Supply-Side Market Power:
A Structural Argument for Peace through Interdependence

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ABSTRACT

In economics, supply-side market concentration profoundly impacts the behavior and interests of firms within a market, and this dimension of economic interaction is applicable to the context of international relations. More specifically, supply-side market power changes the way trade influences the incidence of military conflict. To test this insight, I define and incorporate four new market power variables into the traditional model of military conflict. I find that high dyadic market power significantly decreases the likelihood that a state will initiate military conflict. This result is robust to a number of statistical checks and ultimately enriches our understanding of interstate conflict.

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I. Introduction

The effect of trade on military conflict has been fiercely debated in modern conflict literature, though the concept arose centuries ago with liberal philosophers like Kant (1795). In an attempt to verify and refine the ideas behind peace through interdependence, contemporary scholars have tested the liberal argument empirically using data on military conflict and numerous explanatory variables. Current work predominantly suggests that trade inhibits military conflict (Russett and Oneal 2001; Oneal, Russett, and Berbaum 2003; Hegre, Oneal, and Russett 2010), although dissenting voices (Barbieri 1996, 2002; Beck 2003; Keshk, Pollins, and Reuveny 2004) contend that trade has an ambiguous or even inflammatory effect. However, these objections run contrary to a general consensus that the liberal peace exists, and there are already persuasive theoretical arguments regarding the mechanisms behind the pacifying effect of trade.

There are two primary perspectives on the generation of peace through interdependence. The first view puts the mechanism in structural terms: trade promotes peace by increasing the opportunity cost of conflict (Angell 1913). In microeconomic theory, trade is a mutually beneficial exchange; it produces gains in efficiency by harnessing comparative advantages in production across parties (Mankiw 2008). Since military conflict leads to an interruption of trade, these gains from trade become an additional opportunity cost of conflict (Mansfield and Pollins 2001). Based on this idea, scholars have developed an expected utility model of conflict and interdependence and found encouraging results (Polachek 1980; Polachek, Chang, and Robst 1999).

By reframing the cost of trade interruption as the gains from trade, scholars discovered a number of new approaches to structural theory. Since exchanges of goods offer varying gains in efficiency, the cost of trade interruption should also vary across specific factors, like the types of commodities exchanged and the nature of the dyad engaging in trade. Under the structural model, especially beneficial trades imply a higher cost of conflict than less lucrative exchanges (Polachek 1980) and thus create a stronger incentive against conflict. This segment of the literature also has implications for structural theory as a whole; it demonstrates that trade impacts conflict differently across markets and trading partners in ways intimately tied to microeconomic theory.

The opportunity cost of conflict is also heavily dependent on a state's ability to substitute across trade partners (Hirschman 1980; Wagner 1988). When a state enters a conflict, it may sacrifice gains from a specific channel of trade, but it can potentially initiate an analogous exchange with the next best partner. If a state can switch trade partners at little or no extra cost, the pacific effect of peace will be quite small.

While a significant portion of research in this field has relied on structural explanations, another major perspective holds that international trade offers a means to signal intentions (Gartzke 1998; Gartzke, Li, and Boehmer 2001; Morrow 1999). Trade policies, like embargos or tariffs, provide non-military opportunities for states to communicate how much they care about an issue. The level of a state's commitment to an issue determines the quantity and quality of resources a state will allocate to pursuing it, hence influencing the outcome of any potential conflicts that arise from it. Thus, revealing intentions through trade lowers the ex ante uncertainty of the conflict outcome and increases the likelihood that parties will come to a mutually beneficial settlement (Fearon 1995). Since trade behaves as a signal, this perspective is often referred to as the signaling argument.

Proponents of the signaling argument often object to the structural stance, contending that opportunity costs are rarely large enough to prevent conflict and only impact on conflict at the margins (Gartzke, Li, and Boehmer 2001). The two sides of the debate have arranged themselves roughly along the lines of game theoretic approaches versus expected utility approaches, with most signaling models founded in game theory and most structural arguments based in expected utility. This difference in approach mirrors the essential difference between the structural and signaling arguments: the structural side believes that economic interests are directly responsible for the deterrent effect of trade, while the signaling side believes that trade is merely a method of decreasing ex ante uncertainty, a decrease which then provides the pacifying effect.

In this article, I set out not to discredit the signaling perspective but rather to refine structural mechanisms so that they better demonstrate trade's direct role as a pacifying force. Signaling-based opponents to the opportunity cost argument tend to object to a blunt version of the developing theory without considering the more-than-marginal impact of interests under certain reasonable conditions, but many studies providing a more refined view of trade and its impact on conflict have already demonstrated that trade is not indiscriminately pacifying, as factor mobility (Hirschman 1980), elasticity of demand and supply (Reuveny 2003; Yarbrough and Yarbrough 1992), and the nature of the traded commodity (Dorussen 2006) all change the impact of trade on peace. The circumstantial nature of opportunity costs means that any general statement about interdependence and conflict will underestimate the importance of interests, an implication that motivates my investigation.

II. Supply-side market power

The interests explanation of peace through trade is not a simplistic one, and clarifying its theoretical origins will allow better empirical tests to establish its true impact. A robust form of this theory will be nuanced and based in microeconomic foundations. To this end, I address one important microeconomic concept that to date has been omitted from conflict literature: supply-side market power.

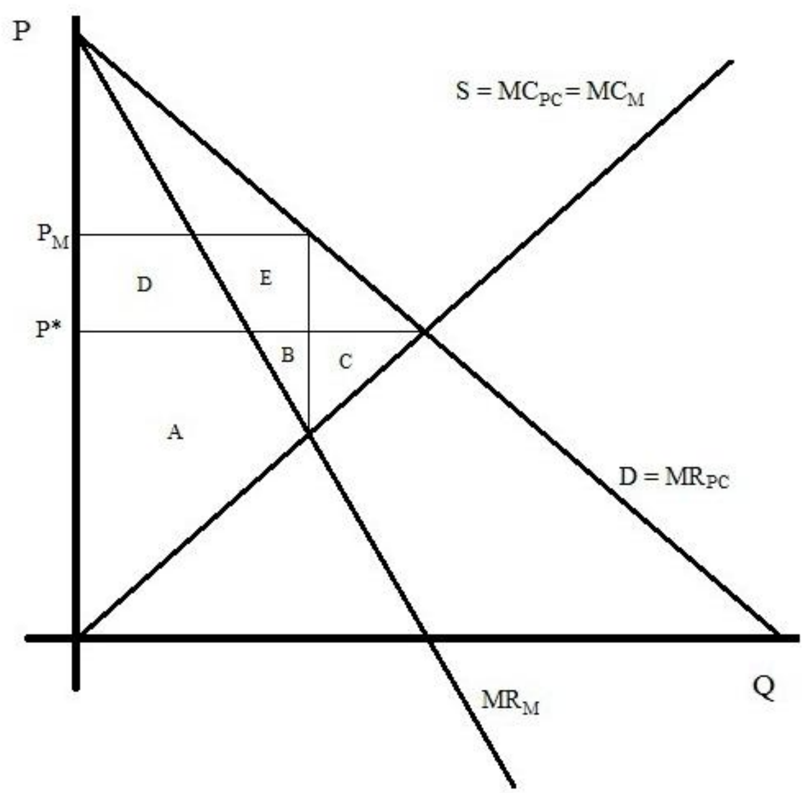
Supply-side market power is a critical addition to the structural argument as it is intimately related to both costs of substitution and gains from trade. The basic structural opportunity cost mechanism can be summarized as follows: states that trade with one another tend to fight less because conflict carries the extra opportunity cost of forgone exchange. In this model, the opportunity cost of conflict from trade also hinges on the availability and value of substitute channel of goods and services. If an attractive substitute option to replace forgone trade exists, the opportunity cost of conflict will be smaller and the deterrent effect of trade will be correspondingly weaker.

It follows, then, that the absence of a good alternative trading partner will result in high costs of trade substitution. In an extremely concentrated market with a few states holding the lion's share of market power, importing states lack the ability to easily substitute trade across partners due to a lack of alternative suppliers. Since concentrated markets result in high costs of substitution for importers, the opportunity cost of conflict for importers is also high, deterring those states from initiating military action against their powerful suppliers. Thus, having high supply-side market power should decrease a state's chances of being targeted in a military conflict.

Conversely, having high supply-side market power also deters exporters from initiating military conflict because major suppliers in concentrated markets obtain larger gains from their trade and that than suppliers from less concentrated markets. To formally demonstrate this claim, I present an argument using basic concepts of microeconomics. In this setup, a monopoly firm serves as an extreme example of a major supplier in a concentrated market, and I analyze its behavior relative to the behavior of a perfectly competitive firm, which serves as an extreme example of a firm in an unconcentrated market. For comparability, I assume that both firms face the same marginal cost curve as well as the same demand curve, and for simplicity, I also assume that all of these curves are linear.

Figure 1 depicts the supply and demand curves for two firms, one monopoly and one perfectly competitive firm, superimposed on each another. The subscript “PC” represents “perfect competition” and the subscript “M” represents “monopoly”. As for all standard goods, price and quantity are inversely related in the demand function and positively related in the supply function.

Figure 1: Comparison of Supplier Surplus for a Monopoly Firm versus a Perfectly Competitive Firm



An important simplification to mention is that this model represents only one firm in the perfectly competitive market. This setup may appear counterintuitive, since perfectly competitive markets imply high competition and thus many firms in the market. However, for this particular proof, the critical aspect of perfectly competitive firms is that they are price-takers, and my model is constructed so that a one-firm market and a well-populated market behave in the same way and achieve analogous equilibria.[1]

In order to impose this restriction and ensure that the perfectly competitive firm's choice of production does not alter the market price, I set the marginal revenue curve of the perfectly competitive firm equal to the demand curve of the whole market. Since this firm is a price taker, I must also establish what the exogenous market price should be. If this perfectly competitive market were composed of many identical firms, the market price would be determined by the intersection of the aggregate supply and demand curves. Therefore, the analogous market price level is P*, and the single perfectly competitive firm in this model will sell its goods for P*.

On the other hand, the monopolist has the luxury of determining its price by producing any quantity of goods it chooses. Note that P* is within the monopoly's set of pricing options, and that the monopoly is also profit maximizing. Together these two facts imply that if the monopoly firm does not choose P* as its unit pricing, P* is not its optimal price. To determine the monopoly's true optimal price, I first equate the firm's marginal cost with its marginal revenue[2] to determine its optimal quantity of production. This equality occurs at the intersection of the two lines, and the corresponding price it will charge for each of those units is determined

[1] One additional benefit of representing one price-taking firm rather than a market of many is ease of comparison.

[2] The reason the monopoly marginal revenue curve decreases faster than the demand curve is that monopoly revenue is a combination of how many units it sells and at what price it may sell them. When the monopoly increases the number of units it produces, it must also sell each unit at a lower price. This loss due to increasing marginal production implies a steeper marginal revenue curve.

by the demand curve. This price is labeled as P_M in Figure 1. Since the monopoly has full freedom of pricing and P_M does not equal P*, P* cannot be the optimal price, and perfectly competitive firms must be worse off than their monopolistic counterparts. In other words, firms in concentrated markets receive greater benefits from trade than firms in less concentrated markets.

Given that major exporters in concentrated markets receive larger benefits from trade, another opportunity cost argument is appropriate. Because military conflict interrupts trade, exporters with high supply-side market power will be more wary of initiating conflict; they do not want to forgo the especially high benefits of being a critical supplier in a concentrated market. In this way, having large market power in a widely-traded commodity will decrease a state's desire to initiate military conflict.

In order to generate precise hypotheses, I now explore areas of this theory that have practical implications for my variable specification and empirical methods. First, not all markets are created equal: high supply-side market power in some commodities should lead to larger pacifying effects than high market power in others. Markets that provide critical resources or see a large dollar value of goods exchanged should figure strongly in a state's decision to enter into conflict, while smaller or more superfluous markets should matter less. In order to fairly assess the importance of supply-side market power, my analysis must be restricted to relevant commodities, but some systematic, objective method of distinguishing between relevant and irrelevant commodities is necessary if this restriction is to be empirically sound.

One possible method of identifying relevant commodities is the proposed division between strategic and non-strategic goods. "Strategic goods" (Gasiorowski and Polachek 1982; Polachek and McDonald 1992) are commodities whose trade has an especially large effect on conflict, due to their direct or indirect importance to the military security of a state. Both oil (Park, Abolfathi, and Ward 1976) and high-technology products (Borrus and Zysman 1992; Marlin-Bennett, Rosenblatt, and Wang 1992; Tyson 1992) have received attention as strategic commodities. However, the strategic value of most commodities is debatable. Imposing a strict division between strategic and non-strategic goods introduces significant subjectivity and inconsistency, especially given that this classification needs to apply to all states over a long period of time.

Schelling (1958), too, is wary of imposing this classification onto all commodities. To avoid a potential pitfall, I instead use a monetary criterion for identifying commodities relevant to military conflict: I restrict analysis to goods with the highest dollar value of trade. These widely-traded goods represent the most valuable international exchanges and therefore should have the most impact on military conflict. This property has two important implications: first, states have large incentives to consider the potential impact on trade in these goods before taking military action, and second, most states in the world will trade in these commodities, either as exporters or importers. Thus, focusing on widely-traded commodities offers both theoretical and practical advantages.

The next step in defining the mechanisms behind the pacifying effect of supply-side market power is to explore its specific channels. One especially important distinction is the difference between monadic and dyadic effects. Here, a monadic effect is independent of partner-specific factors and implies that, c*eteris paribus*, a state will be targeted in or initiate fewer conflicts merely for having high supply-side market power in widely-traded resources. Conversely, a dyadic market power effect also depends on the total value of trade between any two states in a given year, a condition specific to relations between two states.

The rationale for a monadic effect follows from two previously-discussed principles. The first principle explains why high market powers are targeted in fewer conflicts: conflicts initiated against them carry higher opportunity cost due to higher costs of substitution. The second principle explains why high market powers initiate fewer conflicts: they receive greater benefits from trade and thus suffer higher opportunity costs during conflicts.

The dyadic effect of supply-side market concentration on military conflict builds on the monadic effect by incorporating the additional factor of dyadic trade. Because trade conditions between two states can alter the expected effect of monadic supply-side market power, this dyadic channel is a necessary addition. A hypothetical situation illustrates this point: if State A (the potential initiator) is a large market power in several commodities, earlier discussion in this article suggests that it would be reluctant to attack other states and forgo its large producer surplus. However, if State B (the potential target) imports none of the commodities of which State A is a major producer, State A receives no trade benefits from State B and thus risks no trade gains in attacking. Thus, dyad-specific conditions can alter or diminish the impact of market power on conflict. This inference also holds when the target state is the major market power. If State B (the potential target) is a major market power, but State A (the initiator state) does not import any relevant commodities from State B, the initiator state will suffer no losses from forgone trade nor will it need to substitute toward trade with a different partner. Thus, State A feels no deterrent effect from State B's market power.

In sum, including market concentration in the standard model of military conflict yields several testable hypotheses about the relationship between trade and peace.

Hypothesis 1: Conflict is less likely between states that trade more with one another.

Hypothesis 2: States with high market power in widely-traded resources will be targeted in fewer military conflicts.

Hypothesis 3: States with high market power in widely-traded resources will initiate fewer military conflicts.

Hypothesis 4: A state with high market power in widely-traded resources that exports extensively to a specific partner state will have a smaller probability of being targeted by its partner in a military conflict.

Hypothesis 5: A state with high market power in widely-traded resources that exports extensively to a part state will be less likely to initiate a military conflict against that partner state.

III. Data and Measurement

My investigation is closely modeled after the baseline specification of Oneal and Tir (2006); the major point of divergence is the addition of four market power variables composed of commodity-level trade data. I use the directed-dyad year as the unit of measurement in order to distinguish between initiators and targets of military disputes. As in Oneal and Tir (2006), this model includes control variables from both the realist and liberal camps.

The realist variables address factors that affect the opportunity and willingness to engage in military conflict including contiguity, distance, great powers, capabilities ratios, and alliances.

The variable DIRCONT, which codes for direct contiguity, equals 1 when two states share a land border and 0 when this is not the case. It also accounts for indirect contiguity through colonies or dependencies. Close geographic proximity is critical in increasing the likelihood of conflict, as it increases both the ability to project military force and the potential reasons that states may wish to do so.

Another measure of geographic proximity, LNDISTANCE, is a continuous variable that measures the natural log of the shortest distance between the two states' capitals, or in the case of a large state, the closest port city.

MAJPOWER takes a value of 1 if either member in the dyad is a major power and takes a value of 0 if this is not the case. The Correlates of War project identified major powers in this time period by referring to a consensus among historians (Singer and Small 1995). This variable controls for states that have the ability to project power all over the world, thus increasing their ability and motivation to engage in military conflict.

LNCAPRAT is derived from an index coded by the COW project (Singer and Small 1995) to measure the balance of power in a dyad based on urban population, total population, energy consumption, iron and steel production, military manpower, and military expenditures; the index weights all of these factors equally. The variable is the natural log of the ratio of the stronger state's index to the weaker state's index (Singer, Bremer, and Stuckey 1972). A second capabilities variable takes the square of this ratio to account for previous research that suggests dispute initiation most often occurs close to parity (Bennett and Stam 2004; Hegre 2004; Oneal 2006).

Finally, the variable ALLIES equals 1 if the members of a dyad are both members of a mutual defense treaty, neutrality pact, or entente. If not, it takes a value of 0.

The right-hand side of this regression also includes traditionally liberal variables based on democracy and interdependence.

The democracy data comes from Polity IV and uses the traditional 21-point scale (Jaggers and Gurr 1995), which ranges in value from -10 (very autocratic) to 10 (very democratic). The variable DEMOC_ST is the democracy score of the initiator state, and DEMOC_TGT is the democracy score of the target state.

This regression also includes a measure of trade interdependence, which is coded as the variable DEPEND. To account for the fact that trade must be economically important to be politically important, I follow Oneal and Tir (2006) in their specification by dividing the sum of a state's exports and imports with its partner by its GDP. Their data, as well as mine, is drawn from Gleditsch (2002), who used information from the International Monetary Fund and outside sources for non-IMF members. For the post-1962 period, this data is quite complete.

$$\text{Dependence}_{it} = \left(\frac{\text{Exports}_{ijt} + \text{Imports}_{ijt}}{\text{GDP}_{it}}\right)$$

i - state
j - target
t - year

Additionally, for pairs of minor, noncontiguous powers the variable SYSTSIZE equals the negative natural logarithm of the number of states in the international system. For all other dyads, the international system size variable takes a value of 0.

Finally, this analysis follows Oneal and Tir (2006) in taking Beck, Katz, and Tucker's (1998) recommendation that regressions control for duration dependence. This regression contains a peace years variable that codes for the number of years elapsed since the last military dispute as well as a natural cubic spline with three interior knots. These controls account for some time-variant endogeneity in the explanatory variables.

Measures of Market Power: Monadic Supply-Side Concentration - The new market power variables rely on commodity-level trade data from the United Nations Comtrade database (United Nations, various years). To maximize the available date range, I use the first revision of the SITC classification, which begins in 1962 and continues to the present.

The SITC classification allows for several levels of disaggregation, represented by a code that may be up to five digits long. Each successive digit signifies an additional level of specificity. The level of aggregation most appropriate for this analysis involved two-digit commodity codes, as there is a tradeoff between capturing substitute goods in one category while separating truly independent markets. At the highest levels of disaggregation, commodities are very narrowly defined and two separate commodities could plausibly be substitutes for one another, as in the case of commodity 65121 “Yarn carded sheeps lambs wool, not for retail” and commodity 65122 “Yarn combed sheeps lambs wool, not for retail”. Such over-disaggregation would overstate the effect of market power on conflict by diminishing the impact of any given market. On the other hand, the one-digit level of aggregation defines commodities too broadly and would lump unrelated goods into one category. Analysis at the two-digit level of disaggregation strikes the proper balance between under- and over-disaggregation.

The market power index is calculated using only market power in widely-traded commodities. This restriction ensures that the markets in question will have a bearing on every state in the international community: market concentration in any of these commodities will to some extent affect all international players. To put this restriction into practice, the new market power variable is based only on the top 25 commodities traded in each year. The commodities are ranked by the total dollar value exchanged in international markets in each year, so the top 25 commodities differ between years. The decision to use precisely 25 commodities is not arbitrary. At the second level of disaggregation, the UN Comtrade database has 62 distinct commodities. Using the top 25 commodities strikes a balance between the desire to target widely-traded commodities and the desire to maintain reasonable external validity.[3] For illustration, the top 25 commodities for three years (1962, 1980, and 2001) are presented in Table 1.

Table 1 about here

Since this model is based on supply-side market power, the data is collected by exporter

[3] Nonetheless, I present robustness checks using varying numbers of the most widely-traded commodities in each year in section III. The core results are robust to using the top 10, 20, and 30 commodities each year.

rather than importer. The variable specification employs the basic rationale behind the Herfindahl-Hirschman Index (HHI), which is used to measure the size of firms relative to an industry (Hirschman 1964). For each year, the dollar value of exports for each supplier for each widely-traded commodity is divided by the total dollar value of exports in that commodity. That ratio is then squared. Since squaring the ratio of state commodity exports to total commodity exports causes each marginal increase in market share to quadratically increase market power, this measure favorably weights monopolists and oligopolists. This emphasis corresponds to the theoretical foundation of the market power hypothesis, since markets with monopolies and oligopolies should have especially high costs of substitution and producer surpluses.

$$\mathrm{HHI}_{ijt} = \left(\frac{\mathrm{Exports}_{ijt}}{\mathrm{TotalExports}_{jt}}\right)^2$$

i – state
j – commodity
t – year

The commodity and state specific HHI is then summed across all commodities for each state, resulting in a value that represents the overall market power of a specific state across all of its exports. After the summation there exists one HHI value for each state-year.

$$\Sigma\mathrm{HHI}_{it} = \sum_j \left(\frac{\mathrm{Exports}_{ijt}}{\mathrm{TotalExports}_{jt}}\right)^2$$

i – state
j – commodity
t – year

To incorporate the new market variable into the traditional regressions used in Oneal and Tir (2006), I merge the HHI market concentration data with the directed-dyad conflict data so that each observation has two new right-hand variables: HHI_INITIATOR for the initiator state and HHI_TARGET of the target state.

Measures of Market Power: Dyadic Dependence - Beyond the monadic HHI index, I also introduce an interaction term that includes dyad-specific trade. This dyadic market power variable captures the global supply-side market power of each state as well as the impact of relevant trade between each state and its specific partner.

The specification of the dyadic HHI variable is as follows. The first part will be the monadic measure of supply-side market power discussed in the previous section, which captures the state's global market power in widely-traded resources. The second portion of this interaction term equals the total value of dyad-specific trade in the top 25 widely-traded commodities each year divided by the real GDP of the state's trading partner. Therefore, this variable will have a different value for each partner within each dyad-year, one for the initiator and one for the target.

$$\text{Dyadic HHI}_{ipt} = \Sigma \text{HHI}_{it} \left[\frac{\text{TotalTrade}_{ipt}}{\text{RealGDP}_{pt}} \right]$$

i – state
p – partner
t – year

The rationale behind this specification stems from the theoretical model. It is clear that including some measure of dyadic trade is necessary, but I specifically choose to include trade in the top 25 commodities per year in order to isolate trade that is directly affected by this model's measure of supply-side market power. The logic is as follows: the monadic HHI measure only accounts for market power in the top 25 widely-traded commodities in each year, so it can only predict changes in conflict opportunity cost due to trade in those markets. Therefore, it makes sense to include the value of trade in the top 25 commodities and those commodities only.

The dyadic HHI variable is also divided by the real GDP of the partner state in order to account for how much trade from the particular dyad in question matters for the partner state. As the GDP of the partner state increases, the relative importance of this flow of dyadic trade decreases, therefore decreasing the impact of supply-side market power in the consideration to engage in military conflict. This variable models this effect since it is decreasing in the partner state's GDP.

I now provide an illustration of how the dyadic variable reflects the underlying theory. First, imagine two states, State A and State B. Say in year t, the states exchange a large quantity of goods found in the top 25 widely-traded commodities for that year. Furthermore, say that State A has a very high monadic HHI for year t. Ceteris paribus, this high market power means State A less likely to start and be targeted in MIDs against state B. However, if State B has a very large GDP, the deterrent effect of State A's high market power may not be enough of an economic incentive to prevent State B from initiating a conflict with State A, because the dyadic trade between State A and State B is small compared to State B's overall GDP. Mathematically, this decrease in deterrent power is expressed by a lower dyadic HHI value for State A, since State A's dyadic HHI is divided by and thus decreasing with State B's real GDP.

Measures of Military Conflict - Data for the dependent variable comes from the Military Interstate Dispute dataset (Jones, Bremer, and Singer 1996) as coded in the Correlates of War (COW) project and corrected by Maoz for the pre-1992 period (Maoz 1999). MID takes a value of 1 if a militarized interstate dispute occurs in that dyad-year and a value of 0 if otherwise. Within the 672,492 observations in this dataset, there are 1,094 documented military interstate disputes. While some of the conflict literature uses fatal MIDs rather than all MIDs as the outcome variable of analysis, using all MIDs is consistent with my theory's implication that the opportunity cost of trade with high market power should inhibit even threats or low-level use of force.

IV. Results

This article provides one central finding regarding the pacifying relationship between supply-side market power and military conflict. In dyads with high levels of exchange in widely-traded commodities, increasing the supply-side market power of a state decreases the likelihood that it will initiate military conflict. I use three primary models for my analysis: the traditional baseline model of international conflict, a model that includes measures of monadic market power, and a model that includes both monadic and dyadic measures of market power. Coefficients from the three models in this article are presented in Table 2, starting with the baseline model on the left and moving right with incrementally more market power variables.

Model 1, my baseline model, is a replication of Oneal and Tir's (2006) baseline model and employs precisely the same explanatory variables. Model 2 builds on this foundation by including the monadic measures of market power into the logistic regression. Model 3 further expands upon Model 1 by including both the monadic and the dyadic measures of market power.

Table 2 about here

All three models in Table 2 generally concur with the findings of Oneal and Tir (2006). Across each of the regressions, an increase in the democracy score of the initiator, squared capability ratio, and natural log of distance between the states all significantly decrease the incidence of military conflict. Furthermore, an increasing capability ratio, the existence of direct contiguity, and the participation of a major power all significantly increase the chance of military conflict in a dyad. Finally, while democracies are less likely to initiate conflict, the effect of the target state's democracy score is consistently insignificant. The high level of agreement between these models and the findings of Oneal and Tir (2006) provide confidence in the plausibility of the coefficients on the new variables.

However, there is a major difference between these results and those of Oneal and Tir (2006): economic dependence does not have a significant effect on the incidence of all MIDs. Economic dependence fares even worse with the introduction of the market concentration variables. These statistical results strongly indicate that this particular measure of economic dependence does little to explain the incidence of all MIDs, a surprising result. While it is possible that multicollinearity or the restrictions on my dataset caused this unusual outcome, I show in the appendix that the deviation in the impact of economic dependence likely arises from my usage of all MIDs rather than fatal MIDs as the dependent variable of analysis.

On the whole, the three models in Table 2 represent a good corroboration of existing conflict literature. Moreover, Models 2 and 3 offer some statistically compelling insights into the impact of supply-side market power on military conflict.

First, increasing monadic supply-side market power decreases a state's likelihood of initiating a militarized conflict, an outcome that supports hypothesis 3. In Model 2, the coefficient on the initiator's HHI index is significant ($p < .05$) and negative, indicating an inverse relationship between supply-side market power and the number of military conflicts a state initiates. This effect is also robust to the addition of dyadic HHI market power variables, as the coefficient on the initiator's HHI index remains negative and significant ($p < .01$) in Model 3.[4]

[4] Later robustness checks suggest this particular result is weaker than my other conclusions.

My analysis' second implication is also the central contribution of this article: increasing a state's dyadic supply-side market power deters it from initiating military conflict. The coefficient on the initiator's dyadic HHI index in Model 3 of Table 2 is negative and significant at the $p < .01$ level. This conclusion is robust to extensive statistical tests, some of which are presented within this article and some of which are discussed in the online appendix. Ultimately, the negative and highly significant coefficient on initiator dyadic market power strongly supports hypothesis 5 and provides persuasive evidence that supply-side market power is an important force in the incidence of military conflict.

Between the three models the R-squared values increase very little. However, the R-squared of a regression is a poor tool for determining whether to include one or several variables in a model (Wooldridge 2009). Instead, the most important factor in establishing the theoretical importance of a variable is the value and significance of its coefficient. By this measure, these conclusions are theoretically and statistically sound.

While I find support for two of the initial hypotheses, the same cannot be said of the other three hypotheses. Hypothesis 1, which posited that conflict is less likely between states that trade more with one another, finds no direct support. Hypothesis 2, which proposed that states with high market power in widely-traded resources will be targeted in fewer military conflicts, also finds no support; the coefficient on the target's monadic HHI index is insignificant in both Models 2 and 3, making it impossible to reject the null hypothesis that high market power has no effect on the likelihood of being targeted in a conflict. Finally, Hypothesis 4 predicted that increasing the dyadic market power of a state decreases the likelihood that it will be targeted in a military conflict. This study's results indicate that precisely the opposite may be true. The coefficient on the target's dyadic HHI variable is significant and positive, suggesting that increasing the dyadic market power of a state increases the likelihood it will be targeted in military conflict.

Here, I explore a conjecture that may explain why hypotheses 2 and 4 find little support in the data. The mechanism relies on the intuition that it is ultimately the initiators of a conflict that weigh the costs and benefits of action and make the decision to start fighting. Therefore, the way market power factors into the decision-making process of initiators systematically affects market power's overall impact on conflict. Initiating states are probably fairly well-informed about their own trade relationships and can therefore adjust their decisions to accommodate their own monadic and dyadic market power, but it is less likely that states know as much about their potential target's market power, as that would require an intimate knowledge of their potential target's trade relationships across many commodities and hundreds of states. If initiators have incomplete information about the trade relationships of their potential targets, they simply may not be able to accurately incorporate supply-side market power into a cost-benefit analysis of military conflict. This mechanism would imply that the impact of a target state's market power is not clear, an implication that may explain why hypotheses 3 and 5 find statistical support while hypotheses 2 and 4 languish.

V. Robustness Checks

Beyond analyzing the three basic models, I also run a number of robustness checks, the first of which tests whether my four new market power variables contribute predictive power to the current model of international conflict. Specifically, I test the joint null hypothesis that the coefficients on all four market power variables are all equal to zero, and resoundingly reject it ($p < 0.0008$). This result clearly points to the importance of including supply-side market power in the current structural model of interstate conflict.

One issue with adding supply-side market power to the current model of conflict is that its multiple measures of trade may result in multicollinearity. To check for this problem, I present several statistical tests in Table 3. First is a basic correlation matrix between all of the trade indices: economic dependence, monadic initiator HHI, monadic target HHI, dyadic initiator HHI, and dyadic target HHI. This check loosely suggests that there are no multicollinearity problems, as the highest level of correlation between any of the trade variables is 0.1495.

Table 3 also presents variance inflation factor (VIF) tests on the three sets of market power and trade variables from each model. Typically, a VIF greater than 10.0 is considered indicative of severe multicollinearity. Economic dependence fares well in all three tests, with a VIF of 1.12 in Model 3. The four HHI indices also fare well, with a maximum value of 2.63. These results are further evidence that multicollinearity did not impact the results of the regressions.

Table 3 about here

Another robustness check replicates the three initial regressions without the economic dependence variable; the results are reported in Table 4. Across each of the three models, the value and significance of the coefficients remain consistent with the original results in Table 2, providing further evidence that multicollinearity between the trade variables was not an issue.

Table 4 about here

In the appendix, I further test the performance of my results. First, I run a regression with only the dyadic market power variables to assess their performance independent of the monadic indexes. I also re-specify all the market power variables using the top 10, 20, and 30 commodities from each year rather than the top 25. My central result that the dyadic market power of a state decreases the likelihood that it will start a conflict is highly robust to all of these tests.

The appendix also includes a brief investigation into the coefficient on economic dependence. I find that my result likely differs from the result of Oneal and Tir (2006) because my models use all MIDs rather than fatal MIDs as the dependent variable.

VI. Conclusion

Understanding the impact of economic interdependence on military conflict is of great philosophical, strategic, and humanitarian value. Many scholars have argued that interdependence is generally pacifying, but debate continues both within and outside the liberal school, demonstrating the need for further work. My investigation provides a critical addition to the structural explanation of the liberal peace by introducing supply-side market power as a variable explaining military conflict.

Supply-side market power influences the cost of conflict by increasing the producer surpluses and costs of substitution for trading parties. Very powerful suppliers enjoy higher surpluses from their trade, which translate into more foregone value if military conflict erupts. Greater gains from trade therefore deter strong market powers from conflict initiation.

The analysis of four new variables based on commodity-level trade data for the period 1963-2001 offers insight into whether market power in widely-traded commodities creates incentives for peace in practice. Two of the new variables measure monadic market power, which varies at the state-year level, and the other two measure dyadic market power, which varies with the dyad-year. Within each level of analysis there is one variable for the initiator and one variable for the target.

The evidence does contradict some of the initial hypotheses. The overall effect of trade is ambiguous rather than pacifying. Neither monadic nor dyadic market power inhibits the likelihood of being targeted for a military conflict. Indeed, increasing target market power appears to have an inflammatory effect. And, though my initial models find that monadic market power decreases the likelihood of conflict initiation, this result is not robust to varying the number of commodities considered.

Despite some caveats, this article shows the supply-side market power is an important force in the interaction between interdependence and military conflict. My central finding is that increasing a state's dyadic market power significantly reduces the likelihood of initiating a military conflict. In my analysis, the coefficient on the initiator's dyadic HHI index is negative and highly significant. This outcome holds across a number of robustness checks, including dropping economic dependence, omitting the monadic HHI variables, and changing the number of commodities considered in specifying the market power variables. Tests on three models also reveal no evidence of multicollinearity, further confirming the statistical reliability of my central conclusion.

In sum, supply-side market power is an important addition to the structural model of peace through trade. A state with high dyadic supply-side market power will be less likely to initiate military conflicts, and this effect can be explained using a basic opportunity cost model. These robust and significant results demonstrate the importance of pursuing further research on the structural argument of peace through trade, and especially the value of using economic principles to inform models of interstate behavior.

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Appendix

To ensure the reliability of my results, I also perform a number of additional robustness checks. First, I investigate the performance of dyadic HHI variables without monadic HHI variables. Table 5 presents two versions of this test. Model 1 contains all the baseline variables as well as the two dyadic HHI indexes, while Model 2 drops economic dependence from the regression. The coefficients from both of these regressions strongly support the initial findings in Table 2, retaining the same signs and significance as their earlier counterparts. Importantly, for both models in Table 5, the coefficient on the initiator's dyadic HHI index is positive and significant and coefficient on the target's dyadic HHI index negative and significant, just as in Table 2, which suggests that the effect of dyadic market concentration on military conflict is robust to the exclusion of monadic concentration and economic dependence.

Table 5 about here

Another robustness check is to vary the number of commodities taken into account when generating the market power indexes. Earlier, section II stated that the annual HHI indexes for each country are based on that country's market share in the top 25 most-traded commodities of that year. Since the second disaggregation of the SITC Rev. 1 classification identifies 52 distinct commodities, it is possible that my choice of 25 commodities generated results that do not hold if this value is changed. In order to confirm the robustness of our results, I generate three new sets of market power trade variables using the top 10, 20 and 30 most widely-traded commodities each year and run each of the three regressions from Table 2 on the newly specified variables. These results are shown in Tables 6, 7, and 8.

Table 6 about here

Table 7 about here

Table 8 about here

These alternative specifications strongly support some my findings, while calling others into question. Across regressions with variables using each year's top 10, 20, and 30 commodities, the coefficients on the initiator's dyadic HHI variables are negative and significant ($p < .05$), making this result the strongest of my investigation. The coefficients on the target's monadic HHI variables are insignificant, exactly mirroring the initial results in Table 2.

However, my conclusion that monadic market power decreases the likelihood of conflict initiation is not supported by this robustness check. Also important is that the unexpected positive sign on dyadic target HHI is also robust to alternative specifications ($p < 0.01$). This result contradicts Hypothesis 4, and I ventured an explanation as to why this may be so earlier in Section IV.

Finally, I run some statistical tests to investigate why my coefficient on economic dependence is insignificant, while Oneal and Tir (2006) found that economic dependence had a significant pacifying effect. The deviation must arise from a difference in the two models or the data, and there were very few ways in the two methods differed. One such difference: this analysis begins in 1962 rather than 1921 due to limitations in trade data. However, replicating Oneal and Tir's baseline regression using only post-1962 data still yields a negative and significant coefficient on economic dependence, as demonstrated in Table 9.

Table 9 about here

Since date range is clearly not the source of the inconsistency, I also run Oneal and Tir's baseline regressions using all MIDs rather than fatal MIDs, since my analysis uses all MIDs while Oneal and Tir used only fatal MIDs. The complete regression results are reported in Table 10, and the central implication is that economic dependence is significant for fatal MIDS ($p > .05$). This outcome suggests that economic dependence's deterrent effect is primarily pacifying for high-level MIDs.

Table 10 about here

Different results at different levels of escalation lead me to suspect that my market power variables may be strongest at the lowest level of escalation: non-fatal MIDs. To test this claim, I replicate each model from Table 2 but use non-fatal MIDs instead of all MIDs as the dependent variable. Indeed, the impact of supply-side market power is slightly stronger in this specification. The results of these regressions are presented in Table 11.

Table 11 about here

Table 1
Commodities Ranked by Total Value Exchanged
SITC Revision 1; 1962, 1980, and 2001

Rank	1962	1980	2001
1	Machinery, other than electric	Petroleum and petroleum products	Machinery, other than electric
2	Transport equipment	Machinery, other than electric	Electrical machinery, apparatus and appliances
3	Petroleum and petroleum products	Transport equipment	Transport equipment
4	Textile yarn, fabrics	Electrical machinery, apparatus and appliances	Petroleum and petroleum products
5	Iron and steel	Iron and steel	Miscellaneous manufactured articles
6	Electrical machinery, apparatus and appliances	Chemical elements and compounds	Special transactions
7	Cereals and cereal preparations	Textile yarn, fabrics	Scientific instruments
8	Non ferrous metals	Miscellaneous manufactured articles	Clothing
9	Fruit and vegetables	Non ferrous metals	Chemical elements and compounds
10	Miscellaneous manufactured articles	Cereals and cereal preparations	Medicinal and pharmaceutical products
11	Textile fibers and waste	Non metallic mineral manufactures	Textile yarn, fabrics
12	Coffee, tea, cocoa, spices	Manufactures of metal	Iron and steel
13	Metal ores and metal scrap	Scientific instruments	Non metallic mineral manufactures
14	Manufactures of metal	Clothing	Plastic materials
15	Chemical elements and compounds	Special transactions	Manufactures of metal
16	Paper, paperboard	Plastic materials	Non ferrous metals
17	Scientific instruments	Paper, paperboard	Paper, paperboard
18	Non metallic mineral manufactures	Metal ores and metal scrap	Gas, natural and manufactured
19	Crude rubber	Gas, natural and manufactured	Fruit and vegetables
20	Meat and meat preparations	Fruit and vegetables	Chemical materials
21	Wood, lumber and cork	Meat and meat preparations	Furniture
22	Clothing	Coffee, tea, cocoa, spices	Cereals and cereal preparations
23	Chemical materials	Wood, lumber and cork	Perfume, toiletries, cleaners
24	Coal, coke and briquettes	Textile fibers and waste	Fish and fish preparations
25	Dairy products and eggs	Chemical materials	Meat and meat preparations

Table 2
The Effect of Supply-Side Market Concentration on Military Conflicts
All MIDs; 1962-2001

	Model 1: Baseline Model	Model 2: Monadic Market Power Model	Model 3: Monadic and Dyadic Market Power Model
Initiator Democracy Score	- 0.0344** (.0074)	- 0.0330** (.0075)	- 0.0304** (.0074)
Target Democracy Score	0.0040 (.0077)	0.0037 (.0075)	0.0037 (.0074)
Economic Dependence	- 1.619 (2.225)	- 1.470 (2.169)	- 0.8348 (1.857)
Ln(Capability Ratio)	0.4176** (.1598)	0.4438** (.1633	0.4728** (.1668)
Ln(Capability Ratio)^2	- 0.0208** (.0076)	- 0.0218** (.0077)	- 0.0233** (.0079)
Direct Contiguity	1.955** (.3046)	1.959** (.3012)	2.026** (.2987)
Ln(Distance)	- 0.3132** (.0709)	- 0.3053** (.0705)	- 0.3147** (.0689)
Major Power	1.228** (.2485)	1.271** (.2516)	1.388** (.2634)
Initiator HHI Index	-	- 0.0838** (.0352)	- 0.0690** (.0355)
Target HHI Index	-	- 0.0049 (.0354)	- 0.0080 (.0353)
Dyadic Initiator HHI Index	-	-	- 1.3x10^-6** (5x10^-7)
Dyadic Target HHI Index	-	-	3.8x10^-7†† (1x10^-7)
Pseudo R^2	0.2185	0.2196	0.2211
χ^2 (df)	2248.61** (14)	2275.68** (16)	2342.78** (18)
N	672,492	672,492	672,492

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates p < .05 and ** indicates p < .01. For variables that take a different sign than predicted, † indicates p < .05 and †† indicates p < .01. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the p < .001 level; they have been omitted here for brevity.

Table 3: Robustness Check
Tests for Multicollinearity
Correlation Matrix

	Econ. Dependence	Initiator HHI Index	Target HHI Index	Dyad. Initiator HHI	Dyadic Target HHI
Econ. Dependence	1.00	-	-	-	-
Initiator HHI Index	0.002	1.00	-	-	-
Target HHI Index	0.040	0.1495	1.00	-	-
Dyad. Initiator HHI Index	0.086	0.056	0.045	1.00	-
Dyadic Target HHI Index	0.136	0.057	0.057	0.491	1.00

Variance Inflation Factors

	VIF: Model 1	**VIF: Model 2**	**VIF: Model 3**
Economic Dependence	1.11	1.11	1.12
Initiator HHI Index	-	2.62	2.63
Target HHI Index	-	2.49	2.50
Dyadic Initiator HHI Index	-	-	1.36
Dyadic Target HHI Index	-	-	1.34

Table 4: Robustness Check
Specification without Economic Dependence
All MIDs, 1962-2001

	Model 1: Baseline Model	Model 2: Monadic Market Power Model	Model 3: Monadic and Dyadic Market Power Model
Initiator Democracy Score	- 0.0349** (.0074)	- 0.0334** (.0075)	- 0.0306** (.0074)
Target Democracy Score	0.0032 (.0077)	0.0029 (.0075)	0.0032 (.0074)
Economic Dependence	-	-	-
Ln(Capability Ratio)	0.4317** (.1615)	0.4568** (.1646)	0.4808** (.1678)
Ln(Capability Ratio)^2	- 0.0213** (.0076)	-0.0223** (.0077)	- 0.0236** (.0079)
Direct Contiguity	1.956** (.3049)	1.960** (.3015)	2.027** (.2985)
Ln(Distance)	- 0.3090** (.0710)	- 0.3015** (.0706)	- 0.3130** (.0689)
Major Power	1.230** (.2483)	1.273** (.2514)	1.391** (.2627)
Initiator HHI Index	-	- 0.0846** (.0351)	- 0.0825** (.0217)
Target HHI Index	-	- 0.0046 (.0356)	0.0047 (.0229)
Dyadic Initiator HHI Index	-	-	- 1.3x10^-6** (5x10^-7)
Dyadic Target HHI Index	-	-	3.8x10^-7†† (1x10^-7)
Pseudo R^2	0.2184	0.2195	0.2205
χ^2 (df)	2235.33** (13)	2263.75** (15)	2332.13** (17)
N	672,492	672,492	672,492

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates p < .05 and ** indicates p < .01. For variables that take a different sign than predicted, † indicates p < .05 and †† indicates p < .01. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the p < .001 level; they have been omitted here for brevity.

Table 5: Robustness Check
Specification without Monadic HHI Indices
All MIDs, 1962-2001

	Model 1: Dyadic Market Power Model	Model 2: Dyadic Market Power Model, No Economic Dependence
Initiator Democracy Score	- 0.0313** (.0074)	- 0.0315** (.0074)
Target Democracy Score	0.0039 (.0076)	0.0035 (.0076)
Economic Dependence	- 0.8196 (1.854)	-
Ln(Capability Ratio)	0.4578** (.1654)	0.4658** (.1663)
Ln(Capability Ratio)^2	- 0.0228** (.0079)	- 0.0230** (.0079)
Direct Contiguity	2.041** (.3017)	2.042** (.3015)
Ln(Distance)	- 0.3215** (.0691)	- 0.3198** (.0692)
Major Power	1.379** (.2649)	1.382** (.2641)
Dyadic Initiator HHI Index	- 1.5x10^-6** (6x10^-7)	- 1.5x10^-6** (5x10^-7)
Dyadic Target HHI Index	4.0x10^-7†† (1x10^-7)	3.9x10^-7†† (3x10^-7)
Pseudo R^2	0.2204	0.2203
χ^2 (df)	2327.52** (16)	2315.63** (15)
N	672,492	672,492

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates p < .05 and ** indicates p < .01. For variables that take a different sign than predicted, † indicates p < .05 and †† indicates p < .01. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the p < .001 level; they have been omitted here for brevity.

Table 6: Robustness Check
Specification with HHI based on Top 10 Commodities per Year
All MIDs, 1962-2001

	Model 1: Baseline Model	Model 2: Monadic Market Power Model	Model 3: Monadic and Dyadic Market Power Model
Initiator Democracy Score	- 0.0394** (.0072)	- 0.0380** (.0072)	- 0.0370** (.0072)
Target Democracy Score	- 0.0006 (.0074)	- 0.0041 (.0072)	- 0.0037 (.0072)
Economic Dependence	- 1.137 (2.053)	- 1.182 (2.033)	- 0.7913 (1.898)
Ln(Capability Ratio)	0.3930** (.1612)	0.3811** (.1639)	0.3816** (.1645)
Ln(Capability Ratio)^2	- 0.0189** (.0078)	- 0.0183** (.0079)	- 0.0184** (.0079)
Direct Contiguity	1.964** (.3024)	1.992** (.3046)	2.050** (.3033)
Ln(Distance)	- 0.2971** (.0728)	- 0.3069** (.0720)	- 0.3167** (.0705)
Major Power	0.9481** (.2418)	1.018** (.2455)	1.110** (.2525)
Initiator HHI Index	-	0.0305 (.0854)	0.0377 (.0849)
Target HHI Index	-	0.3260†† (.0797)	0.3120†† (.0797)
Dyadic Initiator HHI Index	-	-	- 4.6x10^-6* (3x10^-6)
Dyadic Target HHI Index	-	-	7.8x10^-7†† (3x10^-7)
Pseudo R^2	0.1973	0.2000	0.2014
χ^2 (df)	2182.05** (14)	2236.91** (16)	2395.93** (18)
N	672,492	672,492	672,492

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates p < .1 and ** indicates p < .05. For variables that take a different sign than predicted, † indicates p < .1 and †† indicates p < .05. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the p < .001 level; they have been omitted here for brevity.

Table 7: Robustness Check
Specification with HHI based on Top 20 Commodities per Year
All MIDs, 1962-2001

	Model 1: Baseline Model	Model 2: Monadic Market Power Model	Model 3: Monadic and Dyadic Market Power Model
Initiator Democracy Score	- 0.0394** (.0072)	- 0.0380** (.0072)	- 0.0360** (.0072)
Target Democracy Score	- 0.0007 (.0074)	- 0.0041 (.0072)	- 0.0039 (.0072)
Economic Dependence	- 1.137 (2.053)	- 1.182 (2.033)	- 0.7179 (1.840)
Ln(Capability Ratio)	0.3930** (.1612)	0.3811** (.1639)	0.3877** (.1654)
Ln(Capability Ratio)^2	- 0.0189** (.0078)	- 0.0183** (.0079)	- 0.0187** (.0079)
Direct Contiguity	1.964** (.3024)	1.992** (.3046)	2.058** (.3031)
Ln(Distance)	- 0.2971** (.0728)	- 0.3069** (.0720)	- 0.3183** (.0702)
Major Power	0.9481** (.2418)	1.018** (.2455)	1.134** (.2552)
Initiator HHI Index	-	0.0305 (.0854)	0.0484 (.0840)
Target HHI Index	-	0.3260†† (.0797)	0.3102†† (.0797)
Dyadic Initiator HHI Index	-	-	- 2.8x10^-6** (1x10^-6)
Dyadic Target HHI Index	-	-	5.7x10^-7†† (2x10^-7)
Pseudo R^2	0.1973	0.2000	0.2018
χ^2 (df)	2182.05** (14)	2236.91** (16)	2423.46** (18)
N	672,492	672,492	672,492

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates $p < .1$ and ** indicates $p < .05$. For variables that take a different sign than predicted, † indicates $p < .1$ and †† indicates $p < .05$. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the $p < .001$ level; they have been omitted here for brevity.

Table 8: Robustness Check
Specification with HHI based on Top 30 Commodities per Year
All MIDs, 1962-2001

	Model 1: Baseline Model	Model 2: Monadic Market Power Model	Model 3: Monadic and Dyadic Market Power Model
Initiator Democracy Score	- 0.0394** (.0072)	- 0.0380** (.0072)	- 0.0359** (.0072)
Target Democracy Score	- 0.0007 (.0074)	- 0.0041 (.0072)	- 0.0038 (.0072)
Economic Dependence	- 1.137 (2.053)	- 1.182 (2.033)	- 0.6129 (1.812)
Ln(Capability Ratio)	0.3930** (.1612)	0.3811** (.1639)	0.3916** (.1652)
Ln(Capability Ratio)^2	- 0.0189** (.0078)	- 0.0183** (.0079)	- 0.0189** (.0079)
Direct Contiguity	1.964** (.3024)	1.992** (.3046)	2.068** (.3008)
Ln(Distance)	- 0.2971** (.0728)	- 0.3069** (.0720)	- 0.3186** (.0701)
Major Power	0.9481** (.2418)	1.018** (.2455)	1.150** (.2521)
Initiator HHI Index	-	0.0305 (.0854)	0.0538 (.0837)
Target HHI Index	-	0.3260†† (.0797)	0.3115†† (.0795)
Dyadic Initiator HHI Index	-	-	- 2.5x10^-6** (1x10^-6)
Dyadic Target HHI Index	-	-	3.5x10^-7†† (1x10^-7)
Pseudo R^2	0.1973	0.2000	0.2019
χ^2 (df)	2182.05** (14)	2236.91** (16)	2385.51** (18)
N	672,492	672,492	672,492

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates p < .1 and ** indicates p < .05. For variables that take a different sign than predicted, † indicates p < .1 and †† indicates p < .05. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the p < .001 level; they have been omitted here for brevity.

Table 9: Robustness Check
Oneal and Tir (2006) Baseline Regression with Restricted Date Range
Fatal MIDs, 1962-2001

	Model 1: Baseline Model
Initiator Democracy Score	- 0.0137 (.0158)
Target Democracy Score	0.2156 (.0176)
Economic Dependence	- 33.13* (15.62)
Ln(Capability Ratio)	0.8397* (.4426)
Ln(Capability Ratio)^2	- 0.0436* (.0214)
Direct Contiguity	2.024** (.5565)
Ln(Distance)	- 0.3232** (.1014)
Major Power	0.7141* (.4010)
Pseudo R^2	0.3670
χ^2 (df)	590.80** (14)
N	662,394

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates $p < .05$ and ** indicates $p < .01$. For variables that take a different sign than predicted, † indicates $p < .05$ and †† indicates $p < .01$. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the $p < .001$ level; they have been omitted here for brevity.

Table 10: Robustness Check
Oneal and Tir (2006) Baseline Regression with Alternative Dependent Variable
All MIDs, 1962-2001

	Model 1: Baseline Model
Initiator Democracy Score	- 0.0394** (.0072)
Target Democracy Score	- 0.0007 (.0074)
Economic Dependence	- 1.137 (2.053)
Ln(Capability Ratio)	0.3930** (.1612)
Ln(Capability Ratio)^2	- 0.0189** (.0078)
Direct Contiguity	1.964** (.3024)
Ln(Distance)	- 0.2971** (.0728)
Major Power	0.9481** (.2418)
Pseudo R^2	0.1973
χ^2 (df)	2182.05** (14)
N	856,070

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates p < .05 and ** indicates p < .01. For variables that take a different sign than predicted, † indicates p < .05 and †† indicates p < .01. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the p < .001 level; they have been omitted here for brevity.

Table 11: Robustness Check
The Effect of Supply-Side Market Concentration on Military Conflicts
Non-fatal MIDs, 1962-2001

	Model 1: Baseline Model	Model 2: Monadic Market Power Model	Model 3: Monadic and Dyadic Market Power Model
Initiator Democracy Score	- 0.0345** (.0075)	- 0.0326** (.0075)	- 0.0299** (.0075)
Target Democracy Score	0.0024 (.0077)	0.0020 (.0075)	0.0020 (.0074)
Economic Dependence	-1.183 (2.099)	- 1.009 (2.031)	- 0.4299 (1.725)
Ln(Capability Ratio)	0.4153** (.1647)	0.4464** (.1684)	0.4747** (.1720)
Ln(Capability Ratio)^2	- 0.0202** (.0078)	- 0.0215** (.0079)	- 0.0230** (.0081)
Direct Contiguity	1.947** (.3090)	1.951** (.3047)	2.015** (.3022)
Ln(Distance)	- 0.3198** (.0727)	- 0.3101** (.0722)	- 0.3202** (.0704)
Major Power	1.232** (.2528)	1.278** (.2562)	1.393** (.2677)
Initiator HHI Index	-	- 0.1005** (.0349)	- 0.0853** (.0354)
Target HHI Index	-	- 0.0062 (.0362)	- 0.0095 (.0361)
Dyadic Initiator HHI Index	-	-	- 1.3x10^-6** (6x10^-7)
Dyadic Target HHI Index	-	-	3.9x10^-7†† (1x10^-7)
Pseudo R^2	0.2070	0.2085	0.2100
χ^2 (df)	2193.69** (14)	2225.26** (16)	2296.45** (18)
N	672,311	672,311	672,311

These regressions are modeled on the baseline regression in Oneal and Tir (2006). The unit of analysis is the directed dyad-year and the results are for logistic regressions. Standard deviations are noted in parentheses. Statistical significance is noted with asterisks: * indicates $p < .1$ and ** indicates $p < .05$. For variables that take a different sign than predicted, † indicates $p < .1$ and †† indicates $p < .05$. All tests are one-tailed tests. The coefficients of all three peace-years splines and , system size, and alliance are significant at the $p < .001$ level; they have been omitted here for brevity.