To Trade or To Take: Evidence from the Last 139 Years

Ben Li
Boston College

Penglong Zhang*
Boston College

May 24, 2019

Abstract

Countries gain and lose territories over time, generating *territory flows* that represent the transfers of territorial sovereignty. Countries also export and import goods, creating *goods flows* that represent the transfers of goods ownership. We find a substitution between these two international flows in the last 139 years of world history; that is, country pairs with greater goods flows have smaller territory flows. This indicates how international trade enhances international security: reciprocal goods transactions make irreciprocal territorial exchanges less necessary. (*JEL Codes: F51, F15, P16*)

1. Introduction

> Through commerce, man learns to deliberate, to be honest, to acquire manners, to be prudent and reserved in both talk and action. Sensing the necessity to be wise and honest in order to succeed, he flees vice, or at least his demeanor exhibits decency and seriousness so as not to arouse any adverse judgement on the part of present and future acquaintances; he would not dare make a spectacle of himself for fear of damaging his credit standing and thus society may well avoid a scandal which it might otherwise have to deplore (Samuel Ricard, 1781).[1]

Human beings are highly territorial. Most wars in recorded human history arose from escalating border tensions, and most wars ended with agreements that either reaffirmed or revised borders. Territorial change represents the paramount form of diplomatic relations between two countries, just like international trade represents the main form of economic relations between them. Like goods, territories can flow in and out of a country. Unlike goods flows, which stem from reciprocal international trade, territorial exchanges usually provide gains for one side but losses for the other.[2]

*✉ Penglong Zhang (zhangpb@bc.edu)

[1] This translation of the original excerpt in French was found in Hirschman (1982).

[2] Even if two countries reach a territorial deal that seems mutually beneficial, one or the other (especially the territory-ceding country) may change their views later. A prime example is the Russian sale of Alaska to the United States. The Russian attitude toward this deal has been largely negative since its Soviet era (see Znamenski (2009) for review).

In this study, we find that goods flows and territory flows were substitutes of each other in the last 139 years of world history. That is, if a country exports more goods to another country, it loses less territory to that country; or equivalently, if a country imports more goods from another country, it takes less territory from that country. Quantitatively, doubling trade volumes leads to a reduction in the size of the territory exchanged by one-third to one-half. This is consistent with standard economic reasoning, which holds that if a country benefits other countries by exporting its goods to them, the other countries gain from the trade and therefore have little reason to take its territory and ruin the relationship. This reasoning is also held by conventional wisdom, as conveyed by the Dutch jurist Samuel Ricard (cited above) who argued that commerce makes relationships prudent and civilized.

Our findings are robust throughout our examinations of different time periods, using different measures of trade flows, and with different econometric methods. We also experiment with instrumenting trade flows using supply capacity and market potential, a technique that has been extensively used in the international trade literature. The instrumental variable approach reaches the same conclusions, suggesting that the estimated influence of bilateral trade on bilateral territorial exchanges is causal. As two extensions of the study, we find that measuring territory flows based on the population residing in the "flowed" territories gives similar findings. We also find that countries that trade more goods have fewer territories that declare independence from them.

Our study endeavors to estimate the *marginal* impact of an economic phenomenon (goods flows) on a political phenomenon (territory flows). Territory flows, a politically sensitive subject, are primarily driven by political forces. We are not building a new theory of global territorial issues, but instead aim to estimate whether economic forces can explain some portion of the political changes involved in territory flows. We control for various factors that may covary with territory flows and trade flows, including geographical, cultural, and industrial characteristics, and have checked four different global political phases within the 139-year sample period. The substitution between territory flows and trade flows applies to the whole time span, a notable finding given that the sample period was a most politically volatile time in human history.

Our study investigates only the country pairs that had territory flows during the sample period. Countries that neither acquired nor ceded territories are not considered in this study. Since most countries in the world neither gained or lost territories in most years of the sample period, accounting for all possible country pairs in the world through the 139 years would give us an extremely large and sparse sample space. Moreover, the fact that two countries had territory flows indicates that the two countries had enough conflicts of interest that could not be resolved in alternative ways. Econometrically, these pairs of countries are compared against each other in this study to test whether a larger trade volume reduces territorial exchanges

in geographic size (area). By limiting our focus to these pairs, we avoid comparing countries with different propensities in conducting territorial expansion or contraction.

Our study does not differentiate territory flows that were militarized from those that were peaceful. A large number of peaceful territory flows occurred during our sample period. The relationship between trade and war is complicated, and the existing studies rely on unique theoretical mechanisms and identification strategies to model that relationship (Acemoglu and Yared, 2010; Bonfatti and O'Rourke, 2014; Glick and Taylor, 2010; Gartzke and Rohner, 2011; Martin, Mayer, and Thoenig, 2008a,b, 2012; Polachek, 1980; Rohner, Thoenig, and Zilibotti, 2013; Skaperdas and Syropoulos, 2001). We depart from that literature by considering territory flows in economic terms similar to trade flows. From our perspective, a militarized territory flow is plainly a more costly territory flow. Having a large trade volume provides an economic means to evade challenges to sovereignty, whether the sovereignty solutions use violence or not. By not differentiating militarized from peaceful territory flows, we also avoid further limiting the sample size.

Our study is broadly related to the literature on trade and institutions, where the institutions found to be influenced by trade range from check and balance (Acemoglu, Johnson, and Robinson, 2005) to parliamentary operations (Puga and Trefler, 2014) and contract enforcement (Anderson, 2009; Ranjan and Lee, 2007). Nation states, which are at the core of modern political institutions, are territorial. Head, Mayer, and Ries (2010) examine how the independence of colonies impacted international trade. We now investigate how trade altered territories (Sections 3-4.1), including but not limited to territories that gained independence (Section 4.2).

The rest of the paper is organized as follows. In Section 2, we describe our sample and demonstrate basic data patterns. In Section 3, we present our econometric specification and empirical results. In Section 4, we discuss two extensions of our study. We conclude in Section 5.

2. Data and Patterns

Our major data source is the Correlates of War (COW) Project, which is a database constructed and maintained by political scientists to conduct studies of international relations.[3] Three datasets in the database constitute our working sample: the territorial exchange dataset compiled by Jaroslav, Schafer, Diehl, and Goertz (1998) (hereafter, JSDG), the bilateral trade dataset compiled by Barbieri, Keshk, and Pollins (2009) (hereafter, BKP), and the National Material Capabilities (hereafter, NMC) dataset initially compiled by Singer (1987) that has evolved to

[3]The website for the COW Project is http://www.correlatesofwar.org.

its version 4. The JSDG dataset covers the years 1816-2008, while the bilateral trade dataset covers the years 1870-2009.[4] We use their overlapping years 1870-2008 as the time span for our working sample.[5] The NMC provides us with data on population and industrialization level, including iron-and-steel production and primary energy consumption. All three datasets are updated from time to time using a consistent format mandated by the COW Project. In addition, we obtained characteristics of country pairs, such as whether two given countries share borders, languages, or legal systems. These characteristics were obtained from the CEPII gravity database compiled by Head, Mayer, and Ries (2010) (hereafter HMR), which has been widely used in the international trade literature.

Table 1 is a summary of the variables obtained from the sources above and their descriptive statistics. Each observation in our working sample is a territory flow, with an origin country that cedes the territory's sovereignty, and a destination country that assumes the territory's sovereignty. The territory has an area and population. With its origin and destination countries given, we merge bilateral distance, country-pair characteristics, and each side's national power (primarily, industrialization) measures into the data.

Table 1: Descriptive Statistics

Variable	Sources	Obs	Mean	Std. Dev.	Min	Max
Area of territory flow (square km)	JSDG	370	120863	573715.4	1	9984670
Population of territory (persons)	JSDG	262	1354061	3485354	0	3.29E+07
Trade flow (million current USD)	BKP	370	170.161	1379.793	0	24724.47
Distance (km)	HMR	370	3136.49	3746.182	1.847288	19129.21
Sharing border dummy	HMR	353	0.45892	0.499017	0	1
Sharing language dummy	HMR	353	0.25779	0.438039	0	1
Sharing legal system dummy	HMR	353	0.53824	0.499243	0	1
Population of orig. country (thousand persons)	NMC	316	63770.2	123225.1	232	867818
Population of dest. country (thousand persons)	NMC	359	72287.7	161316.6	61	1266838
Iron & steel production of orig. country (1,000 tons)	NMC	319	6703.3	18795.35	0	124314
Iron & steel production of dest. country (1,000 tons)	NMC	359	5798.65	15493.39	0	123954
Military expenditure of orig. country (thousand current USD)	NMC	319	3694586	1.57E+07	0	1.70E+08
Military expenditure of dest. country (thousand current USD)	NMC	359	1775780	7379144	0	9.00E+07
Petroleum cons. of orig. country (thousand coal-ton equivalents)	NMC	319	126749	381543.8	0	2818576
Petroleum cons. of dest. country (thousand coal-ton equivalents)	NMC	359	92817.9	239833.3	0	1912317

Destination (dest.) country is the side that receives the territory, while origin (orig.) country is the side that cedes the territory. Trade flow is defined as the volume of exports from the origin country to the destination country.

There are 370 territory flows in the sample. A full list of the territories, including origin countries, destination countries, and JSDG IDs that can be linked to records in the JSDG

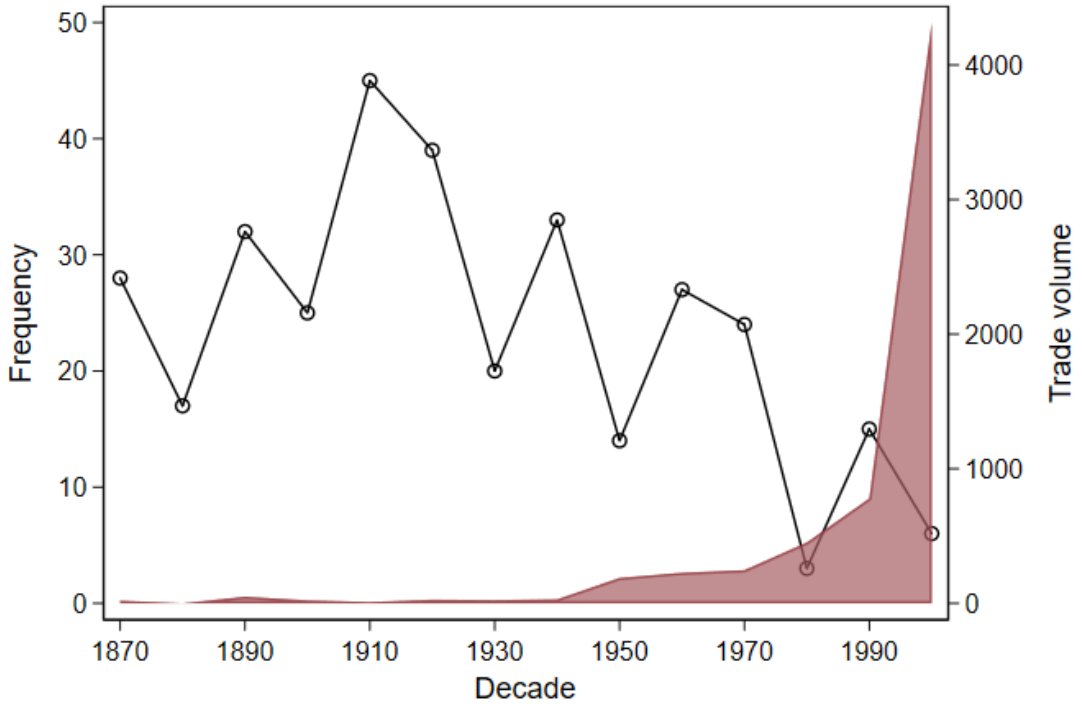
[4]The majority of the post-WWII data in Barbieri et al. (2009) are from the International Monetary Fund's *Direction of Trade Statistics*. See their paper for detailed sources.

[5]The non-overlapping years 1816-1869 do not have trade-flow data. Also, it is difficult to find country-level geographic and socioeconomic data for that period.

database, is provided in Table A1. For example, in the year 1917, Denmark sold the Danish Virgin Islands to the United States. This event is recorded as *entity 462* in the JSDG database, where the 462 is the JSDG ID in Table A1. In the JSDG database, this "territory flow" is recorded with Denmark as the origin country, and the United States as the destination country. For another example, the United Kingdom (origin) returned the sovereignty of its colony Hong Kong to China (destination) in the year 1997, a territory flow recorded as entity 871.

In total, there are 101 origin countries and 86 destination countries recorded in the data over the 139-year period. In 2008, the last year of our sample, there were two territory flows: one from Nigeria to Cameroon, to implement a ruling of the International Court of Justice (entity 886), and the other from Russia to China (entity 887), as a result of a historical border dispute settlement. In general, territory flows have become less frequent worldwide, while global total trade flows (in our sample) increase over time (especially after the birth of the World Trade Organization). Figure 1 provides an illustration of both flow patterns.

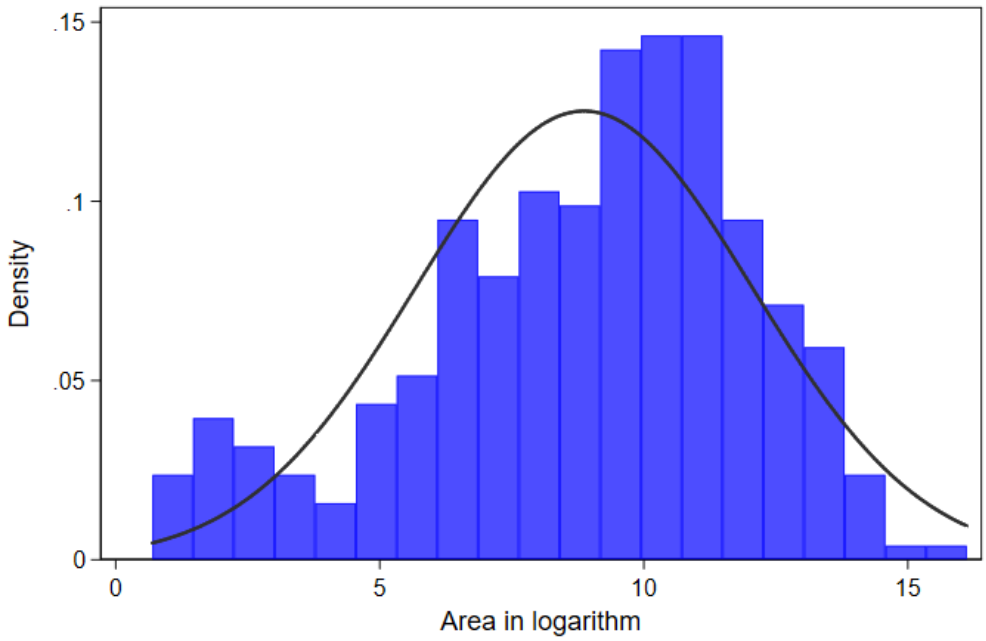
Figure 1: Territory-flow Frequency and Trade-flow Volume over Time



Notice that our interest is not in the relationship between trade flows and the frequency of territory flows, but in the relationship between trade flows and the geographical sizes (areas) of territory flows. There were only 370 territory flows over a 139-year country-to-country

bilateral matrix, namely 370 data points across a sparse sample space with maximum dimensions $101 \times 86 \times 139 = 1,207,354$.[6] By limiting our attention to the 370 factual territory flows, the usability of our sample improves significantly.

Figure 2: Histogram of Territory Flow (Areas)

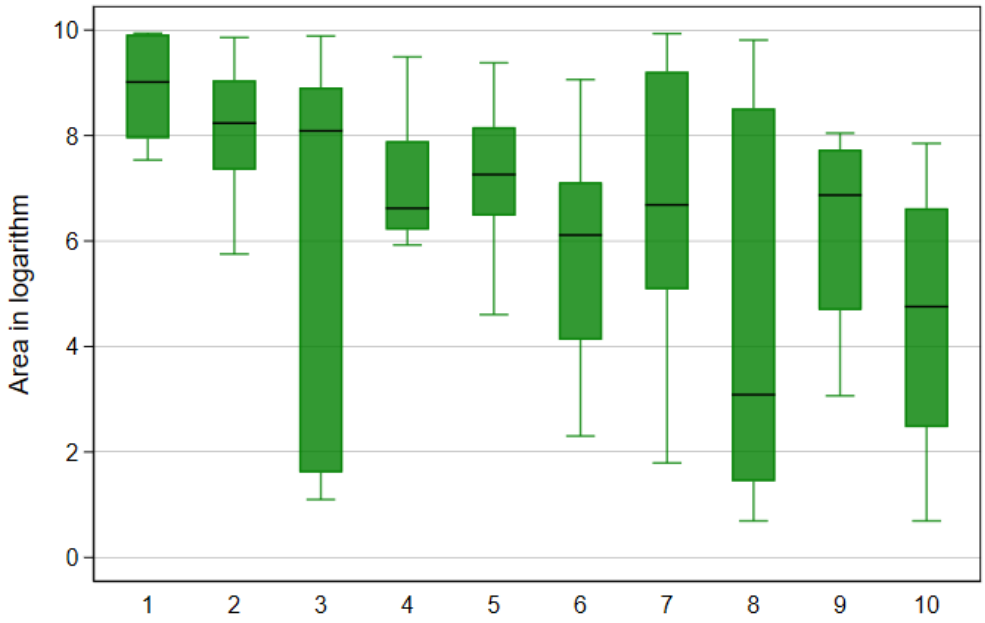


The areas of the flowed territories in the JSDG database are bottom-coded, meaning that small-size territories have their areas coded as one square kilometer. There are 42 such cases. When these territories are excluded, the areas of the flowed territories have a log-normal distribution as displayed in Figure 2, where a normally distributed density curve is added for the purpose of comparison. Here and after, we refer to the observations other than the bottom-coded territories as *substantial* territory flows.

To preview the association between territory-flow areas and trade-flow volumes, we divide bilateral trade flows from origin countries to destination countries into ten deciles. For each decile, we draw a box plot of the corresponding territory-flow areas (in logarithm). The box plots are demonstrated in Figure 3 against the deciles, where a downward pattern is revealed. This is a preview of the empirical association that interests us, which does not control for other related factors. To investigate the marginal impact of trade flows on territory flows, we resort to regression analysis in the next section.

[6]The actual maximum dimensions might be slightly smaller than 1,207,354. Some countries that appear as origin countries in one year are destination countries in some other year. They should be deducted from the 1,207,354 dimensions.

Figure 3: Territory Flows (by Area) versus Trade Flows (by Decile)



3. Main Results

3.1. Specification

We hypothesize that a greater trade flow reduces the area of the territory flow from the origin country to the destination country. Recall that origin and destination, more of a political metaphor than a geographical fact, refer to the sovereignty of the territory flow. Aligned in the same direction, trade flows refer to the goods exported by the origin country and imported by the destination country. The idea is to examine the substitution (i) between importing goods from a country and taking its territory (from the destination country's perspective), and equivalently (ii) between exporting goods to a country and losing a territory to it (from the origin country's perspective).

Our main regression is specified as

$$\begin{aligned}\ln TerriArea_f = \beta \ln TradeFlow_f \\ + \gamma_1 \ln OrigPop_f + \gamma_2 \ln DestPop_f + \gamma_3 \ln OrigDestDist_f \\ + X_f \bar{\delta} + \lambda_p + \epsilon_f, \quad (1)\end{aligned}$$

where f indexes territory flows. The geographical sizes (areas) of territory flows are the dependent variable ($TerriArea$), while the population and bilateral distance of the corre-

sponding original and destination countries are the control variables ($OrigPop$, $DestPop$, and $OrigDestDist$). The coefficient β of the trade flow from the origin country to the destination country is our parameter of interest. These variables are in logarithm in order to estimate parameters as elasticities, and other control variables are also used, denoted by the vector X. We divide the 139 years into three historical periods (prior to the two world wars, the two world wars and the interwar years, and after the world wars) and include corresponding period fixed effects λ_p in all regressions. ϵ is a classical standard error, and robust standard errors are used.

Countries larger in size and closer to each other are known to trade more with each other, a pattern that has been modeled as the gravity equation in the international trade literature.[7] In our context, such countries are also more likely to have territory flows because large countries have more territories — namely, prior success in expanding territories, and therefore more territories to lose — and countries close to each other are more likely to have border disputes. Our specification, which includes the three major variables of the gravity equation, $OrigPop$, $DestPop$, and $OrigDestDist$, are used to account for the gravity forces.[8] We first run the regression with $TradeFlow$ only, and then with the gravity variables included. When the gravity variables are included, the association between $TerriArea$ and $TradeFlow$ has *partialled out* the gravity-driven covariation between them. For the same reason, we also control for other bilateral trade-related factors, including whether the two countries share any border, language, or legal system. These are known to influence bilateral trade and are normally controlled for in gravity models (see for example, Head et al. (2010)).

More subtle to control for are the variables related to national powers, including iron-and-steel production, military expenses, and energy consumption. On the one hand, they should be included in the regression, since they covary with both $TerriArea$ and $TradeFlow$ through industrialization and colonization. On the other hand, the production and consumption of metals, energy, and arms were a major part of trade flows, such that including them in the regression would render the coefficient of trade flows β (our parameter of interest) difficult to interpret. As a compromise, we use them but not in our preferred specifications.

3.2. Baseline Results

Our baseline results are reported in Table 2. Panel A uses the full sample, where we start with a regression that includes no control variable. Doubling trade flow reduces the area of the territory flow by nearly fifty percent (48.5%). Adding gravity variables shrinks the sample size

[7] See Anderson (2011), Head and Mayer (2014), and Baltagi, Egger, and Erhardt (2017) for reviews.

[8] The gravity model in the international trade literature usually uses GDP instead of population to measure economic sizes, though country-level GDP statistics prior to the WWII were rarely available.

(from 370 to 308) while the magnitude of the coefficient rises (from 48.5% to 54.1%), as shown in column (2). Including further control variables in column (3) makes little difference. In columns (4)-(6), we add a national power measure each time and the findings remain stable. Iron-and-steel production and petroleum consumption reduce the coefficient of trade flows, and origin countries with either industrialization measure being greater appear to lose smaller territories. As noted earlier, we prefer not to include these measures since they are directly related to or even part of trade flows. In Panel B of Table 2, we use the subsample of substantial territories, as previously defined to be the territories with areas greater than one square kilometer. This allows us to address potential bottom-coding in the area of territory flows. The results are similar.

In general, doubling trade flow reduces the area of the flowed territory by a third to a half. Below, we conduct four separate robustness checks.

3.3. Robustness Checks

Robustness I. Historical trade data might be inaccurate since developing reliable customs and statistical agencies is costly and takes time. Generally speaking, positive trade values are relatively more reliable than zero and missing trade values. In Panel A of Table 3, we first use a dummy variable that equals 1 for positive trade flows to replace the previous continuous trade flow variable (*Spec 1*). This 0-or-1 demarcation is usually referred to as the extensive margin of trade statistics, as its variation comes only from whether trade occurs or not, with all continuous variations excluded. As shown, with all else held equal, having a positive trade flow turns out to reduce the area of territory flow by 148 percent. When only substantial territory flows are considered, the magnitude shrinks to 83 percent.

We then turn to the intensive margin of trade statistics that uses only continuous variations. Zero trade values might arise because the customs agency failed to record the trade for technical reasons (e.g., small-value transactions were rounded to zero) or artificial reasons (e.g., smuggling). Missing values have an even more ambiguous nature. This being said, the variations in positive trade records have the merit of easy interpretation. With only the observations with positive trade flows considered (*Spec 2*), doubling trade flows still reduces the area of territory flows by a third to a half.

We next consider average trade flows between origin countries and destination countries. Over the 139 years, most country pairs have more than one (year) trade record. We take the average of those recorded trade flows, first considering only positive flows (*Spec 3*) and then including all flows (*Spec 4*). We provide the two sets of results, which lead to the same findings. Lastly, we use the maximum bilateral trade flows (*Spec 5*). The maximum measure is concerned only with positive flows, but has the advantage of capturing the largest capacity

Table 2: Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: ln(area of territory flow)						
			Panel A: Full sample			
ln(trade flow)	-0.485***	-0.541***	-0.531***	-0.393***	-0.506***	-0.442***
	(0.0976)	(0.111)	(0.111)	(0.116)	(0.111)	(0.118)
ln(pop. of dest. country)		0.399***	0.431***	0.572***	0.292	0.302
		(0.144)	(0.152)	(0.205)	(0.180)	(0.193)
ln(pop. of orig. country)		0.151	0.213	0.475**	0.350**	0.537***
		(0.154)	(0.157)	(0.202)	(0.167)	(0.193)
ln(bilateral distance)		0.0441	0.133	0.0454	0.192	0.0555
		(0.196)	(0.237)	(0.248)	(0.233)	(0.245)
Sharing border dummy			0.216	-0.0199	0.292	0.122
			(0.589)	(0.591)	(0.589)	(0.584)
Sharing language dummy			1.150*	0.835	1.145*	1.019
			(0.658)	(0.667)	(0.650)	(0.651)
Sharing legal system dummy			-0.497	-0.512	-0.506	-0.654
			(0.478)	(0.475)	(0.489)	(0.504)
ln(iron & steel production) of dest. country				-0.119		
				(0.0841)		
ln(iron & steel production) of orig. country				-0.209**		
				(0.0815)		
ln(military expenditure) of dest. country					0.102	
					(0.0908)	
ln(military expenditure) of orig. country					-0.101	
					(0.0655)	
ln(petroleum consumption) of dest. country						0.0602
						(0.109)
ln(petroleum consumption) of orig. country						-0.266***
						(0.0995)
Observations	370	308	304	304	304	304
R-squared	0.065	0.109	0.123	0.148	0.132	0.146
			Panel B: Substantial flows only §			
ln(trade flow)	-0.352***	-0.333***	-0.327***	-0.221**	-0.304***	-0.267***
	(0.0901)	(0.100)	(0.0969)	(0.0973)	(0.0969)	(0.100)
Observations	328	268	264	264	264	264
R-squared	0.056	0.140	0.179	0.212	0.186	0.191

Destination (dest.) country is the side that receives the territory, while origin (orig.) country is the side that cedes the territory. Trade flow is defined as the volume of exports from the origin country to the destination country. § Panel B uses the same specification as the corresponding column in Panel A, except for using the subsample in which the territory flows have substantial areas (see text for details). To save space, only the coefficients of territory flows are reported in Panel B. In both panels, period dummies are included in columns (2) to (6) but not reported; constant terms are not reported; robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Robustness I: Measurement and Peace

	(1)	(2)	(3)	(4)
Dependent variable: ln(area of territory flow)				
Control variables:	No	Yes	No	Yes
Territory flows:	Full	Full	Substantial only	Substantial only
Panel A: Different trade flow measures				
Spec 1: Dummy of having positive trade flow	-1.577***	-1.480***	-0.889**	-0.830**
	(0.418)	(0.483)	(0.350)	(0.370)
Observations	370	304	328	264
R-squared	0.037	0.088	0.019	0.153
Spec 2: ln(trade flow) if having positive trade flow	-0.459***	-0.531***	-0.363***	-0.327***
	(0.102)	(0.111)	(0.0920)	(0.0969)
Observations	306	304	266	264
R-squared	0.062	0.123	0.068	0.179
Spec 3: ln(average trade flow over years) if having positive trade flow	-0.379***	-0.507***	-0.303***	-0.337***
	(0.106)	(0.118)	(0.0956)	(0.0977)
Observations	312	304	272	264
R-squared	0.043	0.115	0.047	0.180
Spec 4: ln(average trade flow over years)	-0.425***	-0.507***	-0.314***	-0.336***
	(0.0999)	(0.118)	(0.0909)	(0.0979)
Observations	370	304	328	264
R-squared	0.052	0.115	0.048	0.180
Spec 5: ln(maximum trade flow over years)	-0.332***	-0.470***	-0.259***	-0.306***
	(0.0979)	(0.112)	(0.0870)	(0.0914)
Observations	312	304	272	264
R-squared	0.038	0.113	0.041	0.178
Panel B: Subsample (territory flows are peaceful)				
ln(trade flow)	-0.514***	-0.588***	-0.374***	-0.359***
	(0.104)	(0.120)	(0.0962)	(0.109)
Observations	272	222	236	188
R-squared	0.081	0.131	0.068	0.200

Columns (1) to (4) in this table correspond to the following columns of Table 2: column (1) in Panel A, column (3) in Panel A, column (1) in Panel B, and column (3) in Panel B. As before, trade flow is defined as the volume of exports from the territory-ceding country to the territory-receiving country. In Panel A: Different measures of trade flow are used. In Panel B, the same measure of trade flow is used, but the subsample in which territory flows are peaceful (i.e., not involving military disputes) is used. In both panels, to save space, only the coefficients of territory flows are reported; robust standard errors in parentheses; *** p<0.01, ** p<0.05.

of the bilateral trade relationship. The magnitude remains close to the one-third (30.6 percent) to one-half (47.0 percent) range.

In Panel B of Table 3, we include only territory flows documented to be peaceful, where the sample size shrinks from 370 to 272. The previous results hold, with slightly greater magnitudes (58.8 percent in column (2) and 35.9 percent in column (4)), indicating that our baseline results are unlikely to be driven by the fact that military disputes interfere with normal trade activities.

Table 4: Robustness II: Global Political Phases

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable: ln(area of territory flow)								
Period:§	Earlier than 1919		1919 to 1945		1945 to 1991		Later than 1991	
ln(trade flow)	-0.867***	-0.721**	-0.389*	-0.449	-0.378**	-0.374*	-0.836**	-0.0271
	(0.306)	(0.330)	(0.229)	(0.270)	(0.187)	(0.197)	(0.322)	(0.182)
ln(pop. of dest. country)	0.867***	0.844**	0.937***	0.910***	-0.0817	-0.121	-0.0441	0.244
	(0.325)	(0.355)	(0.254)	(0.265)	(0.230)	(0.252)	(0.569)	(0.640)
ln(pop. of orig. country)	0.261	0.222	0.463	0.358	-0.0874	-0.0711	0.378	0.0601
	(0.261)	(0.280)	(0.311)	(0.326)	(0.249)	(0.244)	(0.883)	(0.563)
ln(bilateral distance)	-0.0955	0.133	-0.383	-0.109	0.000995	-0.0435	0.861	-0.134
	(0.426)	(0.466)	(0.418)	(0.674)	(0.309)	(0.351)	(1.084)	(1.802)
Sharing border dummy		0.912		1.495		-0.752		0.617
		(0.912)		(1.561)		(1.137)		(5.535)
Sharing language dummy		-0.0328		0.203		1.278		6.870*
		(1.334)		(1.505)		(0.969)		(3.183)
Sharing legal system dumm		-0.155		-1.932*		1.592		-2.945
		(0.905)		(1.040)		(0.973)		(2.942)
Observations	121	118	75	75	92	91	20	20
R-squared	0.137	0.138	0.171	0.217	0.066	0.145	0.286	0.803

§For each period, the specifications used here correspond to the columns (2) and (3) of Table 2, respectively. As before, trade flow is defined as the volume of exports from the territory-ceding country to the territory-receiving country. Constant terms are not reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Robustness II. Both trade and territory flows depend on the global political landscape. In Table 4, we rerun our previous regressions using subsamples corresponding to four different global political phases: pre-WWI and WWI (before 1919), the interwar period and WWII (1919 to 1945), the cold war (1945 to 1991), and post-cold war (1991-2008). The first phase is known as the time of "first globalization," which displays the strongest results. The second phase was fraught with military disputes, trade protectionism, economic crises, and world power reshuffles. Accordingly, the results become weaker. In the third phase, the world returned to peace, and trade gradually liberalized because of the General Agreement on Tariffs and Trade. In the last phase, the sample size is the smallest (only 20 observations), but the results remain statistically significant when the sharing-related control variables are not included.

Robustness III. Some country pairs have more than one territory flow, which renders panel data econometric methods applicable. In Table 5, we experiment with three panel data methods: random effects of within-estimation, fixed effects of within-estimation, and between-estimation. The within-estimation methods use the within-pair variations, while the between-estimation method uses cross-pair variations. The statistical magnitude and significance of the coefficient of interest $\hat{\beta}$ perform stably.

Table 5: Robustness III: Different Methods

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: ln(area of territory flow)						
Method:§	Pair random effects		Pair fixed effects		Between-estimation	
	Within-estimation		Within-estimation			
ln(trade flow)	-0.507***	-0.544***	-0.461**	-0.332*	-0.645***	-0.675***
	(0.0974)	(0.122)	(0.189)	(0.180)	(0.114)	(0.143)
ln(pop. of dest. country)		0.466***		-0.184		0.519***
		(0.158)		(1.943)		(0.163)
ln(pop. of orig. country)		0.219		1.407		0.247
		(0.172)		(1.440)		(0.183)
ln(bilateral distance)		0.0695				
		(0.255)				
Sharing border dummy		0.182				0.0320
		(0.621)				(0.571)
Sharing language dummy		1.416**				1.638**
		(0.635)				(0.652)
Sharing legal system dummy		-0.386				-0.133
		(0.533)				(0.561)
Observations	370	304	370	308	370	304

§With each method, the specifications used here correspond to the columns (1) and (3) of Table 2, respectively. As before, trade flow is defined as the volume of exports from the territory-ceding country to the territory-receiving country. Constant terms are not reported. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Robustness IV. We also experiment with instrumenting trade flows. We follow Redding and Venables (2004) to construct *supply capacity* on the origin-country side and *market potential* on the destination-country side. The two measures are concerned with the needs of trade, both constructed using worldwide variations that are unlikely to be driven by territory perturbance between the two sides.[9] Specifically, we estimate a gravity equation using the trade flows among 194 countries during our sample period (1870 to 2008):

$$\ln TradeFlow_{ij,t} = \rho \ln Dist_{ij} + OrigF_{i,t} + DestF_{j,t} + \varepsilon_{ij,t} \tag{2}$$

where $Dist_{ij}$ is the bilateral distance between country i and country j, $OrigF_{i,t}$ and $DestF_{j,t}$ are, respectively, the exporter-year and importer-year fixed effects, and $\varepsilon_{ij,t}$ is the error term. The estimated fixed effect $\widehat{OrigF_{i,t}}$, is the supply capacity of the exporting country i in year t, while the estimated fixed effect $\widehat{DestF_{j,t}}$ is the market potential of the importing country j in year t. Intuitively, the two estimated fixed effects capture, respectively, the export-side desire to sell to the rest of the world and the import-side desire to buy from the rest of the world. Supply capacity and market potential are related to the territory flow, our ultimate interest, between the two countries only through the trade flow between them, and thus are eligible as instrument variables.

We then use the supply capacity and market potential to instrument the bilateral trade flow in our baseline regression. The two-stage-least-squares (2SLS) results are reported in Table 6. Specifically, in Panel A, we report the second-stage results in columns (2), (4), and (6), labeled as "2SLS" results. They use the same control-variable settings as columns (1), (2), and (3) of Table 2. For ease of comparison, we reproduce those three columns in Table 2 as columns (1), (3), and (5) in Panel A, labeled as "OLS" results. It becomes clear that the OLS results and 2SLS results are similar to each other, in both magnitudes and significance levels.[10] The first-stage results corresponding to the three second-stage coefficients in Panel A are reported in Panel B of the table. Both instruments are not weak and they pass the exclusion test (F-statistics reported).

Overall, the 2SLS results suggest that our findings up to this point indicate a causal impact of trade flows on territory flows. We have moderate confidence in our 2SLS results. Ideal instruments are fully exogenous, whereas supply capacity and market potential are still part of the world economic system. Nevertheless, the similarity between the OLS results and 2SLS results are reassuring.

[9] Similar instrument strategies have been used in Romer and Frankel (1999) and Hanson (2005).

[10] The 2SLS coefficients appear to have greater magnitudes, although the differences remain within one standard deviation.

Table 6: Robustness IV: The 2SLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Second-stage results (OLS results reproduced for comparison)						
Dependent variable: ln(area of territory flow)						
	OLS	2SLS	OLS	2SLS	OLS	2SLS
ln(trade flow)	-0.485***	-0.518***	-0.541***	-0.767***	-0.531***	-0.886***
	(0.0976)	(0.197)	(0.111)	(0.287)	(0.111)	(0.322)
Specification	Column (1) in Table 2		Column (2) in Table 2		Column (3) in Table 2	
R-squared	0.065	0.035	0.109	0.095	0.123	0.097
Panel B: First-stage results						
Dependent variable: ln(trade flow)						
Market potential		0.438***		0.517***		0.495***
		(0.0667)		(0.0980)		(0.105)
Supply capacity		0.452***		0.405***		0.387***
		(0.0475)		(0.0792)		(0.0788)
R-squared		0.289		0.341		0.356
F-stats		56.69		24.11		19.16
Panel C: For both stages						
Control variables§	No	No	Yes	Yes	Yes	Yes
Observations	370	299	308	280	304	280

§OLS results in columns (1), (3) and (5) are reproduced, respectively, from columns (1)-(3) in Table 2. Their 2SLS counterparts are reported in columns (2), (4) and (6), respectively. As before, trade flow is defined as the volume of exports from the territory-ceding country to the territory-receiving country. In both panels, to save space, only the coefficients of territory flows are reported; robust standard errors in parentheses; *** p<0.01.

4. Extensions

In this section, we extend our previous analysis in two different directions. The first extension complements our previous results by addressing a data limitation. The second extension complements our previous results by showing that the mechanism that we hypothesize for bilateral territory flows also applies to unilateral territory flows (i.e., declarations of independence, also known as secessions).

Extension A: Population Flows. An important limitation of our previous results is that they do not reflect the economic activities occurring in the "flowed" territories. The exchanges of uninhabited territories may also be affected by goods flows, but exchanges involving inhabited territories are more in line with the mechanism that we argue for. So far, we are unable to assess the socioeconomic value of the territory flows. The only socioeconomic variable in our territory flow data is the population of the flowed territories (available for 262 out of the 370 territory flows). This information informs us of the scale of economic activities in the flowed territories. We rerun our previous analysis using logged population instead of logged territory area as the dependent variable.

Table 7: Extension A — Population Flows

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: ln(population on the territory flowed)						
ln(trade flow)	-0.480***	-0.486***	-0.515***	-0.503***	-0.483***	-0.433***
	(0.147)	(0.142)	(0.140)	(0.149)	(0.143)	(0.152)
ln(pop. of dest. country)		0.788***	0.752***	0.715***	0.830***	0.666***
		(0.188)	(0.190)	(0.247)	(0.227)	(0.253)
ln(pop. of orig. country)		0.418***	0.545***	0.637***	0.654***	0.922***
		(0.154)	(0.156)	(0.203)	(0.164)	(0.195)
ln(bilateral distance)		-0.532**	-0.833***	-0.831***	-0.768***	-0.863***
		(0.251)	(0.259)	(0.272)	(0.260)	(0.266)
Sharing border dummy			-1.623***	-1.646***	-1.471**	-1.636***
			(0.608)	(0.603)	(0.630)	(0.609)
Sharing language dummy			0.744	0.684	0.586	0.461
			(0.744)	(0.774)	(0.750)	(0.753)
Sharing legal system dummy			-0.374	-0.369	-0.460	-0.669
			(0.510)	(0.521)	(0.511)	(0.543)
ln(iron & steel production)				0.0187		
of dest. country				(0.103)		
ln(iron & steel production)				-0.0614		
of orig. country				(0.0970)		
ln(military expenditure)					-0.0917	
of dest. country					(0.109)	
ln(military expenditure)					-0.110*	
of orig. country					(0.0641)	
ln(petroleum consumption)						0.0406
of dest. country						(0.139)
ln(petroleum consumption)						-0.345***
of orig. country						(0.120)
Observations	262	222	218	218	218	218
R-squared	0.059	0.269	0.301	0.302	0.313	0.330

Destination (dest.) country is the side that receives the territory, while origin (orig.) country is the side that cedes the territory. Trade flow is defined as the volume of exports from the origin country to the destination country. Period dummies are included in columns (2) to (6) but not reported; constant terms are not reported; robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

The results are reported in Table 7, the interpretation of which is analogous to that of Table 2. Now, doubling trade flows leads to approximately one-half smaller population flow, a magnitude that is quite close to that found for the territorial area. This suggests that, in general, larger territory flows carried proportionally more residents (in the sovereignty sense) to the destination countries.

Extension B: Independence. The other extension of our previous study is to examine whether the mechanism found earlier applies to territories that declared independence rather than joining a destination country. The mechanism in this study, if put in a destination country narrative, is that owning the goods made by a country substitutes for owning the territory of

that country. The same mechanism, phrased in an origin country narrative, is that selling goods substitutes for losing territories. The latter narrative also applies to the territories of origin countries that are not lost to any destination country but rather declare independence.

In the JSDG dataset there are 170 cases involving territories declaring independence. For example, in 1908, Bulgaria became independent from the Ottoman Empire. Similarly, Namibia became independent from South Africa in 1990. In total, there are 28 origin countries and 156 independent countries recorded in the data over the 139-year period. Such independence cases were excluded from our earlier study, and we now bring them back as an extension.

Independence cases also involve loss of territory by the origin countries, but do not have corresponding destination countries. We consider the rest of the world as the corresponding destinations. That is, when a territory of an origin country becomes independent, the origin country loses a territory under its sovereignty to the rest of the world. Technically, the explanatory variable $\ln TradeFlow$ in regression (1) is now replaced by the total export volume of the origin country to the rest of the world, and $DestPop$ becomes the total population of the rest of the world. The $OrigDestDist$ in regression (1) no longer applies. Now the control variables include iron-and-steel production, military expenses, and energy consumption aggregated across the rest of the world.

The results are reported in Panel A of Table 8. Notice that only 150 of the 170 cases have corresponding trade-flow data. Evidently, countries that export more to the rest of the world lose smaller territories that become independent. Interestingly, if the origin country is industrially stronger, it tends to lose larger territories which become newly independent countries, perhaps because their territories are more able to sustain their economies independently. Meanwhile, when the rest of the world is industrially stronger, the independent territories tend to be smaller, suggesting a better functioning international order maintained by industrialized countries.

As a robustness check, we replace the rest of the world above with the whole world in Panel B of Table 8. Now, the worldwide aggregated variables are invariant across origin countries and thus their variations could instead be captured by time period dummies; thus, the destination-specific variables are dropped. Only the origin-specific explanation variables remain in the regression. Again, we find a significant negative effect of trade on newly independent territory size.

5. Conclusions

For any pair of countries, exchanging the ownership of goods is easier than exchanging the sovereignty of territories. Goods produced by sovereign territories are known to be reciprocal

Table 8: Extension B — Independence of Territories

	(1)	(2)	(3)	(4)	(5)
Dependent variable: ln(area of territory that becomes independent)					
Panel A: Rest of the world					
ln(trade flow)	-0.236***	-0.0455	-0.255**	-0.349*	-0.300***
	(0.0590)	(0.0709)	(0.121)	(0.185)	(0.115)
ln(pop. of the rest of the world)		-2.225***	6.912***	2.413	0.719
		(0.729)	(2.387)	(3.301)	(2.471)
ln(pop. of orig. country)		-0.0439	-0.692**	-0.0526	-0.538*
		(0.232)	(0.293)	(0.294)	(0.296)
ln(iron & steel production)			-5.521***		
of the rest of the world			(1.437)		
ln(iron & steel production)			0.341***		
of orig. country			(0.116)		
ln(military expenditure)				-1.453	
of the rest of the world				(1.045)	
ln(military expenditure)				0.215**	
of orig. country				(0.108)	
ln(petroleum consumption)					-1.366
of the rest of the world					(1.062)
ln(petroleum consumption)					0.494***
of orig. country					(0.156)
Observations	150	150	150	150	150
R-squared	0.075	0.132	0.243	0.180	0.173
Panel B: Whole world					
ln(trade flow)	-0.236***	-0.130*	-0.338***	-0.195*	-0.329**
	(0.0590)	(0.0758)	(0.108)	(0.0996)	(0.128)
Observations	150	150	150	150	150
R-squared	0.075	0.096	0.142	0.101	0.121

Countries whose territories became independent are considered as origin (orig.) countries. Constant terms are not reported; robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

to trade, whereas transferring sovereign territories rarely occurs as gracefully. We find that for countries involved in territorial exchanges in the last 139 years, greater bilateral trade flows reduce the sizes of bilateral territory flows. That is, international trade enhances international security. Such trade-induced security also applies to the residents who live in the territories involved and serves to reduce territorial secessions. Whether to 'trade' or to 'take' sounds archaic as a political decision of countries, though it reflects a fundamental economic tradeoff that should be considered in peacemaking when international relations have advanced to the modern age.

We would like to note two limitations of our study, which may serve as avenues for future research. First, our results are based on country pairs that have territory flows. The fact that the countries in the sample have territory flows simplifies the identification by revealing that these countries explicitly resorted to and thus had no resistance against territorial solutions.

Generalizing the study by expanding the sample to all countries in the world would be challenging. Not all countries are interested in foreign territories, and those interested have to account for general equilibrium effects of territorial expansions (such as rising inflation and government spending). Making progress in this direction would entail further theoretical analysis, as well as econometric techniques that can handle highly sparse sample spaces.

Second, our data sources contain little information on the economic activities of the "flowed" territories, such that we cannot assess the extent to which the substitution between territory flows and trade follows can be attributed to the goods produced in those territories. Conceivably, outbound territory flows might be detrimental to both the political foundation and economic performance of a country. Without detailed information on the economic activities in the flowed territories, we are unable to make a distinction between the two types of losses. Based on our analysis of the population in the flowed territories — the only socioeconomic indicator available from our data sources — we believe our findings are primarily driven by economic forces. Richer information on the territory flows (as listed in Table A1) would be useful in distinguishing between their political and economic values.

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2005), "The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth." *American Economic Review*, 95, 546–579.

Acemoglu, Daron and Pierre Yared (2010), "Political limits to globalization." *American Economic Review: Papers and Proceedings*, 100, 83–88.

Anderson, James (2009), "Does trade foster contract enforcement?" *Economic Theory*, 41, 105–130.

Anderson, James E. (2011), "The gravity model." *Annual Review of Economics*, 3, 1–668.

Baltagi, Badi H., Peter H. Egger, and Katharina Erhardt (2017), "The estimation of gravity models in international trade." In *The Econometrics of Multi-dimensional Panels: Theory and Applications* (Laszlo Matyas, ed.), 323–348, Springer.

Barbieri, Katherine, Omar M. G. Keshk, and Brian Pollins (2009), "Trading data: Evaluating our assumptions and coding rules." *Conflict Management and Peace Science*, 26, 471–491.

Bonfatti, Roberto and Kevin Hjortshøj O'Rourke (2014), "Growth, import dependence and war." NBER Working Paper 20326.

Gartzke, Erik and Dominic Rohner (2011), "The Political Economy of Imperialism, Decolonization and Development." *British Journal of Political Science*, 41, 525–556.

Glick, Reuven and Alan M. Taylor (2010), "Collateral Damage: Trade Disruption and the Economic Impact of War." *Review of Economics and Statistics*, 92, 102–127.

Hanson, Gordon (2005), "Market potential, increasing returns and geographic concentration." *Journal of International Economics*, 67, 1–24.

Head, Keith and Thierry Mayer (2014), "Gravity equations: Workhorse, toolkit, and cookbook." In *Handbook of International Economics* (Elhanan Helpman, Kenneth Rogoff, and Gita Gopinath, eds.), 131–195, Oxford.

Head, Keith, Thierry Mayer, and John Ries (2010), "The erosion of colonial trade linkages after independence." *Journal of International Economics*, 81, 1–14.

Hirschman, Albert O. (1982), "Associationrival interpretations of market society: Civilizing, destructive, or feeble?" *Journal of Economic Literature*, 20, 1463–1484.

Jaroslav, Tir, Philip Schafer, Paul Diehl, and Gary Goertz (1998), "Territorial changes, 1816-1996: Procedures and data." *Conflict Management and Peace Science*, 16, 89–97.

Martin, Philippe, Thierry Mayer, and Mathias Thoenig (2008a), "Civil Wars and International Trade." *Journal of the European Economic Association*, 6, 541–550.

Martin, Philippe, Thierry Mayer, and Mathias Thoenig (2008b), "Make Trade Not War?" *Review of Economic Studies*, 75, 865–900.

Martin, Philippe, Thierry Mayer, and Mathias Thoenig (2012), "The Geography of Conflicts and Regional Trade Agreements." *American Economic Journal: Macroeconomics*, 4, 1–35.

Polachek, Solomon William (1980), "Conflict and trade." *Journal of Conflict Resolution*, 24, 55–78.

Puga, Diego and Daniel Trefler (2014), "International Trade and Institutional Change: Medieval Venice's Response to Globalization." *Quarterly Journal of Economics*, 129, 753–821.

Ranjan, Priya and Jae Young Lee (2007), "Contract Enforcement And International Trade." *Economics and Politics*, 19, 191–218.

Redding, Stephen and Anthony J. Venables (2004), "Economic geography and international inequality." *Journal of International Economics*, 62, 53–82.

Rohner, Dominic, Mathias Thoenig, and Fabrizio Zilibotti (2013), "War Signals: A Theory of Trade, Trust, and Conflict." *Review of Economic Studies*, 80, 1114–1147.

Romer, David H. and Jeffrey A. Frankel (1999), "Does Trade Cause Growth?" *American Economic Review*, 89, 379–399.

Singer, J. David (1987), "Reconstructing the correlates of war dataset on material capabilities of states, 1816-1985." *International Interactions*, 14, 115–32.

Skaperdas, Stergios and Constantinos Syropoulos (2001), "Guns, butter, and openness: On the relationship between security and trade." *American Economic Review*, 91, 353–357.

Znamenski, Andrei A. (2009), "History with an Attitude: Alaska in Modern Russian Patriotic Rhetoric." *Jahrbücher für Geschichte Osteuropas*, 57, 246–372.

Table A1: List of Territory Flows (For Online Publication Only)

Origin	Destination	JSDG ID*	Origin	Destination	JSDG ID*	Origin	Destination	JSDG ID*
United States	Mexico	726	United Kingdom	Liberia	436	Germany	France	481,482,478,480,479
United States	Honduras	777	United Kingdom	Ghana	679	Germany	Portugal	483
United States	Nicaragua	765	United Kingdom	Cameroon	711	Germany	Poland	484,539,592
United States	Panama	812	United Kingdom	Nigeria	712	Germany	Russian Fed	597
United States	Colombia	822	United Kingdom	Somalia	707	Germany	Denmark	517
United States	Netherlands	555	United Kingdom	Seychelles	806	Germany	South Africa	494
United States	Japan	655,756,780	United Kingdom	Egypt	675	Germany	Japan	456,522
Mexico	France	560	United Kingdom	Oman	752	Germany	Australia	495,524
Nicaragua	United States	459	United Kingdom	China	559,871	Germany	New Zealand	526
Nicaragua	Honduras	688	United Kingdom	Australia	623,668,687	German Fed Rep	Netherlands	634
Panama	United States	400	United Kingdom	New Zealand	551	German Fed Rep	France	613
Panama	Costa Rica	528	Netherlands	United Kingdom	204	German Dem Rep	Germany	837
Colombia	Brazil	419	Netherlands	German Fed Rep	727	Baden	Germany	207
Venezuela	Colombia	536	Netherlands	Indonesia	734	Wuerttemburg	Germany	208
Venezuela	United Kingdom	383	Belgium and Luxembour	United Kingdom	429	Poland	Germany	538
Ecuador	Peru	589	Belgium and Luxembour	France	347	Poland	Czechoslovakia	506
Ecuador	Brazil	406	Belgium and Luxembour	Portugal	284,334,553	Poland	Russian Federation	598,651
Peru	Colombia	565	Belgium and Luxembour	German Fed Rep	669	Austria	Germany	573
Peru	Chile	262	France	Mexico	360	Austria	Poland	485
Brazil	Bolivia	403	France	United Kingdom	372	Austria	Hungary	531
Bolivia	Peru	426	France	Spain	461	Austria	Yugoslavia	492
Bolivia	Brazil	402,420	France	Germany	206,435,569	Hungary	Czechoslovakia	507,594,614
Bolivia	Paraguay	568	France	German Fed Rep	677	Hungary	Yugoslavia	510
Bolivia	Chile	265	France	Italy	488,566,570	Hungary	Romania	512
Paraguay	Brazil	200,351	France	Morocco	432	Czechoslovakia	Germany	574,577
Paraguay	Argentina	201	France	Turkey	583	Czechoslovakia	Poland	503,575
Chile	Peru	557	France	India	648,660	Czechoslovakia	Hungary	576,579
Chile	Argentina	255,395	France	Thailand	411,424	Czechoslovakia	Russian Fed	599
Argentina	Paraguay	232	Spain	Germany	388	Czech Republic	Slovakia	870
Argentina	Chile	254,394	Spain	Mauritania	804	Slovakia	Czechoslovakia	595
United Kingdom	United States	212,399	Spain	Morocco	671,682,760,807	Slovakia	Czech Republic	869
United Kingdom	Canada	628	Portugal	Belgium and Luxembour	333,552	Italy	United Kingdom	361
United Kingdom	Venezuela	380	Portugal	Benin	709	Italy	France	612
United Kingdom	Belgium and Luxembour	418,431	Portugal	China	878	Italy	Albania	615
United Kingdom	France	375,407,408,410	Portugal	India	717	Italy	Yugoslavia	509,546,616
United Kingdom	Portugal	223	Portugal	Indonesia	809	Italy	Greece	617
United Kingdom	Germany	329,330,387	Bavaria	Germany	209	Italy	Egypt	549
United Kingdom	Italy	337,545	Germany	United Kingdom	325,381,382,474,475	Papal States	Italy	203
United Kingdom	Greece	447	Germany	Belgium and Luxembour	476,543,635	Albania	Italy	453,581
United Kingdom	Norway	556	Germany	Luxembourg	477,636	Yugoslavia	Austria	505

* The JSDG IDs can be matched to the original dataset at http://www.correlatesofwar.org/data-sets/territorial-change. Some territories were exchanged more than once.

Table A1: List of Territory Flows (For Online Publication Only), Cont'd

Origin	Destination	JSDG ID*	Origin	Destination	JSDG ID*	Origin	Destination	JSDG ID*
Yugoslavia	Italy	508,544	Ethiopia	United Kingdom	362,396	Yemen Arab Republic	Saudi Arabia	567
Greece	Albania	454	Ethiopia	Italy	571	Yemen	Oman	859
Greece	Turkey	364	Ethiopia	Egypt	248	Yemen People's Republic	Yemen Arab Republic	778
Cyprus	Turkey	789	South Africa	Namibia	865	Yemen People's Republic	Yemen	836
Bulgaria	Yugoslavia	442,491	Swaziland	United Kingdom	326	Kuwait	United Kingdom	384
Bulgaria	Greece	445,493	Madagascar	France	280,359	Kuwait	Saudi Arabia	761
Bulgaria	Romania	450	Comoros	France	803	Qatar	United Kingdom	460
Moldova, Repof	Ukraine	873	Morocco	France	405,422,437	Qatar	Turkey	213
Romania	Bulgaria	584	Morocco	Spain	438	United Arab Emirates	United Kingdom	336
Romania	Russian Federation	245,618	Tunisia	France	257	Oman	Yemen	858
Russian Fed	Poland	530,650	Libyan Arab Jamahiriya	France	664	Oman	Pakistan	686
Russian Fed	Romania	511	Sudan	United Kingdom	385	Afghanistan	United Kingdom	227,338
Russian Fed	Estonia	876	Sudan	Egypt	880	Afghanistan	Russian Fed	353
Russian Fed	Lithuania	582	Turkey	United Kingdom	233,377,417,498,499	Turkmenistan	Russian Fed	228
Russian Fed	China	260,413,868,887	Turkey	France	502	Kyrgyzstan	Russian Fed	216
Russian Fed	Japan	226,414,415,676	Turkey	Yugoslavia	239,443	Kazakstan	China	872
Estonia	Russian Federation	585,875	Turkey	Greece	258,446,448	China	Russian Fed	210,376,392
Latvia	Russian Federation	586	Turkey	Bulgaria	449	China	Japan	354,562,564,572
Lithuania	Germany	578	Turkey	Romania	243	China	Pakistan	730
Lithuania	Poland	504	Turkey	Russian Federation	246,532	China	Nepal	718
Lithuania	Russian Fed	587	Turkey	Saudi Arabia	451	Taiwan	China	667
Ukraine	Moldova, Repof	874	Iraq	Saudi Arabia	800	Korea	Japan	416
Ukraine	Russian Fed	516	Iraq	Kuwait	864	Japan	United States of America	591,611
Armenia	Russian Fed	513	Egypt	United Kingdom	261	Japan	Russian Fed	224,600
Georgia	Russian Fed	515	Egypt	Italy	548	Japan	China	541,601,602
Azerbaijan	Russian Fed	514	Egypt	Ethiopia	275	India	Bhutan	644
Finland	Russian Fed	619	Egypt	Israel	748	India	Pakistan	646,685,758,775,782
Sweden	Finland	533	Syrian Arab Republic	Egypt	683	India	Bangladesh	860
Denmark	United States	462	Syrian Arab Republic	Israel	749,785	India	Sri Lanka	791
Mauritania	Morocco	820	Jordan	Israel	750	Bhutan	United Kingdom	430
Burkina Faso	Mali	833	Jordan	Saudi Arabia	741	Pakistan	India	643,684,757,774,781
Liberia	United Kingdom	433	Israel	Egypt	639,790,799,817,834	Myanmar	United Kingdom	291
Cameroon	Nigeria	882	Israel	Syrian Arab Republic	808	Myanmar	China	716
Nigeria	Cameroon	883,886	Israel	Jordan	640,867	Maldives	United Kingdom	298
Chad	Libyan Arab Jamahiriya	784	Saudi Arabia	Iraq	798	Thailand	United Kingdom	427
Zanzibar	United Kingdom	299,317,324	Saudi Arabia	Jordan	740	Thailand	France	409,423
Zanzibar	Portugal	294	Saudi Arabia	Yemen	884	Lao People's Dem Rep	France	342
Zanzibar	Germany	312	Saudi Arabia	Kuwait	762	Republic of Vietnam	Viet Nam	801
Zanzibar	Italy	322	Yemen Arab Republic	United Kingdom	457	Brunei Darussalam	United Kingdom	306
Zanzibar	Tanzania, United Rep of	736	Yemen Arab Republic	Turkey	214	Fiji	United Kingdom	218
Tonga	United Kingdom	391	Samoa	Russian Fed	378	Samoa	Germany	389

* The JSDG IDs can be matched to the original dataset at http://www.correlatesofwar.org/data-sets/territorial-change. Some territories were exchanged more than once.