

# War and Third Party Trade\*

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## **ABSTRACT**

Few studies explain how wars affect trade with third parties. We argue that wartime trade policies should raise trade with friendly and enemy-hostile third parties, but reduce trade with hostile and enemy-friendly third parties. At the same time, the private motivation of firms and households may be incompatible with national wartime trade policies and constrain the effectiveness of wartime trade policies.

Our directed dyadic dataset consists of almost all of the states from 1885 to 2000. Running a high definition fixed effects regression with two-way clustering of standard errors we find that hostile third parties tended to reduce trade with a combatant state by roughly 30 percent. In addition, trade with third parties friendly to the enemy fell by a similar magnitude. In contrast, on average war hardly affected trade with third parties, because of substitution of war-ridden markets with third-party business partners.

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## **Introduction**

The rapid growth in international trade and investments that took place since the end of the Second World War has inspired hopes for a more peaceful world. Such hopes were mainly based on the proposition that interdependent states have ever more to lose by initiating hostilities against each other, because war disrupts trade. Serious quantitative research of this proposition started to develop after Polachek's (1980) seminal work.<sup>1</sup> Many studies have shown that bilateral trade reduces the likelihood of Militarized Interstate Disputes (MIDs) (Hegre, 2004; Herge, Oneal and Russett 2010; Mansfield, 1994; Oneal and Ray, 1997; Oneal and Russett, 1997; 1999; Russett and Oneal, 2001; Weede, 1995; Xiang, Xu and Keteku, 2007).<sup>2</sup> A related literature argues that it is capitalism that induces peace, by promoting investments, economic development and financial and monetary integration (Gartzke, 2007; McDonald, 2009; Mousseau, 2013). Gartzke and Li (2003a) and Russett and Oneal (2001) found that trade openness in general as well as bilateral trade reduces the

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<sup>1</sup> For a full review of the scientific literature on Commercial Liberalism see Barbieri and Schneider (1999), Mansfield and Pollins (2003), and Schneider (2010).

<sup>2</sup> Barbieri (1996; and 2002) dissented, but Xiang, Xu and Keteku (2007) attributed her findings to methodological issues (Schneider, 2014). Other scholars conditioned the pacifying effects of trade on the existence of democratic national institutions (Gelpi and Grieco, 2008) or Preferential Trade Agreements (PTAs) (Mansfield and Pevehouse, 2000) and on the inelasticity of import demand and export supply (Polachek and McDonald, 1992). Polachek (1980) and Pollins (1989b) preferred to use events data to show that trade increases (decreases) cooperation (conflict).

tendency to be engaged in MID. Souva and Prins (2006) arrived at similar conclusions with particular regard to fatal-MID.

The "costly signals" literature argues that trade and financial openness discourages war, not because of opportunity cost but because it improves communication between potential combatants. Openness allows decision makers with incomplete information about the resolve of the opponents, to signal their willingness to incur economic costs (Gartzke, Li and Boehmer, 2001; and Gartzke and Li, 2003b).<sup>3</sup>

More recently, the Social Network Analysis literature analyzes how indirect trade via third parties reduces the likelihood of MIDs between dyad of states, perhaps by allowing mediation by a third party (Dorussen and Ward, 2010; Kinne, 2012; Maoz, 2009; Poast, 2010). Lupu and Tragg (2013) argue that countries in the same trading community (as identified by the community detection tool of network analysis) are less likely to go to war with one another. However, Bohmelt (2010) finds the opposite: trade links to third parties actually reduce the likelihood of mediation.

While most of the literature explains the likelihood of MID or outright wars and their effects on trade between combatants, few studies explain how wars affect trade with third parties. The few that do, tend to refer to all third parties as if they were a single player with uniform sensitivity to the conflict. This approach does not address the different national

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<sup>3</sup> However, Polachek and Xiang (2010) argue that opportunity costs are the decisive factor in decreasing the probability of war even in signaling models.

interests of third parties and the separate effect that war may have on business-driven trade with third parties.

This study contributes to the literature by arguing that trade between a combatant state and a non-combatant state increases (falls) when they have similar (opposing) interests, but decreases (rises) when the non-combatant state has similar (opposing) interests with the enemy. In other words, trade rises with friendly and enemy-hostile third parties, but falls with hostile and enemy-friendly third parties.

At the same time, the private profit motivation of firms and the benefits to households from trading with counterparts in non-combatant states may not be compatible with national wartime trade policies. In cases of such misalignment of motivation, trade with third parties may adversely affect the effectiveness of wartime trade policies. Firms and households may not necessarily be inclined to act as foreign policy tools of governments and may attempt to evade government policy.

The third section sets out the research design. We innovate with a directed dyadic dataset of almost 860,000 observations, which consists of almost all of the states from 1885 to 2000. This dataset improves the external validity of the findings (smaller datasets reflect the effects of specific wars), avoids selection bias (which occurs when only part of the available data is used) and enables better controls for omitted variables (by distinguishing export flows from import flows) in accordance with new methods developed in the field of trade economics in recent years. In the fourth section, we use this dataset to test our hypotheses and support our argument with High Definition Fixed Effects regressions applied to a Gravity model and discuss the results. To the best of our knowledge, this is the

first analysis of the impact of conflict on trade that uses two-way clustering to address the interdependence between dyadic trade observations. The fifth section provides conclusions.

### **National interests and the cost of war**

Wars and lower forms of MIDs between states often involve partial or full trade embargoes and boycotts. On top of government actions, MIDs, especially outright wars, raise the costs to private agents of engaging in trade with agents from a belligerent state. Risk premiums increase, and the violence, destruction and regulations burden logistics. Nationalistic chauvinism distorts household and business decisions.

This is empirically documented by a vast literature, which with some exceptions mostly found that trade flows between combatant or otherwise adversarial states fall significantly, as bilateral political relations deteriorate.<sup>4</sup> In contrast, the effect of MIDs on trade with third parties has been the subject of fewer empirical studies. Glick and Taylor (2010), Hegre, Oneal and Russett (2010) and Long (2008) found that MIDs impede trade with third

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<sup>4</sup> See Anderton and Carter, 2001; Keshk, Pollins and Reuveny, 2004; Keshk, Reuveny and Pollins, 2010; Kim and Rousseau, 2005; Mansfield and Bronson, 1997; Oneal, Russett and Berbaum, 2003; Polachek, 1980; 1997; Pollins, 1989a; 1989b; Reuveny, 2001; Reuveny and Kang, 2003; Russett and Oneal, 2001. For different results see Barbieri and Levi, 1999; Blomberg and Hess, 2006; Mansfield and Pevehouse, 2000; Morrow, Siverson and Tabares, 1998; and Reuveny and Kang, 1998.

parties in addition to the decline in trade between the adversarial states. Their findings contrast with those of Martin, Mayer and Thoenig (2008), who found that MIDs have very marginal effects on third parties. Gowa and Hicks (2015) found that during the First World War trade with third parties, be they neutrals or allies, actually increased.

Wartime trade policies aside (see discussion below) wars reduce business-driven trade between corporations in combatant states with corporations in third parties. Within combatant states, the sectors that are not essential to the war effort tend to contract because of either physical destruction to their production capacity, or reallocation of resources to the production of war-essentials. In addition, the purchasing power of households in combatant states and their demand for non-war consumption and investment products tend to decline. Thus, the decline in trade with third parties reflects in part the shrinking economic activity of firms and households in the private sector of the combatant state. Of course, some firms in war-related sectors may expand, but we regard any trade effect this would have as part of the political interests-driven trade. On top of this, combatant states may impose blockades that disrupt each other's trade with third parties. Finally, as Lupu and Tragg (2013) argue, trade often creates communities in which dyads have many trade partners in common. Conflict between any dyad in the community is likely to damage trade with many community members, magnifying the conflict's opportunity cost even if without significant inter-combatant trade.

However, there are factors that stimulate trade with third parties. First, if trade falls because the private sectors of the combatant states are depressed then it is likely that it should fall proportionally less between one depressed (combatant) economy and one non-depressed (non-combatant) economy than between two depressed (combatant) economies. In other

words, firms and households in a combatant state can rely to some extent on the better business environment in non-combatant states.

Second, wars can actually increase trade with some third parties, which provide substitute export markets and import sources to those lost among the warring states, as well as substitute for lost domestic production capacity or decline in non-war sectors. For example, see the increase in trade of combatant states with Denmark, Norway, Sweden and the Netherlands during the First World War (Gowa and Hicks, 2015), as well as with the US as a third party, before it entered the war. Indeed, British exports and reexports to Sweden, Norway, and the Netherlands tripled in 1914. Danish shipments increased nine times over (Osborne, 2004, 93).

Third, *Ceteris Paribus* war should jeopardize international transportation (on which international trade is dependent) especially when the transportation routes run close to the theatre of war. Mines, stray projectiles and mistakes in identification create a dangerous environment. To the extent that wars are fought at or adjacent to at least one of the combatant states, they are likely to disrupt transportation between combatants more than between them and third parties. For example, during the Tanker War, as part of the Iran-Iraq war in the 1980s, mines or missiles mistakenly hit some third party vessels in the Gulf (Cordesman, 1990).

Finally, trade with third parties does not suffer from the same degree (if any) of animosity and chauvinism, which increase transaction costs of otherwise mutually beneficial trade between firms and households from opposing combatant states. For example, during the tension between China and Japan over the Diaoyu/Senkaku islands in 2012, Chinese

protesters rioted for several weeks damaging Japanese-made cars, vandalizing stores selling Japanese products, and setting a Panasonic factory on fire. Some Chinese state media outlets listed Japanese brands to boycott (Katz, 2013). For all of these reasons we expect that trade between combatants and non-combatants should on average fall by a lower proportion than trade between the warring states.<sup>5</sup>

In addition to these effects, some trade is lost, and some gained due to third parties' wartime trade policies, which they pursue in accordance with their national interests. In general, we can expect that a third party *C* with relatively similar national interests to those of a combatant state *A* will try to assist *A* in times of peace and especially in times of war, by increasing its trade with *A* and restricting its trade with *A*'s enemy – state *B* (Figure 1). Likewise we can expect that *A* will do what it can to increase trade with *C* and possibly that *B* may also take measures to reduce its trade with *C*. Conversely, dissimilar national interests between *C* and *A* are expected to reduce their bilateral trade and increase *C-B* trade. Of course, any similarity of interests between *B* and *C* would similarly motivate an expansion in *B-C* trade and a decline in *A-C* trade (to see this simply switch the *A* and *B* cells in Figure 1). This means that the trade of each combatant state *A* with a third party *C* is expected to rise in relation to the degree of similarity of interests between them (or fall as their interests become less similar). Conversely, trade between *A* and *C* is expected to

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<sup>5</sup> Sometimes trade between direct belligerents can continue during hostilities, as Barbieri and Levy (1999) show. However, there is no evidence that trade with third parties did not continue as well, or even rise, so it is hard to draw firm conclusions about the balance of war effects in such cases.



fall in relation to the degree of similarity of interests between *B* and *C* (or rise as their interests become less similar). We can summarize this discussion with the following two hypotheses:

H1: When a state is at war, the greater is the similarity of national interests between it and a third party, the more it will trade with that third party.

H2: When a state is at war, the greater is the similarity of national interests between its enemy and a third party, the less it will trade with that third party.

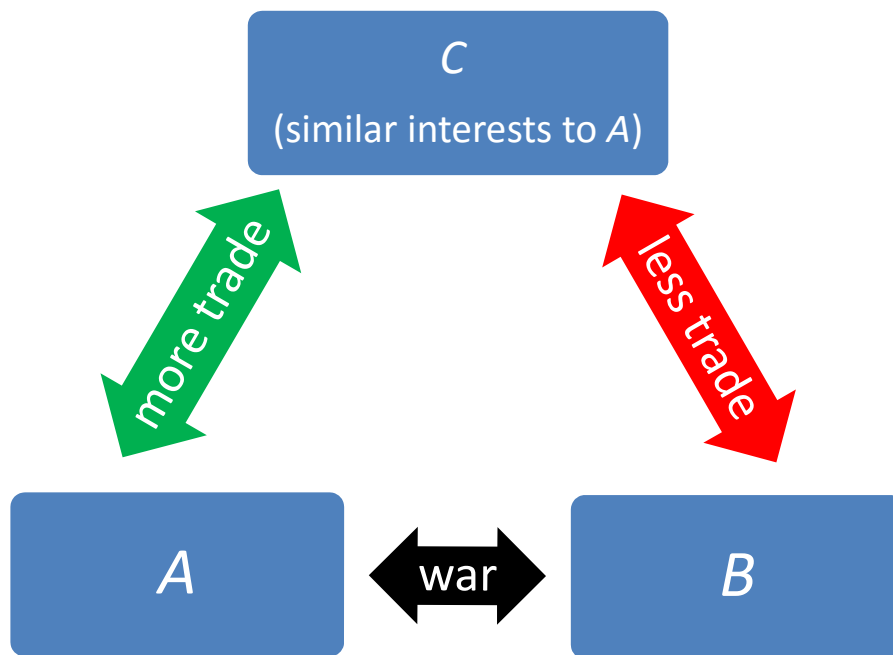


Figure 1 – The effect of similarity of national interests on trade

States can restrict their trade with each other by way of formal government actions consisting mainly of embargos, boycotts, tariff increases and the imposition of a wide variety of Non-Tariff Barriers (NTBs) (Lektzian and Sprecher, 2007; Whang, McLean and

Kuberski, 2013). Informal actions by the state's bureaucracy are also possible, mainly by imposing undeclared NTBs. Such special treatment can take the form of extended time for processing applications for permits or for clearing customs, unusually thorough inspections of traded goods, unusually comprehensive tax auditing and stricter enforcement of laws in general.

Indirect obstruction of trade is also possible by firms, investors, trade unions and consumers. These reactions can be spontaneous if people share the government's approach to the conflict, or if firms and households avoid trade with the target state in expectation of government action, even if such action fails to materialize. In doing so, they may be responding to government signals about the (un)desirability of trade with the target state. Sometimes public opinion actually leads policy and the government is pushed to impose sanctions on a disliked state (Whang, 2011).

Conversely, states can increase their trade with each other (at least between various agencies and state-owned enterprises of the two states) by way of formal, informal and indirect action too, by taking the reverse direction on all of the actions described above (Peterson and Drury, 2011). Indeed, Gowa (1994), Gowa and Hicks (2013 and 2015), Gowa and Mansfield (1993), and Mansfield and Pevehouse (2000) argue that national security interests influence commercial ties and find that alliances promote trade.

However, the private profit motivation of firms and the benefits to households from trading with counterparts in non-combatant states may not be compatible with national wartime trade policies. In cases of such misalignment of motivation, trade with third parties may adversely affect the effectiveness of wartime trade policies. Firms and households may not

necessarily be inclined to act as foreign policy tools of governments and may attempt to evade government policy.

## **Research design**

Our directed dyadic dataset covers 116 years (1885-2000) in annual frequency and 191 different countries and territories for which trade data is available (up to 183 countries in any given year). We exclude the post-2000 years for lack of consistent data on similarity of national interests.

The dependent variable is the log of annual nominal USD merchandise exports from one state to another, taken from the Correlates Of War (COW) 2.0 database (Barbieri, Keshk and Pollins, 2008). In order to allow the logarithmic transformation of trade flows, we code observations with zero trade as having a value of USD 1,000, which is the minimum value recorded in international trade.<sup>6</sup>

Thus, for every pair of states the trade flow in each direction forms a separate observation. Distinguishing exports from imports of a given country is necessary for the method that we

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<sup>6</sup> Alternatively, scholars use Oneal and Russett's (2005) data, but it does not distinguish exports from imports. Some use Gleditsch's (2002) trade data, which codes missing observations as zero trade if both states appear in IMF reports. However, that dataset does not cover the pre-1950 period. Nevertheless using it for the regressions in Table 2 below provides similar support for our hypotheses.

use to control for omitted variables (see below). As a result, there are 857,435 trade observations. This dataset improves the external validity of the findings (smaller datasets reflect the effects of specific wars) and avoids selection bias (which occurs when only part of the available data is used).

As in most studies on the effect of war on trade, the hypotheses are tested with a gravity equation, which explains trade as driven by the importing nation's demand variables (its GDP and consumer price index), the exporting nation's supply potential (its GDP and market access factor), but hampered by transaction costs (including bilateral distance and price mark-ups).<sup>7</sup>

Measurement, data availability and instrumentation problems lead many empirical studies to omit such important variables (as well as domestic and international political variables). Baier and Bergstrand (2007), Baldwin and Taglioni (2006), Baldwin *et al.* (2008, 39-42), Gowa and Hicks (2013 and 2015) and Sadeh (2014) control for such variables with Exporter-Year Fixed Effects (EYFE), Importer-Year Fixed Effects (IYFE) and Country-Pair Fixed Effects (CPFE). We accept that this method is least likely to produce biased estimates. By greatly reducing the scope for omitted variables, it is also a very powerful

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<sup>7</sup> The index of importer prices and the exporter's market access make up what Anderson and Van Wincoop (2003) referred to as multilateral trade resistance. See Anderson (1979), Baldwin *et al.* (2008, 10-17), Bergstrand (1985) and Anderson and Van Wincoop (2001) for a more detailed exposition.

method in minimizing endogeneity of variables (Baier and Bergstrand, 2007, 77-79). We discuss the potential for remaining endogeneity below.

We run a High Definition Fixed Effects regression absorbing three categorical variables: a pair identifier, an exporter-year identifier and an importer-year identifier (to control for respectively, the CPFE, EYFE and IYFE).<sup>8</sup> These identifiers control for any country-year variable, including GDP and population, and thus obviate the need to specify them in the regression.<sup>9</sup> Robust standard errors are two-way clustered: at the year level, in order to address possible interdependence between dyadic trade observations in a given year, and at the country-pair level, in order to address potential problems of heteroskedasticity and autocorrelation in the error terms (for a more detailed explanation see De Benedictis and Taglioni, 2011; Glick and Taylor, 2010, f.23).<sup>10</sup>

We next specify an array of dummy variables controlling for the effects of trade clubs and currency blocks; these include dummy variables for pairs of two WTO/GATT member states (WTO), two member states of a common Preferential Trade Agreement (PTA), and two member states of a common currency block (CURRENCY). To each of these three dummies two more dummies are added, coding for a member of the club/block exporting

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<sup>8</sup> Specifically, we installed the newly developed *reghdfe* command on our STATA 13 8-core SE package

<sup>9</sup> Note that the sum of all EYFE and IYFE is equivalent to a set of year dummies.

<sup>10</sup> We thank Sergio Correa for directing us to the development version of *reghdfe*, which allows two-way clustering of the errors.

to a non-member of the same club/block (noted with the suffix EX), and a club/block member importing from a non-member of the same club/block (noted with the suffix IM).<sup>11</sup>

WAR is a dummy variable scoring in each observation 1 for a war between the particular pair of states in the particular year. This coding is based on the interstate war list taken from the COW database, which defines war as involving sustained combat by organized armed forces, resulting in a minimum 1,000 battle-related combatant fatalities within a 12-month period. Since only states that committed at least 1,000 troops and suffered at least one battle related death are considered as war participants, there are 570 observations with  $WAR = 1$ . The coefficient of WAR is expected to be negative. Since WAR and trade are simultaneous variables, this coefficient is of course merely a measure of association.

WAR3 is a dummy variable scoring in each observation 1 if one of the states in the particular pair was at war with a state from another pair in that particular year. There are 66,975 observations in the dataset with  $WAR3 = 1$ . The coefficient of WAR3 is expected

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<sup>11</sup> Data on GATT/WTO membership is taken from Martin, Mayer and Thoenig (2008). Data on PTA membership for 1950-2000 is taken from Mansfield, Milner and Pevehouse (2007), who include under PTAs any reciprocal arrangements. Pre-1914 PTA data is based on Pahre (2007), Inter-war PTA data on Gowa and Hicks (2013). Data on currency block membership for 1950-2000 is taken from Glick and Rose (2002). They defined currency blocks as country pairs whose monies are either common or interchangeable at 1:1 par for an extended period. Earlier data on currency blocks (but using the same definition) is based on Bordo and Jonung (1999) and López-Córdova and Meissner (2003).

to be negative but with a smaller magnitude than the coefficient of WAR. Simultaneity between WAR3 and trade should be weak, because trade with the overwhelming majority of third parties would have only negligible effect on the likelihood of war with another state. Nevertheless, we regard the coefficient of WAR3 as a measure of association, controlling for third-party trade effects.

FRIEND is an index of similarity of national interests between the two states in each observation, to control for the effect this may routinely have on bilateral trade. We expect the coefficient of FRIEND to be positive. We use Signorino and Ritter's (1999) S index of similarity of the two states' portfolios of alliances as a proxy for the similarity in their national interests, based on the data in EUGene (Bennett and Stam, 2000; Signorino and Ritter, 1999). This index ranges from -1 (perfect dissimilarity of policy portfolios) to 1 (perfect similarity). Two different variants of the index are used, both weighing alliances according to the allies' military capabilities, but one of them considers only regional alliances (S Weighted Regional in EUGene) and the other considers all alliances (S Weighted Global).

We regard both variants of FRIEND as exogenous to WAR and trade. Indeed, the Pearson correlation coefficients ( $r$ ) of WAR with S Weighted Regional and S Weighted Global in our dataset are respectively -0.0008 and -0.0111.<sup>12</sup> We also regard trade as reflecting

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<sup>12</sup> Of course, states with conflicting interests are likelier eventually to go to war with each other compared with states that have similar interests. However, since this data has a time dimension, these low Pearson coefficients mean that the degree of similarity of interests is a poor predictor of the timing of war.

security interests rather than causing them. Even if states form some alliances in order to protect trade, note that our measures are based on similarity of alliances within each dyad, not necessarily any actual alliance between the two states.

We interact WAR3 and FRIEND in order to capture the effect of trade-stimulating wartime policies resulting from the similarity of interests between one of the states, which is at war (state *A* in Figure 1), and the other, which is not (*C*). H1 is supported if the coefficient of the interaction WAR3\*FRIEND is positive.

ENEMY\_FRIEND is an index of the similarity of national interests (with the same two variants) between one non-combatant state in the pair (*C*) and a combatant state (*B*) that is at war with the other (combatant) state in the pair (*A*). Thus, in contrast to WAR3\*FRIEND, the coefficient of ENEMY\_FRIEND captures the trade-obstructing wartime policies resulting from the similarity of interests between states *B* and *C*, on *A-C* trade. For example, in 1982, the UK was at war with Argentina; in the observation of trade between the US (state *C*) and Argentina (state *A*) in 1982, ENEMY\_FRIEND represents the similarity of national interests between the US and the UK (state *B*).

In an observation in which *A* was at war with more than one state, the value of ENEMY\_FRIEND is an average of the similarity values of state *C vis-à-vis* all of *A*'s enemy states. If states *A* and *C* were each simultaneously engaged at war but not with each other ENEMY\_FRIEND is the average of the two different similarity values calculated for each state in the pair (between its enemies and the other state in the pair). In all observations in which both states are at war with each other (WAR = 1) or without any state at war



(WAR3 = 0) ENEMY\_FRIEND = 0. H2 is supported if the coefficient of ENEMY\_FRIEND is negative.

## **Results**

In Table 1 Regression (1) is a basic gravity specification. In Regression (2) WAR and WAR3 are added. As expected trade has been significantly lower between warring states (by  $\exp(-1.01)-1 = -64$  percent on average) during the study period. Because we control for CPFE, EYFE and IYFE, the historical state of bad relations between war combatants, which is not unique to war years cannot explain this finding. Nor can other events particular to any year or particular to any state explain this result. However, as explained above we cannot tell whether war reduced trade, more than trade reduced the incidence of war. Trade with third parties was lower too, but by a smaller proportion (23 percent). Since Regression (2) does not control for the similarity of national interests this effect aggregates political and business motives in trade with third parties.

Table 1: Trade, war and national interests 1885-2000

	(1)	(2)	(3)	(4)
Operational variant of the index of similarity of interests:			Regional alliances only	All alliances
WAR - Dummy for two warring states		-1.01 *** (0.33)	-1.02 *** (0.32)	-1.05 *** (0.32)
WAR3 - Dummy for a state at war trading with a state not at war with it		-0.26 ** (0.12)	-0.21 * (0.12)	-0.15 (0.14)
FRIEND - Similarity of interests between the two trade partners			0.14 *** (0.04)	0.09 (0.08)
WAR3×FRIEND – Wartime similarity of interests between the two trade partners			0.22 *** (0.06)	0.28 *** (0.09)
Marginal effect of FRIEND on dependent variable when WAR3=1			0.35 *** (0.07)	0.38 *** (0.12)
ENEMY_FRIEND - Similarity of interests between a third party and the war enemies of its trade partner			-0.29 *** (0.06)	-0.45 *** (0.09)
WTO - Dummy for pairs of two WTO member states	-0.03 (0.07)	-0.03 (0.07)	-0.03 (0.07)	-0.03 (0.07)
WTOEX - Dummy for WTO member exporting to WTO nonmember	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)	0.02 (0.05)
WTOIM - Dummy for WTO member importing from WTO nonmember	-0.07 (0.05)	-0.07 (0.05)	-0.07 (0.05)	-0.07 (0.05)
PTA - Dummy for two members in the same PTA	0.64 *** (0.11)	0.64 *** (0.11)	0.64 *** (0.12)	0.64 *** (0.11)
PTAEX - Dummy for PTA member exporting out of that PTA	0.11 (0.07)	0.11 (0.07)	0.12 * (0.07)	0.12 (0.07)
PTAIM - Dummy for PTA member importing from outside that PTA	0.05 (0.06)	0.05 (0.06)	0.06 (0.06)	0.06 (0.06)
CURRENCY - Dummy for two members in the same currency block	0.48 ** (0.20)	0.47 ** (0.20)	0.48 ** (0.20)	0.47 ** (0.20)
CURRENCYEX - Dummy for currency block member exporting out of that block	-0.16 (0.13)	-0.16 (0.13)	-0.16 (0.13)	-0.16 (0.13)
CURRENCYIM - Dummy for currency block member importing from out of the block	-0.19 (0.12)	-0.19 (0.12)	-0.19 (0.12)	-0.19 (0.12)
R <sup>2</sup>	0.81	0.81	0.81	0.81
Observations	857,435	857,435	857,430	857,412

Note: Results from High Definition Fixed Effects (*reghdfe*) regressions, absorbing three categorical variables: a pair identifier, an exporter-year identifier and an importer-year identifier. Entries are coefficient estimates, two-way clustered standard errors in parentheses. \* .05 < p ≤ .10. \*\* .01 < p ≤ .05. \*\*\* p ≤ .01. The dependent variable is the natural logarithmic transformation of annual nominal USD exports of merchandise. The constant is not reported because in *reghdfe* the constant is perfectly collinear with the sum of the fixed effects. Shaded entries are tests on sums of coefficients FRIEND+ WAR3×FRIEND assuming WAR3=1.

Regressions (3)-(4) include the three variables that control for similarity of interests, each regression based on a different operational variant of this similarity. The effect of war on trade between combatants are unchanged compared with Regressions (1)-(2). However, the statistical significance of the coefficient of WAR3 is weaker, which means that the effect that wars have on trade with third states is mostly the results of wartime trade policies by interested states, and that business-driven trade with third parties is on average hardly affected. In other words, the ability to substitute trade with adversaries and local output for trade with third parties, and the better business and transportation environment in third parties compared with the war-ridden economies of the combatant states, seems to balance the negative effect of wartime economic recession in non-war sectors and naval blockades.

The statistically significant coefficients of the interaction  $WAR3 \times FRIEND$  and  $ENEMY\_FRIEND$  support H1 and H2 respectively in both regressions. The magnitude of these two coefficients is larger in Regression (4), when all alliances are considered. For example, looking at the coefficient of  $ENEMY\_FRIEND$  the trade of a combatant state was on average 25 percent ( $=\exp(-0.29)-1$ ) lower with a third party that had perfectly similar interest to those of its enemy according to Regressions (3), or 36 percent lower according to Regression (4).

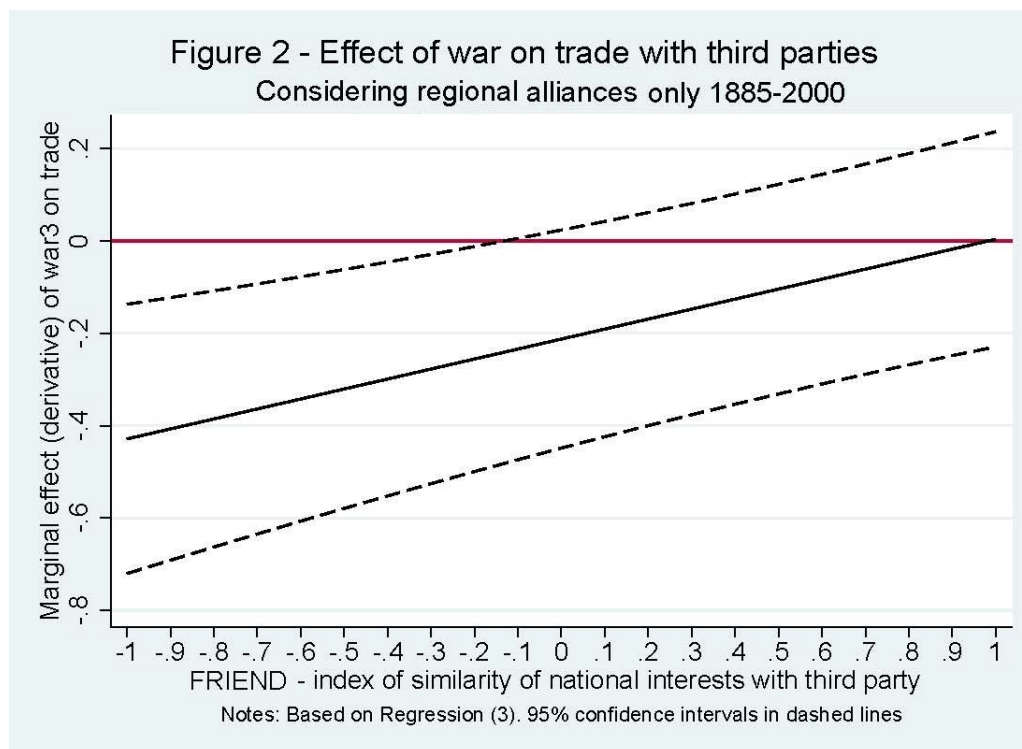
Recall that the  $FRIEND$  variant used in Regression (3) excludes alliances between all pairs consisting of states from different regions, but that both variants of  $FRIEND$  consider the military capabilities of states. Thus, the coefficients of  $FRIEND$ ,  $WAR \times FRIEND$  and  $ENEMY\_FRIEND$  in Regression (3) do not reflect the effects on trade of alliances with militarily capable powers of a different region (henceforth referred to as global military

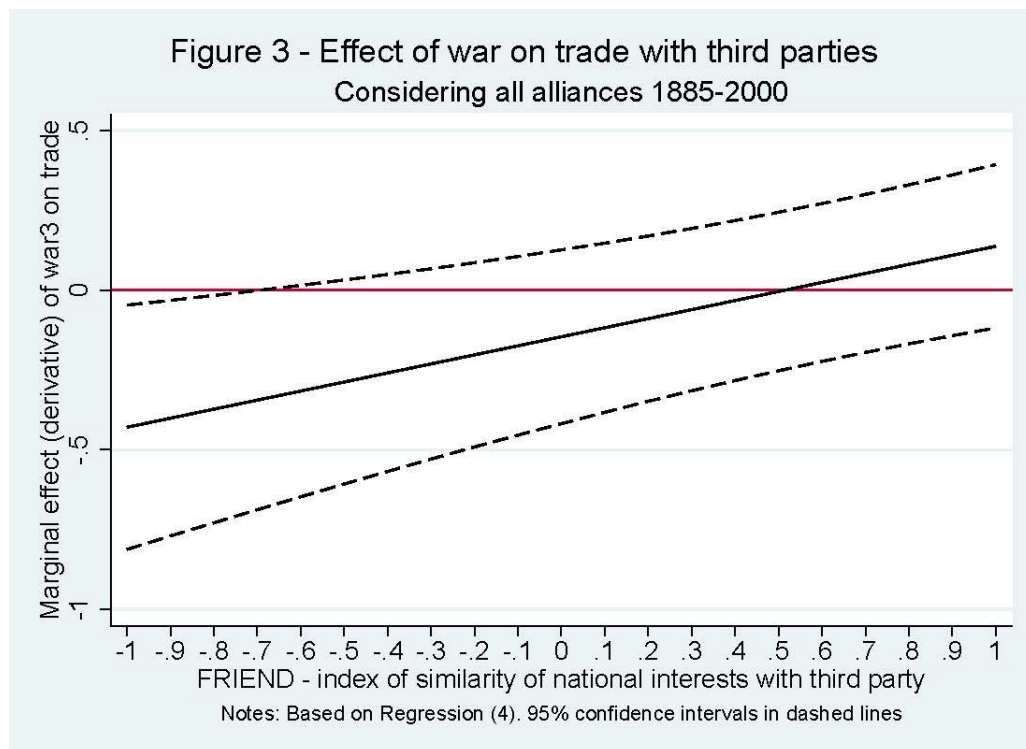
powers). It follows that the moderate wartime coefficients of the similarity of interests in Regression 3 compared with those in Regression 4, in which alliances with global military powers are considered, suggest that the latter influenced wartime international trade more than other states. In contrast, the insignificant coefficient of FRIEND in Regression (4) suggests that global military powers were on average less engaged in peacetime strategic trade.

The overall effect of similarity of interests on trade with third parties (i.e. the marginal effect of FRIEND on the dependent variable when  $WAR3=1$ ) is given by the sum of coefficients of FRIEND and  $WAR3 \times FRIEND$ , which is reported at the bottom of the table. Regression (3) shows in that in times of war, a third party with perfectly similar interests traded with a combatant state 42 percent ( $=\exp(0.35)-1$ ) more than a third party with zero similarity of interests. Conversely, a third party with perfect dissimilarity of interests (FRIEND=-1) traded with a combatant state 30 percent ( $=\exp(-0.35)-1$ ) less than a third party with zero similarity of interests. In peacetime this difference is reduced to 15 percent ( $=\exp(0.14)-1$ ) more trade or 13 percent less trade respectively. In Regression (4), which considers global military powers, these effects intensify in war to 46 and -32 percent, but disappear in peace.

A more careful analysis of the marginal effects of WAR3 on the dependent variable yields further insights (Brambor, Clark and Golder, 2006). The solid line in Figure 2 shows this marginal effect as a function of FRIEND (95% confidence intervals in dashed lines) considering only alliances among regional powers (based on Regression 3). Up until roughly FRIEND=-0.2 this effect is negative (i.e. when war breaks trade with the third party falls) and significant (the top confidence interval is still negative). However, when

FRIEND rises to roughly -0.1 the top confidence interval crosses the zero line and the  $p$  value of the marginal effect (not reported in Figure 2) exceeds 0.05 (and rises for higher values of FRIEND). This means that war has no statistically significant effect on trade with third parties that share similar interests with the combatant state. Rather, the positive coefficient of the interaction of WAR3 and FRIEND reflects mostly the trade restrictions employed by countries with dissimilar interests – in effect hostile third parties. This result is compatible with the significant coefficient of WAR3 in Regression (2), which aggregates political and motives in trade with third parties. Figure 3 shows a similar analysis based on Regression (4), according to which war ceases to have a statistically significant effect on trade when FRIEND is a mere -0.7. In other words, wartime trade policies of global military powers may have had a greater impact on trade than those of regional powers, but this is mostly true at extreme cases of hostility to the combatant country.





As for the control variables, their coefficients are almost identical throughout the four regressions. In accordance with Rose (2004) WTO membership has been associated with no more trade between member states than they would have developed without the WTO, given their various idiosyncrasies. PTA membership is shown to have been associated with 90 percent ( $=\exp(0.64)-1$ ) more trade. A currency union was associated with 62 percent greater trade among its member states, much less than the magnitude of currency-block trade creation suggested by a number of studies, including Rose (2000), Frankel and Rose (2002), and Glick and Rose (2002). The insignificance of the third-party coefficients of PTAs and currency blocks is probably the result of the multitude of bilateral arrangements involving small countries, which affected a limited number of third parties.

It is conceivable that the association between war and trade was different before and after 1950. Post-1950 trade was of a different nature than pre-1950 trade, consisting mainly of intra-industry trade in intermediate and semi-finished goods, which is typical of modern global supply chains, rather than trade in finished goods. Wars may be more disruptive to the recent type of trade than to the earlier, more substitutable type (Gowa and Hicks, 2015). This substitutability of trade may increase the magnitude of the coefficient of WAR3 (compared with the baseline category of trade between non-combatant states) in the post-1950 period, but perhaps reduce the magnitude of the wartime effect of similarity of interests (because political manipulation of trade should have been more expensive).

In addition, the world wars may have had greater potential than other wars to depress trade between pairs of third parties, because of the multitude of combatants and their geographical spread, which created multiple war theatres, and relatively more environmental damage to international transportation. Thus eliminating the world wars from the dataset should increase the magnitude of the coefficient of WAR (the effect of war relative to trade between non-combatants). Finally, historical trade datasets are retrieved from a variety of sources with no international standard methods for defining and recording trade, and thus may be noisy.

Thus, as a robustness check Table 2 reports the results of the same regressions as in Table 1, this time eliminating the pre-1950 data. Because of the small number of states before 1950, and the quadratic effect that this has on the number of dyads, the number of observations falls only by roughly 44,000, or roughly 5 percent of the total. However, the number of WAR observations coded 1 falls by more than 15 percent.

Table 2: Trade, war and national interests 1950-2000

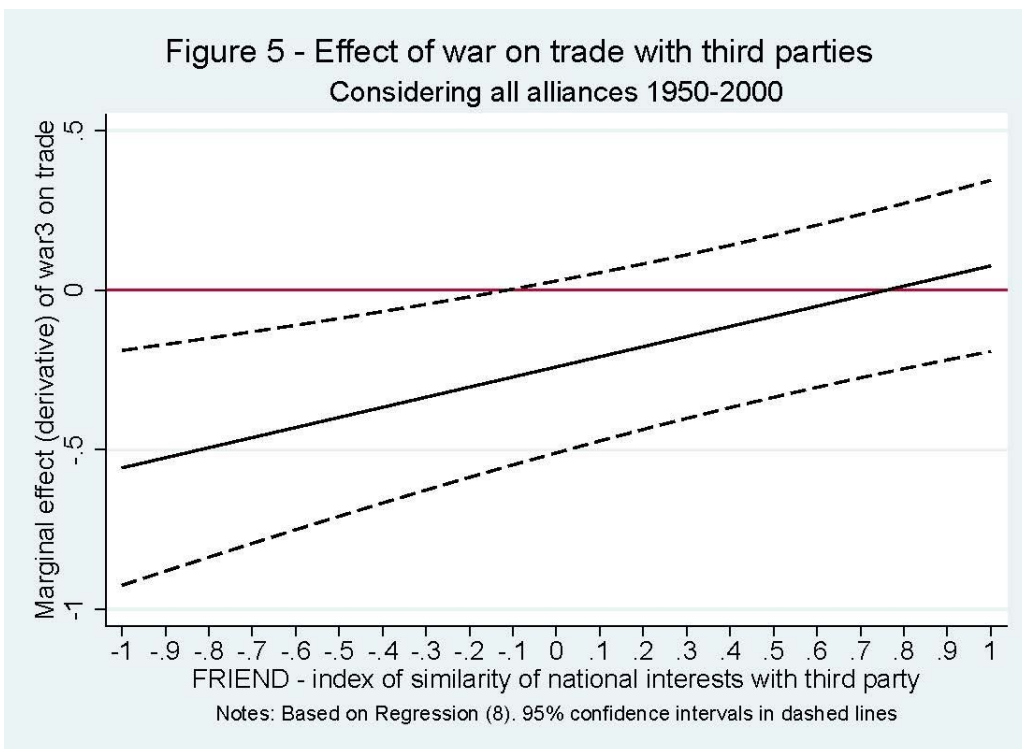
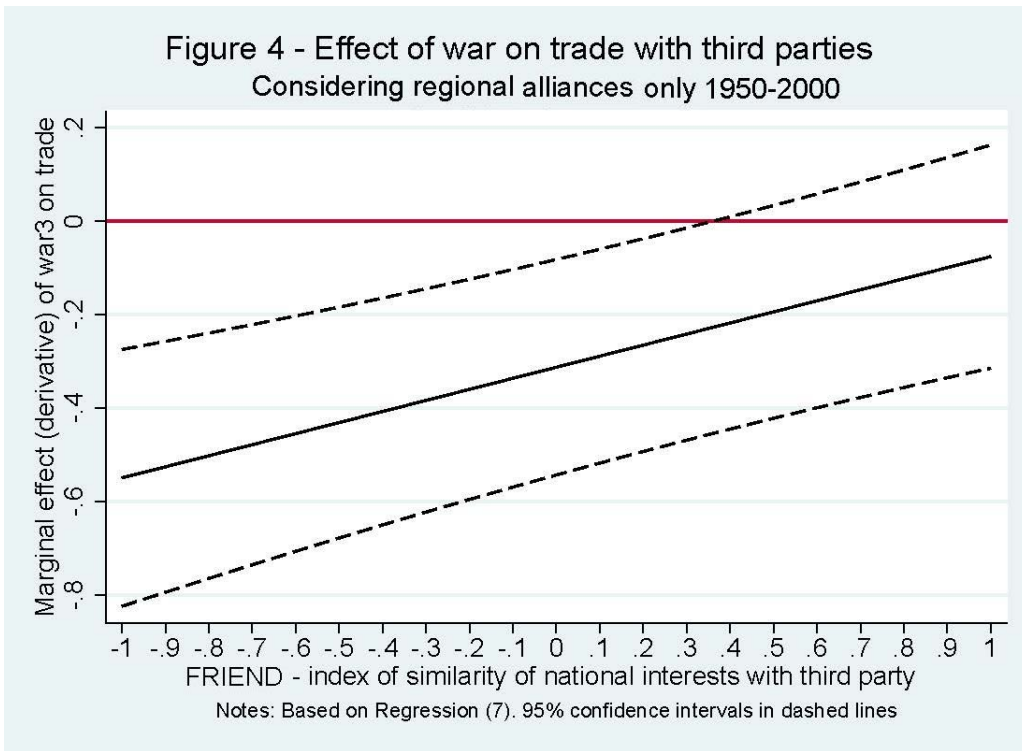
	(5)	(6)	(7)	(8)
Operational variant of the index of similarity of interests:			Regional alliances only	All alliances
WAR - Dummy for two warring states		-1.42 *** (0.39)	-1.37 *** (0.39)	-1.33 *** (0.39)
WAR3 - Dummy for a state at war trading with a state not at war with it		-0.37 *** (0.11)	-0.31 ** (0.12)	-0.24 * (0.14)
FRIEND - Similarity of interests between the two trade partners			0.16 *** (0.04)	0.13 (0.09)
WAR3×FRIEND – Wartime similarity of interests between the two trade partners			0.24 *** (0.06)	0.32 *** (0.09)
Marginal effect of FRIEND on dependent variable when WAR3=1			0.39 *** (0.07)	0.45 *** (0.12)
ENEMY_FRIEND - Similarity of interests between a third party and the war enemies of its trade partner			-0.28 *** (0.06)	-0.44 *** (0.10)
WTO - Dummy for pairs of two WTO member states	-0.03 (0.07)	-0.03 (0.07)	-0.03 (0.07)	-0.03 (0.07)
WTOEX - Dummy for WTO member exporting to WTO nonmember	-0.00 (0.05)	-0.00 (0.05)	-0.00 (0.05)	0.00 (0.05)
WTOIM - Dummy for WTO member importing from WTO nonmember	-0.09 * (0.05)	-0.09 * (0.05)	-0.09 * (0.05)	-0.09 * (0.05)
PTA - Dummy for two members in the same PTA	0.66 *** (0.12)	0.65 *** (0.12)	0.66 *** (0.12)	0.66 *** (0.12)
PTAEX - Dummy for PTA member exporting out of that PTA	0.13 * (0.08)	0.13 * (0.08)	0.14 * (0.08)	0.14 * (0.08)
PTAIM - Dummy for PTA member importing from outside that PTA	0.07 (0.06)	0.07 (0.06)	0.08 (0.06)	0.08 (0.06)
CURRENCY - Dummy for two members in the same currency block	0.80 *** (0.23)	0.79 *** (0.23)	0.79 *** (0.22)	0.78 *** (0.22)
CURRENCYEX - Dummy for currency block member exporting out of that block	-0.01 (0.14)	-0.01 (0.14)	-0.02 (0.14)	-0.02 (0.14)
CURRENCYIM - Dummy for currency block member importing from out of the block	-0.05 (0.13)	-0.05 (0.13)	-0.06 (0.13)	-0.06 (0.13)
R <sup>2</sup>	0.80	0.80	0.80	0.80
Observations	813,567	813,567	813,563	813,545

See notes to Table 1.



A number of differences in the results of Tables 1 and 2 stand out. First, at 120 percent, post-1950 currency blocks had a much greater positive effect on trade than earlier one. This result is more in line with the literature cited above. Second, the effect of war on trade between combatant nations is larger after 1950 (a decline of 75 percent, if the coefficient of WAR is -1.37). Third, the effect of war on trade with third parties (coefficient of WAR3) has a higher magnitude and greater statistical significance in all columns compared with Table 1. These results conform to the expectations above.

The marginal effect of FRIEND on dependent variable when WAR3=1 (reported again at the bottom of the table) is larger in Table 2. Figures 4 and 5 again demonstrate that similarity of interests was mostly influential on trade in the range of negative FRIEND values, but in contrast to Figures 2 and 3, in the post-1950 period moderate levels of positive similarity of interests with regional powers also had a statistically significant (if small) effect on trade. This evidence confirms that similarity of interests affects wartime international trade more in the form of trade obstruction by hostile non-combatant states than in the form of trade promotion by friendly non-combatant states, and that any politically friendly wartime trade is more typical of the post-1950 era.



## **Conclusions**

Trade is commonly expected to reduce interstate violence if militarized conflicts harm trade among adversaries and with third parties; this study indeed provides evidence that wars are associated with reduced trade. However, few studies explain how wars affect trade with third parties. The few that do, tend to refer to all third parties as if they were a single player with uniform sensitivity to the conflict. This approach does not address the different national interests of third parties and the separate effect that war may have on business-driven trade with third parties.

This study contributes to the literature by arguing that trade between a combatant state and a non-combatant state increases (falls) when they have similar (opposing) interests, but decreases (rises) when the non-combatant state has similar (opposing) interests with the enemy. In other words, trade rises with friendly and enemy-hostile third parties, but falls with hostile and enemy-friendly third parties.

Of course, the private profit motivation of firms and the benefits to households from trading with counterparts in non-combatant states may not be compatible with national wartime trade policies. In cases of such misalignment of motivation, trade with third parties may adversely affect the effectiveness of wartime trade policies. Firms and households may not necessarily be inclined to act as foreign policy tools of governments and may attempt to evade government policy.

Methodologically, this study innovates with the largest dataset ever used in this literature, which distinguishes exports from imports rather than aggregate them, and encompasses all countries and territories with trade statistics between 1885 and 2000. This dataset improves

the precision of the estimates and the external validity of the findings, and enables better controls for omitted variables. We apply a particular set of fixed effects to a Gravity model based on recent advances in the field of trade economics, two-way clustering, and use recent software developments.

We find that hostile third parties, especially global military powers, tended to reduce trade with a combatant state by roughly 30 percent. In addition, trade with third parties friendly to the enemy fell by a similar magnitude. In contrast, war hardly affected business-driven trade with third parties. It seems that the ability to substitute trade with adversaries and local output for trade with third parties, and the better business and transportation environment in third parties compared with the war-ridden economies of the combatant states, balanced the negative effect of wartime economic recession in non-war sectors and naval blockades. This result may explain conflicting empirical findings in existing literature, especially when confined to particular episodes and states.

As a robustness check, we repeat the same tests without the pre-1950 data and find that war depressed trade with third parties more significantly. We believe this result reflects the lower substitutability of trade flows after 1950, which form global supply chains, compared with trade in finished goods that is more typical of earlier periods. However, in spite of the growing opportunity costs, wartime trade policies, especially trade obstruction by hostile non-combatant states, became only more effective after 1950.

Admittedly, our results are based on a period that ended 14 years ago, and thus may not consider recent patterns of behavior. In addition, our study does not consider the direct costs of wars in terms of lost life and property, as well as the direct financial cost of wars

(such as payments for arms, fuel and other war essentials). All of these costs are indirectly considered here only to the extent that they come back to affect international trade. However, the results of this study point to the need for a more comprehensive research agenda of the effects of war on third parties.

## References

- Anderson, James A (1979) A theoretical foundation for the gravity equation. *American Economic Review* 69(1): 106-116.
- Anderson, James and Eric van Wincoop (2003) Gravity with gravitas: a solution to the border puzzle. *American Economic Review* 93(1): 170-192.
- Anderton, Charles H and John R Carter (2001) The impact of war on trade: An interrupted times-series study. *Journal of Peace Research* 38(4): 445-457.
- Baier, Scott L and Jeffrey Bergstrand H (2007) Do free trade agreements actually increase members' international trade? *Journal of International Economics* 71(1): 72-95.
- Baldwin, Richard and Daria Taglioni (2006) Gravity for dummies and dummies for gravity equations. *NBER Working Papers*, No. 12516.
- Baldwin, Richard, Virginia DiNino, Lionel Fontagné, Roberto A De Santis and Daria Taglioni (2008) Study on the impact of the Euro on trade and foreign direct investment. *European Economy - Economic Papers*, No. 321.
- Barbieri, Katherine (1996) Economic interdependence: A path to peace or a source of interstate conflict? *Journal of Peace Research* 33(1): 29-49.
- Barbieri, Katherine (2002) *The Liberal Illusion: Does Trade Promote Peace?* Ann Arbor: University of Michigan Press.

- Barbieri, Katherine and Jack S Levy (1999) Sleeping with the enemy: The impact of war on trade. *Journal of Peace Research* 36(4): 463-479.
- Barbieri, Katherine and Gerald Schneider (1999) Globalization and peace: Assessing new directions in the study of trade and conflict. *Journal of Peace Research* 36(4): 387–404.
- Barbieri, Katherine, Omar Keshk and Brian Pollins (2008) Correlates of War Project trade data set codebook, version 2.0 (<http://correlatesofwar.org>).
- Bennett, D Scott and Alan C Stam (2000) EUGene: A conceptual manual. *International Interactions* 26(2): 179-204.
- Bergstrand, H. Jeffrey (1985) The gravity equation in international trade: Some microeconomic foundations and empirical evidence. *Review of Economics and Statistics* 67(3): 474–481.
- Bordo, Michael D. and Lars Jonung (1999) The future of MEU: What does the history of monetary unions tell us? *National Bureau of Economic Research* working paper 7365.
- Böhmelt, Tobias (2010) The impact of trade on international mediation. *Journal of Conflict Resolution* 54(4): 566-592.
- Blomberg, S Brock and Gregory D Hess (2006) How much does violence tax trade? *Review of Economics and Statistics* 88(4): 599-612.
- Brambor, Thomas, William Roberts Clark and Matt Golder (2006) Understanding interaction models: Improving empirical analyses. *Political Analysis* 14(1): 63-82.
- Cordesman, H Anthony and Abraham R Wagner (1990) *The lesson of modern war volume II: The Iran-Iraq War*. Boulder: Westview Press.

- De Benedictis, Luca and Daria Taglioni (2011) The gravity model in international trade. In Luca De Benedictis & Luca Salvatici (eds) *The Trade Impact of European Union Preferential Policies – An Analysis Through Gravity Models*. Springer 55-89.
- Dorussen, Han and Hugh Ward (2010) Trade networks and the Kantian peace. *Journal of Peace Research* 47(1): 29-42.
- EUGene: Expected utility generation and data management program (version 3.204). <http://www.eugenesoftware.org/> [accessed: August 30, 2013].
- Fearon, D James (1995) Rationalist explanations for war. *International Organization* 49(3): 379-414.
- Frankel, Jeffrey and Andrew Rose (2002) An estimate of the effect of common currencies on trade and income. *The Quarterly Journal of Economics* 117(2): 437-466.
- Gartzke, Erik (2006) The affinity of nations index, 1946-2002, version 4.0 (dss.ucsd.edu/~egartzke/ data/affinity\_codebook\_03102006.pdf).
- Gartzke, Erik (2007) The capitalist peace. *American Journal of Political Science* 51(1): 166-191.
- Gartzke, Erik, Dong-Joon Jo and Richard Tucker (1999) *The similarity of UN policy positions, 1946-96*. Version 1.17.
- Gartzke, Erik and Quan Li (2003a) Measure for measure: Concept operationalization and the trade interdependence-conflict debate. *Journal of Peace Research* 40 (5): 553-571.
- Gartzke, Erik and Quan Li (2003b) War, peace, and the invisible hand: Positive political externalities of economic globalization. *International Studies Quarterly* 47(4): 561-586.

- Gartzke, Erik, Quan Li and Charles Boehamer (2001) Investing in the peace: Economic interdependence and international conflict. *International Organization* 55(2): 391-439.
- Gelpi, Christopher F and Joseph M Grieco (2008) Democracy, interdependence, and the sources of the liberal peace. *Journal of Peace Research* 45(1): 17-36.
- Gleditsch, Kristian Skrede (2002) Expanded trade and GDP data. *Journal of Conflict Resolution* 46(5): 712-24.
- Glick, Reuven and Andrew K Rose (2002) Does a currency union affect trade? The time-series evidence. *European Economic Review* 46: 1125-1151.
- Glick, Reuven and Alan M Taylor (2010) Collateral damage: Trade disruption and the economic impact of war. *The Review of Economics and Statistics* 92(1): 102-127.
- Gowa, Joanne (1994) *Allies, Adversaries, and International Trade*. Princeton, N.J.: Princeton University Press.
- Gowa, Joanne, and Raymond Hicks (2013) Politics, institutions, and trade: Lessons of the interwar era. *International Organization* 67(3): 439–467.
- Gowa, Joanne, and Raymond Hicks (2015) Commerce and conflict: New data about the Great War. *British Journal of Political Science*, Available on CJO 2015 doi:10.1017/S0007123415000289.
- Gowa, Joanne, and Edward D. Mansfield (1993) Power politics and international trade. *American Political Science Review* 87(2): 408–420.
- Ghosn, Faten, Glenn Palmer and Stuart Bremer (2004) The MID3 data set, 1993–2001: Procedures, coding rules, and description. *Conflict Management and Peace Science* (21): 133-154.



Ghosn, Faten and Scott Bennett (2003), *Codebook for the Dyadic Militarized Interstate incident data, Version 3.10*. Online: <http://correlatesofwar.org>.

Gibler, Douglas M (2009) *International Military Alliances, 1648-2008*. CQ Press.

Glick, Reuven and Andrew K Rose (2002) Does a currency union affect trade? The time-series evidence. *European Economic Review* 46: 1125-1151.

Green, Donald P, Soo Yeon Kim and David H Yoon (2001) Dirty pool. *International Organization* 55 (2):441–468.

Hafner-Burton, Emilie M and Alexander H Montgomery (2008) Power or plenty: How do International trade institutions affect economic sanction? *Journal of Conflict Resolution* 52(2): 213-242.

Hegre, Håvard (2000) Size asymmetry, trade, and militarized conflict. *Journal of Conflict Resolution* 48(3): 403–429.

Hegre, Håvard, John R Oneal and Bruce M Russett (2010) Trade does promote peace: New simultaneous estimates of the reciprocal effects of trade and conflict. *Journal of Peace Research* 47(6): 763-774.

Katz, Rochard (2013) Mutual Assured Production. *Foreign Affairs* 92(4): 18-24.

Keshk, Omar MG, Brian M Pollins and Rafael Reuveny (2004) Trade still follows the flag: The primacy of politics in a simultaneous model of interdependence and armed conflict. *The Journal of Politics* 66 (4): 1155-1179.

Keshk, Omar MG, Rafael Reuveny and Brian M Pollins (2010) Trade and conflict: Proximity, country size, and measures. *Conflict Management and Peace Science* 27(1): 3-27.

- Kim, Hyung Min and David L Rousseau (2005) The classical liberals were half right (or half wrong): New tests of the 'Liberal Peace' 1960–88. *Journal of Peace Research* 42(5): 523–543.
- Kinne, Brandon J (2012) Multilateral trade and militarized conflict: centrality, openness, and asymmetry in the global trade network. *The Journal of Politics* 74(1): 308-322.
- Lektzian, David J and Christopher M Sprecher (2007) Sanctions, signals, and militarized conflict. *American Journal of Political Science* 51(2): 415–431.
- Long, Andrew G (2008) Bilateral trade in the shadow of armed conflict. *International Studies Quarterly* 52(1): 81–101.
- López-Córdova, J. Ernesto and Christopher M. Meissner (2003) Exchange-rate regimes and international trade: Evidence from the classical Gold Standard era. *American Economic Review* 93(1): 344–353.
- Lupu, Yonatan and Vincent A Traag (2013) Trading communities, the networked structure of international relations, and the Kantian peace. *Journal of Conflict Resolution* 57 (6): 1011-1042.
- Mansfield, Edward D (1994) *Power, Trade, and War*. Princeton, N.J: Princeton University Press.
- Mansfield, Edward D and Rachel Bronson (1997) Alliances, preferential trading arrangements, and international trade. *American Political Science Review* 91(1): 94–107.
- Mansfield, Edward D, Milner V Helen and Jon C Pevehouse (2007) Vetoing co-operation: The impact of veto players of preferential trading arrangements. *British Journal of Political Science* 37: 403-432.

- Mansfield, Edward D and Brian M Pollins (2003), Interdependence and Conflict: An Introduction. In: Edward D Mansfield and Brian M Pollins (eds.) *Economic interdependence and international conflict: New Perspectives on an Enduring Debate*. Ann Arbor, MI: University of Michigan Press, 1–28.
- Mansfield, Edward D & Jon C Pevehouse (2000) Trade blocs, trade flows, and international conflict. *International Organization* 54(4): 775-808.
- Maoz, Zeev (2006) Network polarization, network interdependence, and international conflict, 1816-2002. *Journal of Peace Research* 43(4): 391-411.
- Maoz, Zeev (2009) The effect of strategic and economic interdependence on international conflict across levels of analysis. *American Journal of Political Science* 53(1): 223-240.
- Martin, Philippe, Thierry Mayer, and Mathias Thoenig (2008) Make trade not war? *Review of Economic Studies* 75(3): 865- 900.
- McDonald, Patrick J (2009) *The Invisible Hand of Peace: Capitalism, the War Machine, and International Relation Theory*. Cambridge: Cambridge University Press.
- Morrow, James D; Randolph M Siverson & Tressa E Tabares (1998) The political determinants of international trade: The major powers, 1907-90. *American Political Science Review* 92(3): 649-661.
- Mousseau, Michael (2013) The democratic peace unraveled: It's the economy. *International Studies Quarterly* 57(1): 186–197.
- Oneal, John R and James L Ray (1997) New tests of the democratic peace: Controlling for economic interdependence, 1950-85. *Political Research Quarterly* 50(4): 751-775.

- Oneal, John R and Bruce Russett (1999) The Kantian peace: The pacific benefits of democracy, interdependence, and international organizations, 1885–1992. *World Politics* 52(1): 1–37.
- Oneal, John R and Bruce Russett (2005) Rule of Three, let it be? When more really is better. *Conflict Management and Peace Science* 22(4): 293–310.
- Oneal, John R, Bruce Russett and Michael L Berbaum (2003) Causes of peace: Democracy, interdependence, and international organizations, 1885-1992. *International Studies Quarterly* 47(3): 371-393.
- Osborne, Eric W (2004) *Britain's Economic Blockade of Germany 1917-1919*. London: Frank Cass.
- Pahre, Robert (2007) *Politics and Trade Cooperation in the Nineteenth Century: The 'Agreeable Customs' of 1815-1914*. Cambridge: Cambridge University Press.
- Peterson, M Timothy and A Cooper Drury (2011) Sanctioning violence: The effect of third-party economic coercion on militarized conflict. *Journal of Conflict Resolution* 55(4): 580-605.
- Poast, Paul (2010) (Mis)using dyadic data to analyze multilateral events. *Political Analysis* 18(4): 403–425.
- Polachek, Solomon W (1980) Conflict and trade. *The Journal of Conflict Resolution* 24(1): 55-78.
- Polachek, Solomon W (1997) Why democracies cooperate more and fight less: The relationship between international trade and cooperation. *Review of International Economics* 5(3): 295–309.

- Polachek, Solomon W and Judith McDonald (1992) Strategic trade and incentive for cooperation. In: Manas Chatterji and Linda Rennie Forcey (eds) *Disarmament, Economic Conversion, and Management of Peace*. Westport, CT: Praeger, 273-284.
- Polachek, Solomon W and Jun Xiang (2010) How opportunity costs decrease the probability of war in incomplete information game. *International Organization* 64(1): 133-144.
- Pollins, Brian M (1989a) Conflict, cooperation, and commerce: The effect of international political interactions on bilateral trade flows. *American Journal of Political Science* 33(3): 737-761.
- Pollins, Brian M (1989b) Does trade still follow the flag? *American Political Science Review* 83(2): 465-480.
- Quinn, Dennis P and A Maria Toyoda (2008) Does capital account liberalization lead to economic growth? *Review of Financial Studies* 21(3):1403-1449.
- Reuveny, Rafael (2001) Bilateral import, export, and conflict/cooperation simultaneity. *International Studies Quarterly* 45(1): 131-158.
- Reuveny, Rafael and Heejoon Kang (1998) Bilateral trade and political conflict/cooperation: Do goods matter? *Journal of Peace Research* 35(5): 581-602.
- Reuveny, Rafael and Heejoon Kang (2003) A simultaneous-equation model of trade, conflict and cooperation. *Review of International Economics* 11(2): 279-295.
- Rose, Andrew (2000) One Money, One Market: Estimating the Effect of Common Currencies on Trade. *Economic Policy* 15(30): 7-45.
- Rose, Andrew (2004) Do we really know that the WTO increases trade? *American Economic Review* 97(5): 2019-2025.

- Russett, Bruce M and John R Oneal (2001) *Triangulating Peace: Democracy, Interdependence, and International Organization*. New York: Norton.
- Sadeh, Tal (2014) The euro's effect on trade. *European Union Politics* 15(2): 215-234.
- Schneider, Gerald (2010) Economics and conflict. In: Robert A Denemark (ed.) *The International Studies Encyclopedia*. Malden, MA/Oxford: Wiley-Blackwell, 1284-1300.
- Schneider, Gerald (2014) Peace through globalization and capitalism? Prospects of two liberal propositions. *Journal of Peace Research*, 51(2): 173-183.
- Signorino, Curtis S and Jeffrey M Ritter (1999) Tau-b or not Tau-b: Measuring the similarity of foreign policy positions. *International Studies Quarterly* 43:115-144.
- Souva, Mark and Brandon Prins (2006) The liberal peace revisited: The role of democracy, dependence, and development in militarized interstate dispute initiation, 1950-1999. *International Interaction* 32(2): 183-200.
- Weede, Erich (1995) Economic policy and international security: Rent-seeking, free trade and democratic peace. *European Journal of International Relations* 1(4): 519-537.
- Whang, Taehee (2011) Playing to the home crowd? Symbolic use of sanctions by the United States. *International Studies Quarterly* 55(3): 787-801.
- Whang, Taehee, Elena V McLean and Douglas W Kuberski (2013) Coercion, information, and success of sanction threats. *American Journal of Political Science* 57(1): 65-81.
- Xiang, Jun, Xiaohong Xu and George Keteku (2007) Power: The missing link in the trade conflict relationship. *The Journal of Conflict Resolution* 51(4): 646-663.