Conflict and Interdependence

EAST-WEST TRADE AND LINKAGES IN THE ERA OF DETENTE

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This article investigates the relationship between interdependence and conflict, using U.S.-Warsaw Pact trade and conflict data during détente as a case study. A theoretical framework is developed in which incentives to reduce conflict are related to the desire to protect the benefits of an interaction. Asymmetric interdependence can lead to linkage diplomacy and to greater conflict reduction by one side than the other. These hypotheses are tested empirically. A strong, inverse relationship between trade and conflict is found, and trade is found to cause a greater reduction in Warsaw Pact conflict than in U.S. conflict. We further investigate the relationship between trade and conflict in various types of goods, as well as the trade/conflict relationship between the United States and the individual Warsaw Pact members. These results are of importance in understanding the use of trade and other interactions as a diplomatic tool, and in comparing the foreign policies of particular Warsaw Pact members.

The easing of U.S.-Soviet hostilities in the late 1960s and early 1970s, commonly known as détente, has raised important questions for students of international conflict. While many factors contributed to the rise of détente, a major element was the emergence of a set of issues over

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which joint cooperation could yield substantial benefits for both East and West. These issues included trade, arms control, and the settlement of numerous regional and global disputes. The potential benefits from these issues provided powerful incentives for the superpowers and their allies to reduce their mutual hostilities.

In this study we will focus on the implications of the growth of East-West trade for conflict reduction between the United States and the Warsaw Pact. We present empirical evidence that indicates that increases in trade caused a substantial decline in U.S.-Warsaw Pact conflict. We further investigate hypotheses about how the relationship between trade and conflict with the United States differed among the seven Warsaw Pact countries. Our results have important implications in that they illustrate how policymakers can manipulate issues such as international trade to gain increased cooperation from other world actors.

INTERDEPENDENCE AND ISSUE LINKAGES IN THE DETENTE ERA

Seyom Brown (1977: 4-5) lists several key issues that served as a foundation for détente: (1) stabilization of the European status quo, (2) limitation of China's power, (3) expansion of East-West trade, (4) negotiations over the Vietnam and Middle East conflicts, (5) arms control, and (6) reduced competition for Third World clients. These issues fluctuated in importance during this period, with trade, arms control, and the restraint of China providing probably the most immediate and enduring foundation for cooperation. These issues also varied in their importance to the superpowers. Acceptance of the European status quo, the restraint of China, and trade were probably of greater interest to the Soviets, while arms control and the Vietnam and Middle East negotiations were probably more important to the United States.

The emergence of these issues in the late 1960s produced what Keohane and Nye (1977: 24-29) have called complex interdependence between the superpowers and their respective blocs. Complex interdependence is a situation in which the interests and policies of a group of countries become closely interrelated because of strong, mutual ties in a number of issue areas. Since the interests and capabilities of interdependent countries typically differ in particular issue areas, the issues joining
them will often involve costs and benefits that are asymmetrically distributed. Complex interdependence can lead to linkage diplomacy, a foreign policy strategy in which an actor exchanges concessions on one or a number of issues for concessions by its partner in other issue areas (Keohane and Nye, 1977: 30-32). Linkage diplomacy can emerge under asymmetric interdependence because an actor can link issues more beneficial to its partner to concessions in an issue area in which it expects to benefit more.

The détente issues discussed by Brown are examples of interdependencies in which one or both sides benefit substantially from participation in an interaction.1 When interdependence is mutually beneficial, we hypothesize that an increase in interdependence will be associated with a decline in conflict. In empirical terms, we expect an inverse relationship to hold between interdependence and conflict. This inverse relationship occurs because incentives to reduce hostilities arise when a country is sensitive or vulnerable2 to the actions of another. These incentives follow from a country's need to reduce threats posed by sensitivities and vulnerabilities that may hamper the benefits anticipated under an interaction. In order to maintain these benefits, a country will seek improved relations with actors that can threaten them.

When the benefits of an interaction are distributed asymmetrically, the country that benefits more will have a greater incentive to reduce hostilities. This greater incentive is motivated by the desire to protect these relatively larger benefits from threats posed by sensitivities or vulnerabilities. The reduced hostilities that follow may frequently take the form of concessions exchanged under linkage diplomacy. The motivation to grant concessions under linkage diplomacy arises from incentives that are similar to those leading to the reduction of conflict.

**TRADE AS A DÉTENTE ISSUE**

International trade is probably the issue area that has received the most attention in the interdependence literature. Trade interdependence

1. Interdependence does not always involve direct benefits or gains, as in the example of U.S.-Soviet strategic interdependence discussed by Keohane and Nye (1977: 9). The discussion here is limited to interdependencies that provide substantial, though possibly asymmetric, benefits for each participant.

2. Following Keohane and Nye (1977: 12-13), sensitivity can be defined as the degree to which changes in one country, transmitted by a mutual interaction, cause changes in another. Vulnerability can be defined as the inability of a country to adopt alternatives to changes in the volume of an interaction.
can lead to serious problems such as the international spread of inflation and unemployment, difficulties in formulating domestic economic policy, and the threat of an embargo on particular goods. Despite the sensitivities and vulnerabilities that may accompany it, trade has often been associated with improved relations between countries, an idea that is reflected in the writings of Smith, Gladstone, Mill, and others. The notion that asymmetries in trade interdependence can provide a source of political power has been stressed in a classical work by Hirschman (1945). The use of trade as an instrument in linkage diplomacy was particularly apparent in U.S.-Soviet relations during détente.

Expanded East-West trade has generally been seen as benefiting the East more than the West. Raymond Vernon (1974: 254) has attributed Soviet interest in imports of Western technology to a lack of middle-level scientists and engineers. Holzman and Legvold (1975: 275) have emphasized the role of trade in inducing growth and greater efficiency in the Soviet economy. Most writers have focused on access to Western and U.S. technology as the primary commercial objective of the Eastern bloc during this period. The share of high technology in Western exports to the Warsaw Pact has not been greater than in total Western exports, however, and the United States has only been the fifth leading exporter of high technology to the Soviet Union (Young, 1980). In addition to technology, the grain sale of 1972 and the 1980 grain embargo indicate that U.S. agricultural products were also an important objective for the Soviets in this period.

While the U.S. balance of payments position and U.S. producers benefited to some degree from access to the Soviet market, all exports to the Eastern bloc from 1972 to 1977 accounted for only 2.2% of total U.S. exports. U.S. imports from the East have remained at substantially lower levels, and have consisted of goods that are available from other sources. Hence the commercial benefits of trade with the East have not been overwhelming for the United States. It would appear that the major U.S. motive for expanding East-West trade has been to provide linkages for concessions on other issues.

Although détente originated in the late 1960s, U.S. trade with the Warsaw Pact did not increase dramatically until it quadrupled between 1971 and 1973, largely due to Soviet imports. Trade increased modestly after the immediate postwar period, expanding from $41 million to $415 million per year between 1953 and 1968. In this period, 52% of the U.S.-Warsaw Pact trade was with Poland, while only 26% involved the Soviet Union. Following an unsatisfactory harvest, the Soviets pressed for
large grain purchases in mid-1972. In October of the same year, a general trade agreement was signed in Moscow, extending substantial credits and granting most favored nation (MFN) status to the Soviet Union, subject to congressional approval. From 1972 to 1977, Soviet trade accounted for 56% of U.S. trade with the East, of which 84% was in U.S. exports.3

The expansion of East-West trade in the early 1970s coincided with the SALT I agreement and Soviet cooperation on the Vietnam and Middle East negotiations. Linkage diplomacy involving trade and other issues played an important role in achieving Soviet cooperation in these areas. After the 1972 trade agreement, U.S. policymakers made further attempts to invoke trade as an instrument of diplomatic leverage. Congress passed the Jackson-Vanik and Stevenson amendments, which sought to link MFN status and further credits to increased emigration of Soviet Jews. While restrictions on emigration were eased for a time, the requirements of these amendments were never met. In January 1975, the Moscow agreement was rescinded by the Soviets in an explicit response to these congressional actions. A subsequent statement by Breznev is quite revealing: "Those who believe that discrimination in economic relations can influence our policy or arrest our economic development are deeply mistaken. The Soviet Union has never made itself dependent in these matters on the benevolence of Western partners" (quoted in Knorr, 1977: 106).

While the Nixon administration had been successful in linking trade to Soviet cooperation in other areas, U.S. trade after 1972 was clearly not sufficiently important to induce further Soviet concessions in the form of increased Jewish emigration. In essence, U.S. policymakers had not allowed trade to increase sufficiently for it to be effective as a linkage instrument over the wide range of objectives that they pursued. The Carter administration subsequently sought to use trade linkages to influence Soviet behavior, a policy that was articulated in Presidential Directive 18 (August 1977) and later implemented in the 1980 grain embargo. However, Carter's efforts appear to have had minimal influence. It is apparent that the leveling off of trade after 1975 has effectively limited further use of this instrument, although the decline in conflict from the late 1960s until this time indicates that it probably played a valuable role in U.S. policy in this earlier period.

3. The figures used in this and the previous paragraph were calculated from: International Monetary Fund Direction of Trade (various years).
Before presenting our empirical evidence, it is necessary to discuss our measures of trade and conflict and to clarify how we use these terms. The trade measures we employ are real quarterly dollar figures of U.S.-Warsaw Pact trade from 1967 to 1978. To broadly test our assertions, several categories of trade are used: (1) total trade (imports plus exports), (2) total imports, (3) total exports, and (4) imports or exports of major types of goods. We used U.S.-Warsaw Pact rather than U.S.-Soviet trade data on the assumption that political and economic integration in the Warsaw Pact has tended to create bloc- rather than nation-specific linkages. Accordingly, our analyses also employ U.S.-Warsaw Pact conflict data, except in the final section. In that section we use conflict data for individual Warsaw Pact members to compare their responsiveness to U.S. trade with the entire bloc.

The dollar value of trade is generally a less desirable indicator of trade independence than other measures such as trade volume weighted by its price elasticity or trade partner concentration. Elasticity-weighted trade is used by economists as an indicator of the interdependence associated with an economy's sensitivity to changes in import prices (Tollison and Willett, 1973: 259-261). However, the price elasticity of total trade cannot be obtained on a quarterly basis, since empirical estimates based on a longitudinal sample of sufficient size must be used: In any case, the dollar value of trade will be monotonically related to elasticity-weighted trade, as long as no major structural changes occur in supply and demand schedules.

Trade partner concentration is used by Hirschman (1945) as a measure of the power exercised by one country over another in the area of trade, an approach that is similar to Keohane and Nye's concept of vulnerability (see footnote 2). Hirschman's measure is an index of the concentration of a country's total trade among a small group of

4. The data are given in millions of U.S. dollars, obtained from: U.S. Department of Commerce (various years). These figures were deflated with quarterly consumer price index data for the United States, obtained from: International Monetary Fund International Financial Statistics (various years).

5. Thus we felt that a transaction with any Warsaw Pact member would in part benefit all members, and hence would influence the foreign policies of each. Conversely, using only U.S.-Soviet trade data would omit U.S. transactions with other Pact members, which might affect Soviet foreign policy. The degree to which Warsaw Pact integration affects foreign policy in this way is a very complex issue, and was beyond the scope of our study.
countries, and hence is not a bilateral measure as required here. However, a related measure that is bilateral is the percentage of a country's total trade with a given partner. Unfortunately, the necessary data to compute this measure were not available to us for quarterly time periods or, more importantly, for particular types of goods. Nevertheless, as with elasticity-weighted trade, the dollar value of U.S.-Warsaw Pact trade is monotonically related to the percentage of total Warsaw Pact trade with the United States. This is because total Warsaw Pact trade increased much more slowly and more uniformly than Warsaw Pact trade with the United States in this period.

The conflict measures used in this study were obtained from Edward Azar's COPDAB databank. COPDAB is a comprehensive survey of international events, each of which is scaled to indicate the degree of hostility or cooperation that it reflects. Aggregating these events with Azar's weighting scheme into quarterly time series provides a quantitative record with ratio properties of U.S.-Warsaw Pact relations. The definition of conflict embodied in this measure is the degree of hostility reflected in the actions directed by one nation (or a group of nations) at another through such channels as diplomatic activities, military or quasi-military actions, and economic or cultural exchanges. Thus conflict refers here to the character of day-to-day relations between the countries in question, and is by no means limited to military actions. In this study we use conflict directed by the United States at the seven Warsaw Pact countries (both aggregated together and considered individually), as well as conflict directed by these countries (both aggregated and individually) at the United States.

**EMPIRICAL EVIDENCE ON U.S.-WARSAW PACT TRADE AND CONFLICT**

Time series plots of U.S.-Warsaw Pact trade and conflict from 1967 through 1978 are given in Figure 1. The trends apparent in this figure

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6. See Azar (1980a, 1980b). The measures used here are conflictive Dls, an intensity-weighted sum of conflictual events, aggregated quarterly. Weighting Azar's events data by intensity provides a measure with ratio properties. The consistency of Azar's data was tested by correlating these measures with McClelland's WEISS data. Despite substantial differences in source coverage and coding formats, positive correlations of about .8 were obtained.

7. For further discussions on the theoretical basis of events data see references in the previous footnote and various articles in Azar and Ben-Dak (1975).

8. The measures used in this figure and in all further empirical discussions are discussed in the previous section. See footnotes 4 and 6 for data sources.
Figure 1: Conflict and Trade Time Series, 1967-1978
are in accord with our above discussions. Conflict declines as trade rises in the 1971-1972 period, then levels off until late 1975 as trade remains fairly constant. Both conflict measures show fairly strong inverse correlations with trade before 1976. This is particularly apparent for Warsaw Pact conflict directed at the United States, which is substantially higher than U.S. conflict directed at the Pact before mid-1968. This inverse relationship supports our contention that increasing trade interdependence was associated with reduced East-West conflict in the détente era. The trend in 1976-1978 is less clear, with trade fluctuating and conflict by both sides escalating rapidly in 1977.

Figure 2 plots the trade/conflict relationship directly. Warsaw Pact conflict directed at the United States is given on the vertical axis and U.S.-Warsaw Pact trade is on the horizontal axis. The solid lines are linear and hyperbolic fits of the 1967-1975 data. The inverse relationship between conflict and trade is clear in this figure. In addition, it is evident that the relationship is hyperbolic rather than linear. The stronger hyperbolic fit is consistent with a constant trade/conflict elasticity. That is, a percentage increase in trade is associated with a proportional percentage decline in conflict, at all levels of trade and conflict.9

Figure 2 illustrates the trade/conflict relationship in the 1976-1978 period more clearly (these data points are plotted with the character “0”). The data from this period appear to have a flat but slightly negative slope, indicating that the level of conflict varied very little in this period with changes in the level of trade. This observation is not surprising, since the constant elasticity relationship embodied in the hyperbolic curve suggests that the relationship should be nearly flat at levels of trade above $300-400 million per quarter. However, the 1976-1978 data are also located some 100 conflict units higher than would be expected under the hyperbolic relationship apparent in the 1967-1975 data. This indicates that, while a hyperbolic trend may have held for the entire 1967-1978 period, some factor must have operated to raise conflict in the 1976-1978 period above the level expected under this trend.

9. It should be noted that the choice of a hyperbolic model was somewhat arbitrary, giving a slightly better fit but having no stronger theoretical justification than a logarithmic model, for example. Needless to say, a log model entails variable elasticity, though over narrow ranges the elasticity will be nearly constant and will vary much less than in a linear model. This argument represents an important refinement of earlier work by Polachek (1978, 1980), which assumed a linear relationship between trade and conflict and hence variable elasticity.
By 1976, the Moscow trade agreement had been rescinded and U.S.-Soviet tensions were building over issues such as arms control and Cuban troops in Africa. Linkages had been successfully established for similar issues in the previous period. However, with the Jackson-Vanik and Stevenson amendments and the subsequent rescinding of the Moscow accord, the momentum of these earlier agreements was lost. This suggests that the higher level of conflict in the 1976-1978 period may have in fact reflected high expectations in the previous period that tended to reduce conflict beyond the decline associated with trade linkages. These high expectations may have been due either to the rapid increase in trade in the 1972-1973 period or to the failure of policymakers to appreciate the declining utility of trade linkages due to constant elasticity. Thus, rather than conflict in the 1976-1978 period being unusually high, we believe that high expectations led to unusually low levels of conflict in the early 1970s, which in effect displaced the hyperbolic curve downward.

Results of regression analyses, including those shown in Figure 2, are given in Table I. The form of the regression equations here is:

\[ \text{conflict} = f(\text{trade}) \]  \[1\]

where conflict is directed both by the Warsaw Pact at the United States and vice versa, and trade is either total trade, total imports, or total exports. The functional form is either linear:

\[ \text{conflict} = A + B \cdot \text{trade} \]  \[2\]

or hyperbolic:10

\[ \text{conflict} = A + \frac{B}{\text{trade}} \]  \[3\]

The data are stratified into 1967-1975 and 1967-1978 periods, and only the beta coefficient and \( R^2 \) are given for each model.

A comparison of the \( R^2 \)'s in the first three lines of Table I with those in the last three lines shows that the hyperbolic model gives a substantially better fit than the linear model. For example, the hyperbolic model

10. In the hyperbolic model, a positive coefficient implies an inverse relationship between trade and conflict.
<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Conflict from Warsaw Pact to U.S.</th>
<th>Conflict from U.S. to Warsaw Pact</th>
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<tr>
<td></td>
<td>beta</td>
<td>R²</td>
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</tr>
<tr>
<td>Exports</td>
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<td>.07</td>
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<tr>
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<td>1/Exports</td>
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<td>.38</td>
</tr>
<tr>
<td>1/Imports</td>
<td>6905*</td>
<td>.14</td>
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</tbody>
</table>

*Indicates a coefficient significant at .05.

**Indicates significance at .10. The autocorrelation coefficients (ρ) were all significant at .05 and were used to compute the betas shown here with the Cochrane-Orcutt procedure. See the text for a description of the data.
explains 33% of the variance in 1967-1975 Warsaw Pact conflict toward the United States, whereas the linear model explains only 8%. As will be discussed in the next section, the inclusion of lagged trade values in these regressions substantially improves their explanatory power. There is also an $R^2$ improvement in all models shown in Table 1 in going from 1967-1978 to 1967-1975 data, an indication of the higher level of 1976-1978 conflict discussed above. While Figure 2 showed that conflict in the latter period was substantially higher than the level expected under the 1967-1975 trend, the $R^2$s for the 1967-1978 models of Warsaw Pact conflict show that a hyperbolic fit nevertheless holds for the entire period.

Finally, larger coefficients on Warsaw Pact conflict toward the United States than on U.S. conflict toward the Pact indicate that trade had a much stronger effect in moderating Soviet and Warsaw Pact behavior than U.S. behavior. This is an extremely important result. The fact that Warsaw Pact conflict declines more than U.S. conflict with an increment in trade is consistent with our hypothesis that incentives to reduce hostilities are stronger for the country that benefits more from an interaction. The above historical discussion illustrates how linkage diplomacy involving expanded East-West trade accompanied the moderation of Warsaw Pact conflict.

THE QUESTION OF CAUSALITY

An important issue that must be addressed here is the direction of causality in the trade/conflict relationship embodied in equations 1 through 3. Although implied in these equations, the discussion has so far avoided making a strong assertion that increasing trade interdependence causes a decline in conflict. Indeed, it is plausible that causality runs at least partially in the opposite direction, with trade increasing only in an atmosphere of reduced tensions. In this case, trade-induced incentives would fail to operate, and there would be no basis for linkage diplomacy. Thus, at least from a policy perspective, it is important to determine the direction of causality. Ascertaining the direction of causality in these equations is also important because the regression results shown in Table 1 are strictly valid only if trade is thought to “cause” conflict.
We use empirical methods here to determine the direction of causality. The method we use, developed by Granger (1969),\textsuperscript{11} tests whether the addition of lagged trade values improves on the ability of contemporaneous trade to predict conflict. With T representing trade and C representing conflict, \textit{Granger causality} exists if \textit{past} values of T affect \textit{present} values of C. The Granger method involves a test of the joint hypothesis that $c_{-i} = 0$ for $i = 1$ to $j$, where $c_{-i}$ is the coefficient of T lagged $i$ periods in the following equation:

$$C = k + at + bT + (c_{-1}T_{-1} + \ldots + c_{-j}T_{-j}) + (d_{-1}C_{-1} + \ldots + d_{-j}C_{-j})$$

[4]

In this equation, C is the dependent variable, $k$ is a constant term, $t$ is a time trend, T is the independent variable, $T_{-i}$ and $C_{-i}$ are the $i^{th}$ lagged values of T and C, and $a$, $b$, $c_{-1}, \ldots, c_{-j}$, and $d_{-1}, \ldots, d_{-j}$ are coefficients.\textsuperscript{12}

The null hypothesis that $c_{-i} = 0$ for $i = 1$ to $j$ implies that past values of trade do not predict (and hence "cause") current conflict. This hypothesis can be tested with Fisher's F-test (Theil, 1971: 138-139). Rejection of this hypothesis implies that some past value of T significantly affects present C. Thus, the condition for Granger causality to hold is rejection of the null hypothesis.\textsuperscript{13}

Table 2 contains probability values for Granger F tests of the null hypotheses that trade does not cause conflict (columns 1 and 2) and that conflict does not cause trade (columns 3 and 4; see footnote 12), in the 1967-1978 and 1967-1975 periods. In Table 2, low probability values (e.g., less than .05) indicate rejection of the hypothesis, implying the existence of Granger causality. High values indicate no causality.

\textsuperscript{11} For a discussion of Monte Carlo evidence that finds the Granger test more accurate and powerful than other methods, see Guilkey and Salemi (1981).

\textsuperscript{12} Below, we also test whether past conflict "causes" current trade, respecifying equation 4 as follows:

$$T = k' + a't + b'C + (c'_{-1}T_{-1} + \ldots + c'_{-j}T_{-j}) + (d'_{-1}C_{-1} + \ldots + d'_{-j}C_{-j})$$

[4']

In this case, rejection of the null hypothesis that $d'_{-i} = 0$ for $i = 1$ to $j$ implies that past conflict affects current trade.

\textsuperscript{13} In equation 4, $C_{-1} \ldots C_{-j}$ and t are included in the regression to purge serial correlation and to detrend the data.
### TABLE 2
Probability Values for the Granger Causality Test

<table>
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</table>

**NOTE:** Columns 1 and 2 give probability values for tests of the hypothesis that trade does not cause conflict (in Granger’s sense). Columns 3 and 4 test the converse hypothesis that conflict does not cause trade. Low probability values (e.g., less than .05) indicate that the hypothesis is rejected; high values indicate acceptance. Lag periods indicate the number of quarters over which Granger causality is tested (i.e., j in equations 4). Examination of Durbin-Watson statistics indicated that autocorrelation was not significant at the .05 level in any of these equations.

"lag periods" column indicates the number of quarters over which Granger causality is tested (i.e., j in equations 4 and 4').

In column 1 the null hypothesis that lagged values of trade do not significantly affect present conflict is rejected at the .05 level for the first six lag periods. In column 3 the opposite null hypothesis (that lagged conflict does not affect present trade) is rejected only in lag periods 4 through 6, and less conclusively in each case. These results indicate that trade strongly affects conflict. Of particular importance in columns 1 and 3 is that the first three probability levels in column 3 are greater than .10, while the corresponding levels in column 1 are less than .01. This indicates that Granger causality for short lag periods runs overwhelmingly from trade to conflict, and strongly suggests that causation runs in the direction implied in equations 1 through 3. The results for 1967-1975 data are even more conclusive. The first three values in column 2 are significant at better than .01, while no values in column 4 are significant even at .05. Hence in the 1967-1975 period, both Granger and contemporaneous causality appear to run exclusively in the direction implied in equations 1 through 3. Taken together, the evidence in Table
2 indicates that the effects of trade interdependence on conflict are substantially stronger than the reverse effects of conflict on trade interdependence.

These results also strengthen the findings reported in Table 1, in which the contemporaneous effect of trade on conflict was analyzed. This effect was found to be statistically significant in most of the hyperbolic models, with $R^2$s ranging as high as .38. The results reported in Table 2 indicate that lagged values of trade improve on the ability of contemporaneous trade to predict conflict. In other words, the underlying relationship between trade and conflict is not strictly contemporaneous, but corresponds to a distributed lag framework. Thus, the results reported in Table 2 suggest that inclusion of lagged trade values substantially strengthens our initial findings reported in Table 1.

CONFLICT AND TRADE IN VARIOUS GOODS AND WITH VARIOUS PARTNERS

Having investigated the relationship between U.S.-Warsaw Pact trade and conflict, it is useful to examine briefly some conditions that may have led the various Warsaw Pact members to exhibit stronger or weaker relationships between trade and conflict with the United States. In this section we present two hypotheses that bear on this issue. We also present empirical evidence that provides some support for these hypotheses. However, due to serious limitations inherent in our data, this evidence is not conclusive and the results of this section remain primarily speculative.

Our first hypothesis is that the structure of intrabloc relations in the Warsaw Pact has restricted the latitude of some members to respond to incentives associated with U.S. trade by reducing their hostilities. The Soviet Union, as leader of the Eastern bloc, is constrained in its relations with the United States by its need to achieve bloc objectives as well as national goals. It bears primary responsibility for articulating interbloc rhetoric and for negotiating on issues such as arms control and regional disputes. It cannot yield concessions on these issues easily, and hence its behavior toward the United States will generally be less responsive to incentives associated with trade. By contrast, other bloc members have a more fundamental relationship with the United States and can make concessions more readily. Another intrabloc matter that may have limited the ability of bloc members to engage in linkage diplomacy with the United States has been the periodic occurrence of intrabloc conflict.
Czech relations with the United States were quite circumscribed after 1968, and other bloc members have faced similar restrictions in the postwar period.

Our second hypothesis is that the economic structures of different countries will affect their benefits from trade in certain types of goods, and hence also the strength of incentives associated with these goods to reduce conflict. The desire to expand a certain industry or to augment domestic production in a certain area will produce incentives to improve relations with potential suppliers of these goods. Conversely, a country will have less incentive to reduce hostilities with suppliers of goods that it already produces or for which it has less demand. Similarly, a country may seek to promote exports of a certain type of product in order to achieve economies of scale or to earn foreign exchange in the area of its greatest comparative advantage. Incentives to improve relations will be greatest for potential purchasers of these products. In the case of East-West relations, a Warsaw Pact country whose economy is strong or weak in a particular sector should exhibit stronger linkages with U.S. imports or exports (respectively) in that sector. Since production and trade are controlled by central decision makers rather than private agents in the Warsaw Pact countries, economic needs such as these are more likely to be translated into diplomatic initiatives in these countries than in countries with market economies.

Table 3 shows the absolute values of correlations of imports and exports of various categories of goods with conflict directed by the seven Warsaw Pact members, the entire Pact, and the United States at their respective adversaries. While this table contains some useful results, two factors qualify our findings. First, the trade data used in Table 3 consist of U.S. imports and exports with the entire Warsaw Pact. Hence the correlations in this table are between a country's conflict and U.S.-Warsaw Pact trade rather than bilateral trade. While aggregated data may partially blur the effects of trade with particular countries, we felt that integration of the Warsaw Pact economies necessitated this approach. Second, multicollinearity among the seven categories of imports and exports shown in Table 3 may partially obscure the effects of trade on conflict reduction. 14

14. This multicollinearity is primarily due to the rapid increase in trade in all categories in 1971-1973. Hence, the correlations in Table 3 between conflict and trade in various categories partially reflect the effect of the overall expansion of trade in this period. The multicollinearity among different categories of imports and exports ruled out the use of regression techniques to compare the effects of different types of trade. This approach would have been more suitable than the use of bivariate correlations.
### TABLE 3

<table>
<thead>
<tr>
<th>Type of Good</th>
<th>Soviet Union</th>
<th>Poland</th>
<th>East Germany</th>
<th>Czecho- slovakia</th>
<th>Hungary</th>
<th>Romania</th>
<th>Bulgaria</th>
<th>Warsaw Pact</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exports</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food, Feed Grains</td>
<td>(52)</td>
<td>.33</td>
<td>.40</td>
<td>.52</td>
<td>.31</td>
<td>.29</td>
<td>.38</td>
<td>.49</td>
<td>.42</td>
</tr>
<tr>
<td>Industrial Supplies</td>
<td>(18)</td>
<td>.33</td>
<td>.47</td>
<td>.55</td>
<td>.14</td>
<td>.41</td>
<td>.24</td>
<td>.53</td>
<td>.41</td>
</tr>
<tr>
<td>Capital Goods</td>
<td>(21)</td>
<td>.45</td>
<td>.47</td>
<td>.64</td>
<td>.22</td>
<td>.32</td>
<td>.34</td>
<td>.53</td>
<td>.51</td>
</tr>
<tr>
<td>Total Exports</td>
<td></td>
<td>.35</td>
<td>.44</td>
<td>.58</td>
<td>.28</td>
<td>.33</td>
<td>.38</td>
<td>.53</td>
<td>.44</td>
</tr>
<tr>
<td><strong>Imports</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food, Feeds, Beverages</td>
<td>(20)</td>
<td>.16</td>
<td>.34</td>
<td>.57</td>
<td>.23</td>
<td>.27</td>
<td>.29</td>
<td>.55</td>
<td>.27</td>
</tr>
<tr>
<td>Industrial Supplies</td>
<td>(52)</td>
<td>.31</td>
<td>.43</td>
<td>.59</td>
<td>.38</td>
<td>.33</td>
<td>.27</td>
<td>.53</td>
<td>.42</td>
</tr>
<tr>
<td>Capital Goods</td>
<td>(5)</td>
<td>.19</td>
<td>.32</td>
<td>.59</td>
<td>.18</td>
<td>.25</td>
<td>.32</td>
<td>.49</td>
<td>.28</td>
</tr>
<tr>
<td>Consumer Goods</td>
<td>(22)</td>
<td>.15</td>
<td>.42</td>
<td>.57</td>
<td>.33</td>
<td>.35</td>
<td>.23</td>
<td>.50</td>
<td>.29</td>
</tr>
<tr>
<td>Total Imports</td>
<td></td>
<td>.26</td>
<td>.43</td>
<td>.62</td>
<td>.36</td>
<td>.33</td>
<td>.28</td>
<td>.56</td>
<td>.39</td>
</tr>
<tr>
<td>Total Trade</td>
<td></td>
<td>.35</td>
<td>.46</td>
<td>.61</td>
<td>.31</td>
<td>.35</td>
<td>.37</td>
<td>.56</td>
<td>.45</td>
</tr>
</tbody>
</table>

**NOTE:** Correlations given are absolute values. For all combinations the actual correlations were negative. The seven Warsaw Pact nations are given horizontally, followed by aggregate Warsaw Pact and United States conflict. Figures in parentheses following trade categories are the percentage of exports or imports represented by that category. Correlations above .36 and .26 are significant at .01 and .05, respectively.
Despite these qualifications, Table 3 contains some useful results. As in Table 1, it is evident that Warsaw Pact conflict was influenced more by trade than was U.S. conflict. In all cases, trade/conflict correlations for the Warsaw Pact were substantially higher than those for the United States. Furthermore, the correlations of conflict with total trade for Czechoslovakia, Hungary, the Soviet Union, and Romania were substantially lower than those for the other Pact members. The low correlations for the first three of these countries are in accord with our hypothesis that the structure of intrabloc relations has affected the trade/conflict relationship for some countries more than others. The low correlation for Romania is rather surprising, however, since its foreign policy has been the most independent of all Warsaw Pact members in recent years.

A comparison of correlations by commodity also reveals some interesting results. First, Warsaw Pact conflict was most strongly correlated with U.S. exports of capital goods and imports of industrial supplies (.51 and .42 versus correlations in the range of .41 to .42 and .27 to .29). This is as expected under our hypothesis that economic structure affects the trade/conflict relationship. Industrialization in the Warsaw Pact has relied heavily on Western technology and capital goods, and the main area of comparative advantage for these countries has been in industrial raw materials such as oil and coal. These correlations are quite similar to those shown for the Soviet Union, reflecting both its particular economic needs and its preponderant role in the Warsaw Pact's foreign policy.

Table 3 also reveals the effects of economic structure on the conflict of other bloc members, though these results are much weaker than those for the Soviet Union. Bulgaria, the Warsaw Pact member with the largest share of agriculture in its national product, has a slightly lower correlation with U.S. agricultural exports (.49 versus .53) and higher correlation with U.S. agricultural imports (.55 versus .49 to .53). Conversely, Czechoslovakia, which has a very small agricultural sector, has higher correlations with U.S. agricultural exports (.31 versus .14 and .22) and, in two out of three sectors, lower correlations with U.S. agricultural imports (.23 versus .33 and .38). The most highly industrialized Warsaw Pact countries (East Germany, Czechoslovakia, and Poland) have generally higher correlations with U.S. capital goods exports. Although these results are in accord with our second hypothesis, they are noticeably weaker than those for the Soviet Union and for the entire Warsaw Pact. We believe that this is due to the smaller role
that these countries play in total U.S.-Warsaw Pact trade. Since Soviet trade accounted for roughly half of the U.S.-Warsaw Pact trade in this period, the conflict of other Pact members was less likely to be influenced by U.S. trade with the entire Pact.

SUMMARY AND CONCLUSIONS

This article is a case study of the impact of increasing trade on conflict between the United States and the Warsaw Pact countries. Trade is viewed here as having created a degree of interdependence between these two actors that provided incentives for them to reduce their mutual hostilities. Asymmetries in the benefits associated with trade were seen as leading to greater conflict reduction on the part of the participant that benefits more. These hypotheses were tested empirically, and the final section explored the variation in the strength of the trade-conflict relationship among the seven Warsaw Pact members.

Several important empirical results emerged from this study. First, as expected, we found a strong inverse relationship between trade interdependence and international conflict. This relationship was found to be hyperbolic rather than linear, indicating that a percentage increase in trade is associated with a proportional percentage decline in conflict. Second, we found that increasing U.S.-Warsaw Pact trade was more closely associated with a decline in Warsaw Pact conflict than in U.S. conflict. This was consistent with our hypothesis that the participant that benefits more from an interaction has a greater incentive to reduce its hostilities with other participants. Third, we found that causality runs largely from trade to conflict. This result provides strong support for the notion that trade can be used as an instrument to alter another country’s behavior. Finally, we found some indication that the structure of intrabloc relations and the structures of the Warsaw Pact economies affected the degree to which trade and conflict were related for these countries.

These findings are useful in understanding how international conflict can be reduced, for U.S.-Warsaw Pact relations and more generally. Our results indicate that international conflict can be eased considerably by engaging a hostile nation in interactions that are beneficial to it. We found that a percentage increase in trade leads to a proportional percentage decline in conflict. If this result holds more generally, then an optimal area exists in which a fixed increment in the level of the interaction will produce the largest decline in conflict (i.e., in the parts of the hyperbolic curve in which the slope is most nearly vertical). The two hypotheses in our final section outline conditions in which a country’s
actions may be more or less susceptible to incentives associated with such interactions. A more thorough examination of these conditions for other countries and other kinds of interactions could yield important criteria to guide policymakers in pursuing more hospitable relations with other world actors.

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