Harmonized System Nomenclature 2007). The study period in 2000-2011. All specifications are estimated by PPML. Destination country and time fixed effects are included in all specifications. Share of Russian oil is the same year share of Russian oil out of total oil imports. Top panel presents the results of total gas imports only from Russia. Bottom panel presents the results for total gas imports not from Russia. Data used in this table are from the UNComtrade database. Standard errors, reported in parenthesis, are clustered at a country level. \*\*\*, \*\*, And \* indicate statistical significance at 1%, 5%, and 10% respectively.

**Table 8. Effect of Political Relation over Time**

	(1)	(2)	(3)	(4)
<b>A. Total Oil Imports: 1992-1999</b>				
VARIABLES	Share of Russian Oil>0	Share of Russian Oil>0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	-1.224 (15.077)	-0.211 (20.154)	-0.858 (35.052)	16.863 (54.488)
Observations	439	375	252	185
<b>B. Total Oil Imports: 2000-2011</b>				
VARIABLES	Share of Russian Oil>0	Share of Russian Oil >0.01	Share of Russian Oil >0.1	Share of Russian Oil >0.4
Political Distance	-4.081*** (0.900)	-4.439*** (0.864)	-4.112*** (1.288)	-4.746** (2.109)
Observations	753	675	474	286
Year FEs	Yes	Yes	Yes	Yes
Country FEs	Yes	Yes	Yes	Yes

Notes: Sample includes all observations on crude oil imports from all countries. In the top panel the study period is 1992-1999, in the bottom panel the study period is 2000-2011. All specifications are estimated by PPML. Destination country, time fixed effects are included in all specifications. Share of Russian oil is the same year share of Russian oil out of total oil imports. Robust standard errors are reported in parenthesis. \*\*\*, \*\*, and \* indicate statistical significance at 1%, 5%, and 10% respectively.