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Critically important: The heterogeneous effect of politics on trade*

Julian Hinz† and Elsa Leromain‡

November 2018

Abstract

There is strong empirical evidence showing that political relations have an impact on aggregate bilateral trade flows. In this paper, we show that the impact is heterogeneous across products, depending on product characteristics. Specifically, imported products used as intermediate inputs intensively may be more sensitive to adverse shocks. This is particularly relevant in the current context of increased international input linkages. We sketch a simple theoretical framework and test the mechanism in reduced-form. We implement a difference-in-differences approach with monthly trade flows and a novel dataset of diplomatic incidents. We find that a negative shock to political relations leads to a general decrease in trade flows, and that the response is larger for products in markets with low price gaps to alternative sourcing partners and high direct and indirect imported input use.

Keywords: Trade frictions, political relations, dependence, input sourcing
JEL Classification: F14, F15, F51, F52

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"Multinationals are very nervous now, and they should be. [...] In the past, only some sectors—mining, oil and gas, commodity companies—had to worry about geopolitics. Now companies that make fizzy drinks or handbags or chocolate are finding their supply chains, their markets, their operations completely blown apart by geopolitical risks and unfavorable treatment."

— Mark Leonard, co-founder of the European Council on Foreign Relations[1]

1 Introduction

In the past, primary commodities like oil and gas accounted for the great majority of inputs trade — and those were considered as highly related to geopolitics. Industries heavily dependent on these inputs were exposed to potential shocks to bilateral political relations with important suppliers. In recent decades, however, the range of products that are traded as intermediate inputs has increased vastly, with trade in intermediate inputs accounting for about two thirds of world trade (Johnson and Noguera, 2012). Suddenly, food, beverage and apparel producers may be concerned with changes in political relations, as their production processes depend more heavily on imported inputs. In this paper, we investigate whether the heterogeneity of the impact of politics on trade can be traced back to the use of import inputs in different industries.

There is ample empirical evidence that political relations have an impact on bilateral trade. This paper proposes a mechanism that explains why certain industries may be more affected than others, particularly relevant in the context of increased inputs linkages between countries. We sketch a simple theoretical framework that illustrates the forces at play. Given alternative sourcing partners, imported inputs that are important in direct and indirect use in the domestic economy could see a stronger impact. We test this mechanism empirically in reduced form using monthly import data and a novel event dataset on diplomatic incidents.

There is a growing literature studying the nexus of political relations and trade. Several papers have shown that diplomatic ties and state visits have an impact on bilateral trade flows. For instance, Rose (2007) finds that the presence of embassies and consulates is positively correlated with exports, with each additional consulate being associated with around 6–10 % increase in trade, ceteris paribus. Nitsch (2007) shows that official visits of heads of states have on average a positive effect on export of an 8–10 % increase. However, these results are very sensitive to the type of visits and much less robust for imports. Fuchs and Klann (2013), on the other hand, estimate the effect of foreign visits of the Dalai

[1] From "The great unraveling of globalization", Washington Post by Jeffrey Rothfeder on April 24, 2015.

Lama on the host countries' subsequent trade with China. They find a significant effect for meetings with the countries' top political leaders, however the effect lasts only for one year.

These papers mostly focus on the effect of diplomatic ties on aggregate trade flows. Fuchs and Klann (2013) acknowledge a stronger effect for certain industries, such as machinery and transport equipment, for which negotiations over a purchase are commonly carried out during the course of high-rank trade talks between national representatives and trade delegations. The external validity of this explanation for other countries is however questionable. In a follow-up paper, Davis et al. (2016) demonstrate that, at least in the case of China and India, political relations have a stronger effect on imports and exports for state-owned firms, for which the government can directly influence their sales' behaviors.

A number of recent papers explicitly emphasize *sectoral* heterogeneity in response to a change in political relations. Heilmann (2016) studies the effect of various boycott campaigns on trade. Among others examples, he analyzes the effect of the boycott of Danish products in some Muslim-majority countries in 2006 by using a synthetic control group methodology. The greatest decline in trade is found for consumer goods and highly branded signature goods. Capital and intermediate goods are not boycotted in the long run, indicating that the boycotts are driven by consumers. Mityakov et al. (2012) analyze the effect of changes in political distance to the US on trade flows from 1962 to 2000. A one standard deviation increase in political distance, as measured through similarity of UN General Assembly voting, is associated with a 14 percent decrease in US imports. Interestingly, though, they find that over the period of interest this effect is almost exclusively driven by imports of petroleum and few strategic commodities. American firms, diversify their import of crude oil significantly away from the political opponents of the US, even after controlling for wars, sanctions, and tariffs. Michaels and Zhi (2010) study the impact of the French opposition to the Iraq war in 2003 on bilateral flows between the US and France. They find evidence that French exports to the US dropped significantly, especially for those goods used mostly as intermediate inputs. They explain the effect for inputs by changes in managers' attitudes that led them to make decisions that reduced bilateral sales and purchases of inputs.

We contribute to this growing literature studying the heterogeneity of the response of trade to political relations in two ways. We show in a simple framework why certain industries may be more prone to disruption by political tensions and test the main implication empirically. We do so by using a novel database on diplomatic events that allows us to identify the heterogeneous responses by industry.

The simple framework assumes a two-sector and many-countries world where a "political shock" may affect the sourcing decision of imported inputs. The model shows that this

effect may be heterogeneous across sectors even for homogeneous shocks. The key determinant of the heterogeneity is the degree to which the imported input is used directly and indirectly in the affected economy, and whether viable alternative sourcing countries exist.

We test the proposed mechanism in reduced form in a difference-in-differences framework. We exploit variation in monthly data on imports and the incidence of bilateral diplomatic tensions, using a novel dataset that records diplomatic events found in press releases collected from the websites of the foreign ministries of five politically and economically important countries, i.e. France, UK, Russia, Germany and Japan.[2] The diplomatic events in question are the summoning, expulsion or recalling of foreign or own diplomats. These actions are taken in times of sudden and unexpected bilateral political tensions and are thus a good proxy for "political shocks".

A recent example that emphasizes the suitability of this proxy is the political aftermath of the poisoning of Sergei and Yulia Skripal. In early March 2018 the former Russian spy and his daughter were poisoned with a military-grade nerve agent of a type developed by Russia. The British Prime Minister made a statement in Parliament, seeking explanation from Russia. By March 14, the UK expelled 23 Russian diplomats identified as undeclared intelligence officers and suspended all planned high-level contact. On March 17, Russia summoned the United Kingdom's ambassador to Russia and 33 members of the diplomatic staff in Moscow were declared persona non grata, to be expelled from Russia within a week. The UK then closed its Consulate in St. Petersburg, and the British Council in Moscow.

The paper is structured as follows. In section 2 we sketch a simple framework that formalizes the mechanism, where those imported inputs that are used intensively directly and indirectly in an economy are more sensitive to political tensions, given that viable sourcing alternatives exist. We describe the data we use to test this mechanism in section 3 and section 4 lays out the empirical strategy. The econometric results are discussed in section 5, while robustness tests are discussed in section 6. Section 7 concludes.

2 Conceptual Framework

A simple framework can help understanding the mechanisms at work.

Assume a world with a home country and a number of foreign countries. The home country's economy is made up of 2 sectors, x and y. Each sector uses labor and two imported inputs, m and n, for its production. The foreign countries offer m and n at different prices, such that there is a ranking of cheapest to most expensive for each input.

[2]The United States and China do not make this information easily accessible: while the former does not publish these events at all, the later only does so for the most recent occasions.

Let ε_m and ε_n describe the price gap between the cheapest and the second cheapest source. The production in the home country is of Cobb-Douglas type such that:

$$\begin{aligned} x = l_x^{\lambda_x} y_x^{\beta_x} m_x^{\gamma_x} n_x^{\delta_x} \quad \text{and} \quad y = l_y^{\lambda_y} x_y^{\alpha_y} m_y^{\gamma_y} n_y^{\delta_y} \\ \text{where} \quad \lambda_x + \beta_x + \gamma_x + \delta_x = \lambda_y + \alpha_y + \gamma_y + \delta_y = 1 \end{aligned} \tag{1}$$

and the home country's aggregate output is given by

$$AO = x^{\eta} y^{1-\eta} \quad \text{with} \quad 0 \leq \eta \leq 1 \tag{2}$$

For the purpose of the argument assume the home country sources m and n from the same foreign country initially, as it is the cheapest source available for both inputs. Then consider a negative shock to political relations between the home country and this foreign country. Assume the shock translates into a *uniform* increase in the price of m and n, driven by an increase in variable trade costs. The intensity of the political shock, ζ, is measured as the difference between the price of inputs from this foreign country before and after the shock. The home country aims at minimizing the effect of the shock on aggregate output, with two possible options for each input:

1. the price increase leads to a reduction of imports from the foreign country;
2. the home country starts sourcing from another foreign country, subject to a switching cost $\omega > 0$.

Following equations (1) and (2), we can express the benefits of switching suppliers for input m as follows:

$$\begin{aligned} \left| \frac{\partial \log(\text{AO})}{\partial p_m} \right|_{switch} - \left| \frac{\partial \log(\text{AO})}{\partial p_m} \right|_{\overline{switch}} = \\ (\zeta - \varepsilon_m) \frac{1}{p_m} (\eta(\gamma_x + \beta_x \gamma_y) + (1-\eta)(\gamma_y + \alpha_y \gamma_x)) \end{aligned}$$

and for input n accordingly. If the benefits outweigh the switching costs the home country switches supplier, i.e. when

$$(\zeta - \varepsilon_m) \frac{1}{p_m} (\eta(\gamma_x + \beta_x \gamma_y) + (1-\eta)(\gamma_y + \alpha_y \gamma_x)) > \omega$$

For a given ω and ζ , the switch depends on:

1. the sign of $\zeta - \varepsilon_m$, i.e. whether the price change is larger than the initial price gap;
2. the magnitude of the term $(\eta(\gamma_x + \beta_x \gamma_y) + (1-\eta)(\gamma_y + \alpha_y \gamma_x))$, i.e. the importance of this input in direct and indirect use in the home country.

For $\zeta - \varepsilon_m < 0$, the home country does not switch. If, however, the initial price gap is smaller than the price change, the importance of the input for aggregate output determines

whether a switch occurs. A high direct and indirect use of the input leads to a significant change in aggregate output, that may be larger than the fixed costs for switching. Hence, even for the same shock ζ and same fixed costs of switching ω, imports of inputs m and n may differ in their response to the shock due to differences in the initial price gap and their use in the home country's economy.

The simple model displays one mechanism through which political shocks may have a heterogeneous effect on trade flows. In the real world, however, economies have many sectors, countries usually source inputs from many suppliers, and trade flows are usually observed at a level of aggregation that may hide switches from positive to zero flows. Yet, even with these additional complexities, the following hypothesis should hold:

Hypothesis A negative shock to bilateral political relations leads to a general decrease in trade flows. The response should be larger for products in markets with low price gap and high imported input use.

3 Data

We test the hypothesis using the incidence of diplomatic events as a proxy for bilateral negative political shocks, in combination with country-level data on monthly bilateral trade and input-output tables to capture the direct and indirect use of imported inputs.

3.1 Data on diplomatic events

As discussed above, summoning or recalling high-level diplomats is used as a diplomatic instrument to signal discontent and put pressure on a foreign government. We collected data on the actions taken by the countries of Germany, France, United Kingdom, Japan and the Russian Federation, as they are lead actors in the political arena as well as in trade, combining roughly 25 % of world imports between them.[3] The five countries have repeatedly made use of summoning or recalling of diplomats as an instrument of foreign policy. We have collected information on these events over the time period from 2010 until 2014 from official press releases available on the website of each Ministry of Foreign Affairs,[4] using keyword searches such as "ambassador summoned", "ambassador recalled", "withdraw of diplomatic staff", "embassy closure".[5]

[3]Three of the five countries—France, the United Kingdom and the Russian Federation—are permanent members of the UN Security Council. Notably absent from the list of countries are the United States and China, whose foreign policy clearly shapes global events and likely influences trade flows. Unfortunately, however, the US State Department does not make public instances in which these instrument of diplomacy are used. The Chinese Ministry of Foreign Affairs does publish press releases but it is technically difficult to retrieve them *en masse*, as the website does not allow searches of its archive.

[4]Appendix A.1 lists the direct weblinks to the different websites.

[5]A diplomat may be summoned or recalled for different reasons, as some examples of events show: In November 2010, Russia summoned the Canadian ambassador over new visa requirements for Russian nationals; In February 2011, France summoned the Mexican ambassador regarding the situation of the

3.2 Data on monthly trade flows

Given the characteristics of our events we expect a short-term impact on trade flows, similar to the observed effect of Dalai Lama visits in Fuchs and Klann (2013) and Du et al. (2017).[6] In consequence, we opt for an analysis using data on monthly trade flows from UN Comtrade (United Nations Statistics Division, 2015). For the purpose of this study, we extract data on the imports of France, UK, Russia, Germany, Japan vis-à-vis the rest of the world—241 countries and territories—from January 2010 to December 2014, totaling 60 months.

3.3 Imported input use

The simple model in section 2 postulates that one key determinant of the response to the shock is the direct and indirect import use. The term $(\eta(\gamma_x + \beta_x\gamma_y) + (1-\eta)(\gamma_y + \alpha_y\gamma_x))$ can easily be translated into a multi-sector setting with domestic production of inputs as

$$\text{IIU} = A_{imp}(I - A_{dom})^{-1}F \tag{3}$$

where A_{imp} is the matrix of the values of *imported* inputs by sector and A_{dom} the matrix of the values of *domestic* inputs by sector. F is the vector of final consumption shares. Each element of the vector IIU denotes the required value of a foreign input for 1 unit value of final consumption in the domestic economy. The higher the necessary imported value, the more important is the input for the country's economy. We compute the measure for the five countries of interest using the global input-output table for the year 2008 from the World Input Output Database (Timmer et al., 2015).[7] The table covers 34 sectors, for both manufacturing and services.[8] Figure 1 shows the histogram and the ranking of the most important imported inputs for France.[9] The ranking and magnitude are sensible, with petroleum, services and manufacturing inputs dominating the top ranks.

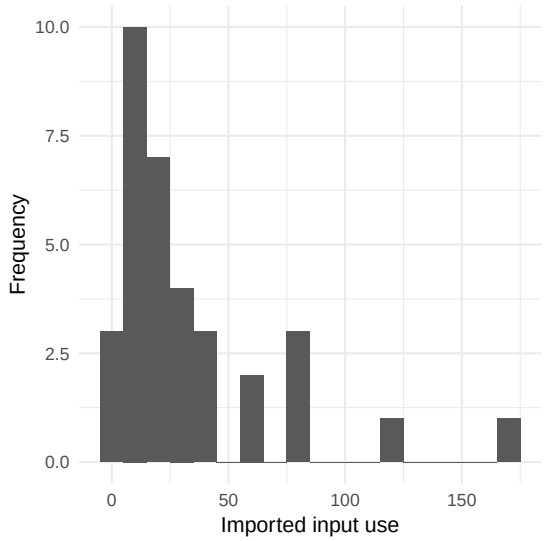
French-national Florence Cassez; In July 2012, Japan summoned the Chinese ambassador to protest against the entry of patrol ships into disputed territorial waters; In March 2013, Germany summoned the Chinese ambassador to condemn an attack on a German journalist; In June 2014, the British Foreign Office summoned the Egyptian ambassador following an Egyptian court guilty verdicts against Egyptian and international journalists. More details on these cases and a complete list of events can be found in appendix A.2.

[6] It is also likely to have a much less severe impact than military conflicts or more structural security issues like domestic political instability (Martin et al., 2008a,b, 2012).

[7] Relying on data from 2008 ensures the exogeneity of the input coefficients for the event study.

[8] To match the aggregation level of the dependence measures, we aggregate the data on trade flows to the 16 manufacturing sectors in WIOD.

[9] We also compute the measure for the most detailed openly available input-output table, for the United States from the Bureau of Economic Analysis, with data on 389 industries, and compare it with the respective measure computed using WIOD data. The results are displayed in table 4 in appendix B. The direct comparison shows consistent figures by ranking and magnitude across these different levels of aggregation. Unfortunately input-output tables of this high detail are a rarity for other countries.



(a) Histogram of imported input use

	WIOD Industry	Imported input use
1	Coke, Refined Petroleum and Nuclear Fuel	166.96
2	Transport Equipment	119.51
3	Basic Metals and Fabricated Metal	83.24
4	Renting of M&Eq and Other Business Activities	82.41
5	Chemicals and Chemical Products	76.27
6	Construction	62.07
7	Electrical and Optical Equipment	59.47
8	Food, Beverages and Tobacco	42.79
9	Machinery, Nec	37.32
10	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	35.99

(b) Top 10 imported inputs

Figure 1: Histogram and top 10 imported input use per 1000 USD GDP for France

4 Empirical strategy

Our aim is to analyze how imports respond to a negative shock to political relations, and test whether imports in sectors with a low price gap and high import input use decrease relatively more than imports in other sectors. To do so we use a difference-in-differences approach. Our dependent variable is the logarithm of monthly imports by industry and source country. The treatment is a negative political shock, coded as described above, and hence treated observations are import flows from a source country after a negative shock. We take import flows from other countries that are never treated as the control group.[10]

This obviously would be a problematic assumption if we were only interested in the estimated coefficient of this treatment. Import flows could be redirected from the treated source country to another source country from the control group and thus bias upwards the estimated coefficient. However, we are primarily interested in the interaction of the treatment with country-industry and industry-specific variables, which should not be affected.

[10]As there is a small number of country pairs that do not entertain bilateral diplomatic representations, e.g. North Korea and France do not have official diplomatic relations, we only consider country pairs that do have embassies or consulates in one another in the analysis.

The equation we estimate is

$$\begin{aligned}\log(X_{odkt}) = \delta_0 \cdot \text{Treatment}_{odt} \\ + \delta_1 \cdot \text{Treatment}_{odt} \times \log(\text{IIU}_{dk}) \\ + \delta_2 \cdot \text{Treatment}_{odt} \times \text{Concentration}_k \\ + \delta_3 \cdot \text{Treatment}_{odt} \times \log(\text{IIU}_{dk}) \times \text{Concentration}_k \\ + \Gamma + \epsilon_{odkt} \end{aligned} \tag{4}$$

We interact the *Treatment* variable with a proxy for the industry-specific price gap, *Concentration*$_k$, and the country-industry-specific imported input use measure, *IIU*$_{dk}$. To measure the price gap on the sourcing market we compute a Herfindahl index of total exports across source countries with trade data for 2010. The underlying assumption is that the greater the Herfindahl index, the lower is the level of competition, and thus the higher is the price gap in this industry. We normalize the imported input use measure by the respective country's average imported input use and take the logarithm. Thus the interpretation of the coefficients is straight forward, as the benchmark is an industry with an infinitely small price gap and the average imported input use of the importer. We control for unobservable characteristics using different sets of time, importing country, source country and industry fixed effects, denoted by Γ.

The coefficient on the *Treatment* variable, δ_0, is the average effect for the benchmark, i.e. a low price gap and the average imported input use of the importer, which we expect to have a negative sign. The main test of our prediction comes from the interaction between *Treatment* $\times$ *log(IIU)*$_{dk}$. In our simple framework, we show that the effect should be magnified by the degree of imported input use, given a small price gap. The coefficient of the interaction between *Treatment* $\times$ *log(IIU)*$_{dk}$, δ_1, is therefore expected to be negative.

The remaining interaction terms are necessary for the test, but the interpretation of their coefficients, δ_2 and δ_3, is not explicitly guided by the framework. We would, however, expect positive coefficients. In principle, lower concentration, i.e. higher price gaps, should yield a lower response of import flows and a more muted influence for those industries with high imported input use.

5 Results

The results from estimating equation (4) are presented in table 1. There are a total of 40 events. For those country pairs for which we observe several events over the period, we use the date of the first one to construct the treatment variable. The two main coefficients of interest, δ_0 and δ_1, are negative and very stable across specifications with different sets of fixed effects Γ. The effects are in line with the prediction from the framework in section 2.

	Dependent variable:		
	log(imports)		
	(1)	(2)	(3)
Treatment	-0.083^{***}	-0.074^{**}	-0.083^{**}
	(0.026)	(0.033)	(0.035)
Treatment x log(IIU)	-0.069^{***}	-0.051^{*}	-0.061^{**}
	(0.021)	(0.028)	(0.031)
Treatment x Concentration	0.699^{**}	0.568	0.672
	(0.301)	(0.407)	(0.446)
Treatment x Concentration x log(IIU)	0.571^{***}	0.426^{*}	0.486^{**}
	(0.168)	(0.218)	(0.243)
Fixed effects	ctry-dt, pair-ind	ctry-ind-dt, pair-ind	ctry-ind-dt, pair-ind-mo
Observations	410,303	410,303	410,303
R^2	0.913	0.951	0.964
Adjusted R^2	0.909	0.925	0.922

Note: Robust standard errors: *p<0.1; **p<0.05; ***p<0.01

Table 1: Event study - Political shock and heterogeneous effect

In column (1) we include importing country $\times$ date, sourcing country $\times$ date, and country pair $\times$ industry fixed effects to control for unobserved characteristics. In columns (2) and (3) we are even more restrictive and augment the country $\times$ date fixed effects by an industry, and calendar month dimension. While this leaves very little variation in the data, the estimated coefficients persist.

The estimates of δ_0 range between -0.074 and -0.083, which translates into an average decrease in imports in reaction to a shock to political relations for the reference group in the preferred specification (1) of $\exp(-0.083) - 1 = -8\%$. Although, as described above, the estimate have to be taken with caution, the magnitude of the effects mirrors very well the results from related literature. Michaels and Zhi (2010) find an 8 % drop in bilateral trade between France and the US in response to the Iraq war, while Nitsch (2007) reports an increase of 8–10 % in exports after the visit of a head of state.

The estimates of δ_1 range between -0.051 and -0.069, which corresponds to an additional $\exp(-0.069) - 1 = -6.7\%$ decrease in imports for a sector with import use twice as high as the average for the preferred specification.

The coefficients δ_2 and δ_3 have both positive coefficients, confirming the intuition that lower concentration in an industry yields a lower response of import flows, and a smaller role for imported input use.

	Dependent variable:				
	log(imports)				
	(1)	(2)	(3)	(4)	(5)
Treatment	-0.082^{***}	-0.055^{**}	-0.085^{***}	-0.119^{**}	-0.098^{**}
	(0.027)	(0.028)	(0.029)	(0.061)	(0.040)
— x log(IIU)	-0.079^{***}	-0.060^{***}	-0.042^{*}	-0.072^{***}	-0.071^{***}
	(0.022)	(0.022)	(0.023)	(0.022)	(0.021)
— x Concentration	0.624^{*}	0.452	0.675^{**}	0.697^{**}	0.680^{**}
	(0.331)	(0.343)	(0.314)	(0.302)	(0.304)
— x Concentration x log(IIU)	0.563^{***}	0.382^{**}	0.364^{**}	0.587^{***}	0.573^{***}
	(0.183)	(0.182)	(0.177)	(0.169)	(0.168)
— x Labor Intensity				0.061	
				(0.088)	
— x Skill Intensity					0.084
					(0.155)
Fixed effects	ctry-dt, pair-ind	ctry-dt, pair-ind	ctry-dt, pair-ind	ctry-dt, pair-ind	ctry-dt, pair-ind
Sample	Top 50	w/o Arab league	w/o Russia	all	all
Observations	237,463	371,827	359,753	410,303	410,303
R^2	0.929	0.918	0.914	0.913	0.913
Adjusted R^2	0.927	0.914	0.910	0.908	0.908
Note:					*p<0.1; **p<0.05; ***p<0.01

Table 2: Robustness test — Country samples and industry-specific measures

6 Robustness Tests

We conduct a series of robustness test to validate the findings against a number of potential concerns, related to the sample or other confounding variables.

In table 2 columns (1) – (3) we re-estimate equation (4) on three subsamples. One concern is that the coefficients from our benchmark estimation are driven by outliers, small economies that for other reasons than bilateral political relations decrease their exports to the 5 countries of interest after being "treated" by one of the political events described above. In column (1) we report the coefficients when selecting only the top 50 largest economies out of the 241 countries present in the data as sourcing countries. The coefficients on the terms of interest retain the same sign and stay within a standard error of the baseline results in table 1, despite the number of observations being cut by 42 %.

A further concern could be that the results are driven by the events occurring in connection with the so-called Arab spring, which falls right into the time window of the data we use. The summoning of the respective Ambassadors was relatively common, resulting in 31 such recorded instances.[11] The events coincided with security crises in these countries that

[11] See appendix A.2 for the list of events.

could equally cause a sharp decline in imports, driving the reported results. We therefore re-run the estimation of equation (4) on only non-Arab league countries. We find that the concern is not merited, as the coefficients in column (2) remain very similar.

Another concern could be on the side of the importing country, as we were only able to collect data on political events from 5 major geopolitical players. One of the countries, Russia, could be of particular concern, as it could be argued that the country conducts its foreign policy structurally differently from Western countries and Japan. We therefore rerun the estimation without events involving the Russian Federation. Column (3) shows that this concern is also not merited.

A different concern involves the mechanism itself. The results could be driven by industry-specific factors that are not captured by the employed fixed effects. It could be that certain industries, labor or skill intensive ones, react differently to a sudden change in bilateral political relations than others. We test this assertion by estimating equation (4) with an additional interaction of indicators derived from the WIOD dataset on the labor and skill intensity of sectors. Columns (4) and (5) in table 2 show that these concerns again are not merited. Neither the interaction with labor intensity, nor the interaction with skill intensity are significant, and the coefficients of interest retain the same sign and stay within a standard error of the results of the benchmark specification reported in table 1.

7 Conclusion

This paper contributes to the literature that studies the impact of political relations on trade. There is ample empirical evidence that political relations indeed influence the trading behavior between countries. In this paper we show how this impact is heterogeneous depending on characteristics of the imported products.

Specifically, we show how imports of those products that are used as inputs in a domestic economy intensively, both directly and indirectly, are more sensitive to shocks than others. We set up a simple theoretical framework that exhibits the mechanism and then test the mechanism empirically in a reduced form setting. In a difference-in-differences framework we estimate the effect of political shocks to import flows of five economically and politically important countries using a novel dataset on diplomatic incidents, such as the summoning and recalling of an ambassador or other high-level diplomats. The econometric results provide evidence for the mechanism exhibited by the model. Political relations have a heterogeneous impact on imported inputs, driven by the importing country's direct and indirect use of imported input, given the ease to switch sourcing partners.

The theoretical framework depicts a very stylized version of the real world. While the simplicity is attractive to highlight the mechanism at play, there are obvious simplifications that could be addressed in more involved models. In particular, one could imagine a richer characterization of the inner workings of the economy and explicitly model firms' decisions in a political economy framework. As the main point is to establish the basic mechanism at play, this is, however, beyond the scope of this current project.

Looking at the current state of the world of bilateral political relations and the status quo of research on the nexus of politics and trade, we see ample room for further research. As hinted at above, future work could investigate the firms' role, taking cues from the literature on the political economy of protectionism. Furthermore, we wonder about underlying mechanisms that may affect the exporting side, as hinted at in current research on sanctions. We refer these intriguing questions to future research.

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A Press releases from Ministries of Foreign Affairs

A.1 Links to websites of Foreign Ministries

- France: `http://www.diplomatie.gouv.fr/en/`
- Germany: `http://www.auswaertiges-amt.de/`
- Japan: `http://www.mofa.go.jp`
- Russian Federation: `http://www.mid.ru/`
- United Kingdom: `http://www.gov.uk/government/organisations/foreign-commonwealth-office`

A.2 List of events

Table 3: List of events

Date	Origin	Destination	Event type	Comments
18/02/2010	France	Israel	summon CA	about murder of a Hamas member in Dubai
01/03/2010	Russia	Estonia	summon Ambassador	unfriendly action by authorities
14/07/2010	Russia	United States	summon Ambassador	protest apprehension of Russian citizen abroad
10/08/2010	Russia	Thailand	summon Ambassador	extradition of citizen to USA
01/09/2010	UK	Kenya	summon HC	about President Bashir of Sudan's visit to Kenya
27/09/2010	Japan	China	summon Ambassador	express concerns about detained Japanese nationals in China
14/10/2010	Russia	Canada	summon CA	confiscation and arrest of crew of cruise ship
01/11/2010	Russia	Japan	summon Ambassador	protest to protest presidents travel to disputed island
03/11/2010	Russia	Canada	summon CA	new visa requirements
19/11/2010	Russia	Canada	summon Ambassador	protest about damaged consulate
17/12/2010	Russia	United States	summon Ambassador	military exercise in South Korea
17/12/2010	Russia	South Korea	summon Ambassador	military exercise in South Korea
22/12/2010	Germany	Belarus	summon Ambassador	opposition arrests
20/01/2011	Germany	Belarus	summon Ambassador	accusations of plot
11/02/2011	France	Mexico	summon Ambassador	concerning situation of Florence Cassez
17/02/2011	France	Iran	summon Ambassador	concern about Spanish diplomate arrest
21/02/2011	UK	Libya	summon Ambassador	concern about violence in Lybia
02/03/2011	UK	Yemen	summon CA	concern over escalating violence in Yemen
04/03/2011	Germany	Taiwan	summon Ambassador	executions
16/03/2011	UK	Libya	summon Ambassador	discuss situation in Lybia
24/03/2011	Germany	Yemen	summon Ambassador	political situation
19/04/2011	UK	Malawi	summon CA	about considering declaring the British HC persona non grata
26/04/2011	Germany	Syria	summon Ambassador	violence in Syria

Table 3 — *Continued on next page*

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27/04/2011	France	Syria	summon Ambassador	condemnation of violence in Syria
27/04/2011	UK	Syria	summon Ambassador	stop violence
28/04/2011	UK	Malawi	expulsion of HC	after expulsion of British HC
01/05/2011	UK	Libya	expulsion of Ambassador	following attack on British residence in Tripoli
13/05/2011	UK	Syria	summon Ambassador	concern about the ongoing situation in Syria
25/05/2011	Japan	South Korea	summon Ambassador	protest against members of parliament on disputed islands
31/05/2011	Germany	Syria	summon Ambassador	torture of children and teenagers
02/06/2011	Russia	Pakistan	summon Ambassador	demand investigation into deaths of four citizens
04/06/2011	Germany	Yemen	closure of German embassy	due to dangerous internal conflict
28/06/2011	UK	Syria	summon Ambassador	over allegations of Syrian Embassy intimidation
06/07/2011	Russia	Sweden	summon CA	protest court ruling
10/07/2011	France	Syria	recall its Ambassador for consultations	protest against demonstrations in front of the French embassies
12/07/2011	Germany	Syria	summon Ambassador	voilence and attacks on embassies
13/07/2011	UK	Syria	summon Ambassador	ensure Syrian Ambassador protects diplomatic mission
27/07/2011	France	Burundi	summon Ambassador	Patrice Faye sentence
27/07/2011	UK	Libya	expulsion of all diplomatic staff	condemnation of Qadhafi's regime
11/08/2011	France	Ukraine	summon Ambassador	About the Timochenko case
25/08/2011	Japan	China	summon Ambassador	protest against Chinese boat in territorial waters
29/09/2011	Germany	Iran	summon Ambassador	protest death penalty sentence against pastor
13/10/2011	UK	Syria	summon Ambassador	concern about reports suggesting harassment and intimidation of Syrian diplomats in UK
14/11/2011	France	Syria	summon Ambassador	concerning assaults in diplomatic entities in Syria
15/11/2011	France	Syria	recall its Ambassador for consultations	concerns about situation in Syria
16/11/2011	France	Israel	summon Ambassador	about the raid in Gaza
29/11/2011	UK	Iran	summon CA	storming of British Embassy in Teheran
30/11/2011	France	Iran	recall its Ambassador for consultations	concerns about assaults in British embassy
30/11/2011	UK	Iran	expulsion of all diplomatic staff	in response to the assault on the British Embassy in Teheran ("closing of Iranian embassy in London by UK")
30/11/2011	UK	Iran	closure of British Ambassy(Teheran)	in response to the assault on the British Embassy in Teheran
16/12/2011	UK	Uruguay	summon Ambassador	response to 25th Dec Mercosur statement about Falkland Islands
06/02/2012	UK	Syria	summon Ambassador	Siege in Homs; condemnation of atrocities

Table 3 — *Continued on next page*

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07/02/2012	France	Syria	recall its Ambassador for consultations	concerns about situation in Syria
07/02/2012	Germany	Syria	summon Ambassador	spying on opposition in Germany
09/02/2012	Germany	Syria	expulsion of diplomats	four embassy staffers expelled
20/02/2012	France	Rwanda	recall its Ambassador for consultations	Kigali refuses to accept Helene Le Cal as new French Ambassador
22/02/2012	UK	Syria	summon Ambassador	stop violence in Homs
28/02/2012	France	Belarus	summon Ambassador	protest against Bielorus' decision to expel Polish and UE ambassadors
29/02/2012	UK	Belarus	recall its Ambassador for consultations	Belarus' decision to recall their Ambassadors to Poland and the EU in response to EU sanctions
29/02/2012	UK	Belarus	summon Ambassador	Belarus' decision to recall their Ambassadors to Poland and the EU in response to EU sanctions
29/02/2012	UK	Argentina	summon CA	response to Argentina's threat to trade
01/03/2012	UK	Syria	withdrawal diplomatic staff	all diplomatic staff
03/03/2012	Germany	Iran	summon Ambassador	call for release of pastor
21/03/2012	Japan	Syria	closure of Japanese embassy	deteriorating security situation
06/04/2012	France	Hungary	summon Ambassador	concerns about situation of foreign investors in Hungary
13/04/2012	UK	North Korea	summon Ambassador	concerns about satellite launch
28/05/2012	UK	Syria	summon CA	UK's condemnation of the appalling massacre which took place in al-Houleh
29/05/2012	UK	Syria	expulsion CA and diplomates	response to killing in el-Houleh
29/05/2012	Germany	Syria	expulsion of diplomats	ambassador expelled
03/07/2012	Japan	Russia	summon Ambassador	protest against visit of Russian prime minister on disputed island
11/07/2012	Japan	China	summon Ambassador	protest against entry of patrol ships into disputed territorial waters
12/07/2012	Japan	China	summon Ambassador	protest against entry of patrol ships into disputed territorial waters (again..)
12/08/2012	Japan	Russia	summon Ambassador	express concerns about situation in Georgia
14/08/2012	Germany	Belarus	summon Ambassador	protest closing of Swedish embassy
15/08/2012	Japan	China	summon Ambassador	protest against landing of activist ships on disputed islands
20/09/2012	Germany	Belarus	summon Ambassador	protest visa rejecting of election observers
03/10/2012	Russia	Libya	summon CA	attack on embassy in Tripolis
30/10/2012	UK	Burma	summon CA	concern about the violence in Rakhine State
15/11/2012	UK	Spain	summon Ambassador	concerns regarding incursions into British Gibraltar Territorial Waters
03/12/2012	France	Israel	summon Ambassador	concerns about settlement in colonies
03/12/2012	UK	Israel	summon Ambassador	concern about settlement policy

Table 3 — *Continued on next page*

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03/12/2012	Germany	North Korea	summon Ambassador	protest missile test
12/12/2012	UK	North Korea	summon Ambassador	condemnation satellite launch
12/12/2012	Russia	Nigeria	summon Ambassador	ship crew detained
12/12/2012	Germany	North Korea	summon Ambassador	protest rocket launch
13/12/2012	Japan	China	summon Ambassador	protest against entry of aircraft and ships into disputed territory
08/02/2013	Japan	China	summon Ambassador	protest against entry of Chinese ship into territorial waters
13/02/2013	France	Iraq	call for minister meeting	Situation of Nadir Dendoune
01/03/2013	Germany	China	summon Ambassador	protest attack on German journalist
05/04/2013	Germany	North Korea	summon Ambassador	concern about tensions on Korean peninsula
13/05/2013	Russia	United States	summon Ambassador	unclear
01/07/2013	Germany	United States	summon Ambassador	spying on Germany
11/07/2013	Russia	Montenegro	summon Ambassador	situation of citizen
02/08/2013	UK	Spain	summon Ambassador	delays at the Gibraltar border
20/08/2013	Japan	Egypt	summon Ambassador	call for peaceful solution to domestic conflict
19/09/2013	Russia	Netherlands	summon Ambassador	flying flag close to Russian shore
03/10/2013	Russia	Libya	withdrawal diplomatic staff	following attack on Russian embassy
08/10/2013	Russia	Netherlands	summon Ambassador	protest about Russian diplomat attacked
16/10/2013	Russia	Costa Rica	summon Ambassador	extradition of citizen to USA
21/10/2013	France	US	summon Ambassador	spying on France
12/11/2013	Russia	Poland	summon Ambassador	protest about violence around embassy
19/11/2013	UK	Spain	summon Ambassador	serious incursion into British Gibraltar Territorial Waters
23/11/2013	Japan	China	summon CA	protest against Chinese declaration of territorial extent
25/11/2013	Japan	China	summon Ambassador	protest against Chinese declaration of territorial extent
24/01/2014	France	Ukraine	summon Ambassador	concerns about violence in Ukraine
24/01/2014	Germany	Ukraine	summon Ambassador	concerns about violence in Ukraine
20/02/2014	UK	Ukraine	summon Ambassador	over violence in Ukraine
24/02/2014	France	Morocco	summon Ambassador	discuss situation of M.Hammouchi
25/02/2014	France	Morocco	Ministers meeting	discuss about diplomatic incident with French ambassador in DC
01/03/2014	UK	Russia	summon Ambassador	concerns about situation in Ukraine
02/04/2014	UK	Spain	summon Ambassador	concern at the incursion into British Gibraltar Territorial Waters
03/04/2014	Russia	Germany	summon Ambassador	statement of German Minister of Finance
07/04/2014	UK	Burma	summon Ambassador	call for urgent restoration of humanitarian access
07/04/2014	Germany	North Korea	summon Ambassador	concern about Nuclear test
29/04/2014	Germany	Egypt	summon Ambassador	urgent appeal against death sentences
19/05/2014	UK	Sudan	summon CA	concern at the decision to sentence MYII to death for apostasy

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26/05/2014	Japan	China	summon Ambassador	protest against entry of military aircraft into territory
11/06/2014	Japan	China	summon Ambassador	protests against two Chinese military jets which flew abnormally close to two Japan's Self Defence Force
12/06/2014	Japan	China	summon Ambassador	protest against entry of military aircraft into territory (again..)
23/06/2014	UK	Egypt	summon Ambassador	concerning verdicts against Egyptian and international journalists
13/07/2014	Russia	Ukraine	summon CA	protest killing of citizen by shelling
17/07/2014	UK	Spain	summon Ambassador	concern at the activity of a Spanish Navy vessel in Gibraltar the day before
19/07/2014	UK	Russia	summon Ambassador	urged Russian Authorities to secure access to flight MH17 crash site
04/08/2014	UK	Ethiopia	summon CA	concern about arrest of a Briton
15/08/2014	UK	Russia	summon Ambassador	account for reports overnight of Russian military vehicules crossing the border into Ukraine
13/10/2014	UK	Thailand	summon CA	concern about the investigation into murders of HW and DM

B Imported input use with detailed input output data

	BEA Industry	Imported input use
1	Oil and gas extraction	13.12
2	Petroleum refineries	4.14
3	Insurance carriers	3.31
4	Iron and steel mills and ferroalloy manufacturing	1.73
5	Other motor vehicle parts manufacturing	1.62
6	Computer terminals and other computer peripheral equipment manufacturing	1.36
7	Pharmaceutical preparation manufacturing	1.26
8	Management consulting services	1.21
9	Other basic organic chemical manufacturing	1.19
10	Motor vehicle gasoline engine and engine parts manufacturing	1.17
11	Semiconductor and related device manufacturing	0.84
12	Other electronic component manufacturing	0.81
13	Motor vehicle transmission and power train parts manufacturing	0.81
14	Other plastics product manufacturing	0.72
15	Fishing, hunting and trapping	0.70
16	Telephone apparatus manufacturing	0.69
17	Plastics material and resin manufacturing	0.67
18	Primary smelting and refining of nonferrous metal (except copper and aluminum)	0.66
19	Other engine equipment manufacturing	0.64
20	Broadcast and wireless communications equipment	0.63

	WIOD Industry	Imported input use
1	Coke, Refined Petroleum and Nuclear Fuel	115.50
2	Public Admin and Defence; Compulsory Social Security	55.49
3	Transport Equipment	50.20
4	Renting of M&Eq and Other Business Activities	34.62
5	Financial Intermediation	34.11
6	Chemicals and Chemical Products	33.40
7	Construction	28.59
8	Basic Metals and Fabricated Metal	28.00
9	Food, Beverages and Tobacco	25.33
10	Electrical and Optical Equipment	22.66
11	Health and Social Work	22.26
12	Mining and Quarrying	19.20
13	Machinery, Nec	17.69
14	Electricity, Gas and Water Supply	16.03
15	Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles	15.57
16	Retail Trade, Except of Motor Vehicles and Motorcycles; Repair of Household Goods	14.64
17	Pulp, Paper, Paper , Printing and Publishing	14.52
18	Other Community, Social and Personal Services	13.52
19	Hotels and Restaurants	13.27
20	Real Estate Activities	11.81

Table 4: Top 20 US industries by imported input use with BEA (top) and WIOD data (bottom) per $1000 GDP)

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