Conflict in Context: Arms Transfers and Third World Rivalries during the Cold War*

David Kinsella, *Department of Political Science, University of Missouri-Columbia*

I investigate the impact of superpower arms transfers on two enduring Third World rivalries. A time-series analysis suggests that Soviet and U.S. supplies to interstate rivals in the Middle East and the Persian Gulf are not parallel in their effects. Soviet transfers to Egypt and Syria exacerbated conflict in the Middle East, while U.S. transfers to Israel show no such propensity. There is also some evidence that U.S. arms supplies to Iran under Shah Pahlevi may have had a dampening effect on the Iran-Iraq rivalry. An action-reaction dynamic is apparent in superpower transfers to both the Middle East and Persian Gulf, although the reactive tendency was more pronounced in the U.S. policy. These results lend credence to a conceptual framework that highlights the congruent security orientations of arms suppliers and recipients.

Recent scholarly interest in enduring interstate rivalry derives from the recognition that we cannot fully understand international conflict in isolation from its spatial and temporal context. Indeed, enduring rivalries are defined by reference to the spatial and temporal consistency of certain interstate conflicts (Goertz and Diehl 1993). Beyond the specific regional and historical contexts that have anchored various Third World rivalries, the Cold War between the United States and the Soviet Union constituted until only recently an (arguably) influential *global* context. This paper explores the significance of this global context by investigating the impact of superpower arms transfers on the Arab-Israeli and Iranian-Iraqi rivalries.

The dearth of systematic empirical research on the relationship between arms transfers and conflict is surprising. One might expect that the widespread scholarly interest in the arms trade, and the sheer volume of work done in the area, would have spawned a substantial subliterature on the implications for international conflict. In fact, most of the arms

trade literature is rather descriptive. Patterns of global arms flows—in short, who sells what to whom—are a common focus, as are the transfer policies of specific arms-producing nations. Ironically, such emphasis has generated a good deal of quantitative data on arms transfers but, at the same time, has generally failed to make use of it in any rigorous way to explore relevant causal relationships.

There are several exceptions, but unfortunately the results obtained from these studies are not at all consistent. For instance, some report evidence that arms transfers increase cooperative behavior (Bobrow et al. 1973; Schrodt 1983), while others find that they increase conflictual behavior (Sherwin 1983; Schrodt 1983; Kiefer 1988). Still others report no relationship at all between arms transfers and interstate behavior (Milstein 1972) or at least doubt whether their observed correlations constitute evidence that transfers have any sort of causal impact on behavior (Baugh and Squires 1983). The best explanation for the divergent findings on the effects of arms transfers on interstate behavior is probably that they are not generalizable across cases or across lengthy periods of time. By restricting our empirical domain, we may obtain results that are less generalizable, but when taken together, the results drawn from different rivalries may shed light on some more general process. My focus in this paper on the Arab-Israeli and Iranian-Iraqi rivalries constitutes an initial step in such a "bottom-up" research strategy.

Conceptual Framework

Barry Buzan's notion of "security complexes" constitutes a useful conceptual springboard for my analysis. In examining the impact of superpower arms transfers on regional rivalry, I am in effect operationalizing the "interaction between the higher-level complex(es) at the system level, and the lower-level ones rooted in particular regions" (Buzan 1991, 199). The interaction between security complexes is not generally symmetric, to be sure, and my focus on arms transfers is more accurately a consideration of the *intervention* of one complex on another.

Casting the analysis in these terms, however, invites the charge of reification, one often (and fairly) hurled at structural approaches to international relations. That I have actually operationalized the nexus between higher- and lower-level security complexes (i.e., as the flow of weaponry) is only a partial defense. A fuller defense involves acknowledging that the superpower rivalry has provided a context within which regional rivalry in the Third World has evolved, but that it is the characteristics of local actors—their preference orderings, power positions, and so on—that must form the basis of a truly causal explanation of regional rivalry. Arms transfers are at most a "material cause" of interstate conflict, in

that they provide the means with which it is waged or threatened. The "efficient causes" of conflict, on the other hand, are those factors that motivate state behavior, and they are likely to be found at the level of the unit, not at the level of the system (or subsystem).[1] Such unit-level causes are the stuff of expected-utility and deterrence theory (e.g., Bueno de Mesquita and Lalman 1992; Huth and Russett 1993).

Before proceeding with my quantitative (structural) analysis, I should make explicit my assumptions about the unit-level variables I am bracketing. Consider Buzan's (1991, 214) insights on the nature of security complex penetration: "As a rule, external actors have a much lesser impact on the pattern of local hostilities than they do on the distribution of power. . . . The rule seems to be that external actors tend, whether explicitly or implicitly, to fall into line with the local pattern of hostility. Since external actors are usually pursuing their own interest, acquiescence in the local pattern of hostility is much the easiest way to penetrate a local complex." This assertion can be recast as a hypothesis only if we make some assumptions about the causal processes generating these "local patterns of hostility." One of the more commonly held views regarding the cause of international hostility, one drawn from the realist literature, rests upon the "status quo" or "revisionist" orientation of state actors. Put simply, those states most satisfied with the international distribution of power—military capability, wealth, territory, prestige, and so on—seek the preservation of the system, while dissatisfied states seek its overthrow. International conflict is most likely as circumstances begin to favor revisionist states, either because they seize the opportunity to alter the status quo or because the defenders of the status quo feel compelled to preempt the impending challenge.[2]

Such a classificatory scheme has usually been formulated as a means of explaining great-power war. This is not surprising, of course, given the theoretical and empirical preoccupation of the realist approach. But even though the post-World War II international system has not been racked by great-power war, these analyses ultimately turn to the cold war between the United States and the Soviet Union. While acknowledging that the continuous evolution of the international system compels the major powers to display some mix in their security orientations—

---

[1] An interesting discussion of the (vain) quest for causal theory in the scientific study of war can be found in Dessler (1991).

[2] This theme can be found in Carr's (1939) critique of utopianism as well as in Morgenthau (1948) and other classical realists who took that critique as their theoretical point of departure. The dichotomy between status quo and revisionist states is also apparent in the neorealist literature (e.g., Modelski 1978; Organski and Kugler 1980; Gilpin 1981).

yesterday's revision is today's status quo—the United States has gener-
ally been classified as a status quo power; the Soviet Union, revisionist.
We might also venture to classify the security orientations of Third World
rivals along these lines. Since regional security complexes are "generated
by the interaction of anarchy and geography" (Buzan 1992, 169), the
nature of outstanding territorial disputes between the rivals would seem
to be a good place to start. Indeed, Vasquez (1993) finds that explanations
that rest upon the status quo or revisionist orientation of states are of
limited use in explaining the onset of war *unless* underlying issues are
explored. His survey of the evidence suggests that "issues involving terri-
tory, especially territorial contiguity, are the main ones prone to collec-
tive violence" (Vasquez 1993, 293; see also Goertz and Diehl 1992; Huth
and Russett 1993).

     The territorial dimension of the Arab-Israeli dispute places Israel in
a status quo position, especially after 1967. The frontline Arab states
have sought to reconfigure the territorial balance, which is indicative of
their revisionist orientation. Designating the defender and challenger of
the status quo in the case of the Iranian-Iraqi rivalry is less straightfor-
ward. Here the primary territorial dispute is the location of the interna-
tional border along the Shatt al-Arab. Iran's security orientation prior to
Shah Pahlevi's abrogation of the 1937 treaty in 1969 appeared to be a
revisionist one, at least on the border issue. Yet the 1975 Algiers Agree-
ment constituted a clear victory for the shah. This, along with Iran's
steady rise to regional predominance throughout the 1970s, seems to have
endowed Iran with a status quo orientation. Iraq assumed a revisionist
stance.

     If such a classification is a reasonable approximation, then both cases
exhibit a pattern that might be termed "supplier-recipient congruence."
During the Cold War, the United States, a status quo power, provided
substantial amounts of arms to Israel and Iran, the status quo states in
the Middle East and Persian Gulf, respectively. From 1949 to 1988, the
United States provided on average 66% of the total value of arms im-
ported by Israel annually, and 94% of the total imported since 1967. Until
the Islamic Revolution in Iran in 1979, an average of 86% of that country's
annual arms imports were from the United States. Likewise, the Soviet
Union, a revisionist power, has provided arms to Egypt, Syria, and Iraq,
all states with revisionist security orientations. From 1955 until its formal
break with Egypt in 1976, the Soviet Union supplied an average of 86%
of the country's total arms imports. Over the 1955–88 period, the figure
for Syria was 93%. Iraq received an average of 77% of its imported arms
from the Soviet Union from 1958 to 1988, or 87% if the Iran-Iraq War
years are excluded given the accompanying diversification of Iraq's arms
sources (SIPRI database).

Walt (1987) has noted an analogous congruence in his study of alliance behavior in the Middle East. He finds that local alliance formation is governed primarily by balance-of-threat considerations, as opposed to other factors such as ideological affinity. Ideological affinity *does* play a role, however, in the alliance behavior between the superpowers and regional actors. According to Walt (1987, 198–99), the foreign policy orientation shared by the Soviet Union and Egypt, Syria, and Iraq is "an opposition to imperialism," while that shared by the United States and Israel (along with conservative Arab monarchies) is "an aversion to revolutionary change in general." The explanation can be found in the legacy of British and French imperialism: "The pattern is striking: the principal allies of the Soviet Union in the Middle East have been states whose postimperial governments were overthrown by nationalist revolutions; the principal allies of the United States in the Middle East have been the states in which the regimes created by the West remained in power" (Walt 1987, 201). As an ally of the United States until the Islamic Revolution, the shah's Iran fits this same pattern. So whether the classification of a state as status quo or revisionist is based on outstanding territorial disputes or on its more general foreign policy outlook, the implications are the same: a congruence existed during the cold war between superpower arms suppliers and arms recipients in the Middle East and Persian Gulf.

The point of the foregoing discussion is to make explicit my assumptions about the unit-level variables that I do not (perhaps cannot) include in the quantitative analysis to follow. The status quo or revisionist orientation of local rivals implies something about their preference orderings and relative power positions in the region. These are the efficient causes that have operated within a distinct global context to produce regional rivalry. They also go a long way to explain one of the central features of that context—superpower arms transfers—as the notion of supplier-recipient congruence suggests. But the superpowers have pursued their own objectives in penetrating these local security complexes. The consequences of this pursuit, and the context it provided, are what beckon structural investigation. To this end, therefore, I bracket these unit-level variables for the moment, and I can reasonably do so because their "values" are relatively constant over time.[3] The conceptual framework I have just outlined is sufficient to generate the following three hypotheses:

---

[3]Put somewhat differently, restricting attention to specific rivalries over time increases the probability that the variance in excluded but theoretically relevant variables will be minimized. Because the included subsystem-level variables (superpower arms transfers) depend on those excluded unit-level variables (actors' preferences and power positions), it is especially important that the variance in the latter be minimized. If instead the included

HYPOTHESIS 1: By enhancing the position of revisionist states, Soviet arms transfers to Egypt, Syria, and Iraq have exacerbated regional rivalry in the Middle East and Persian Gulf.

HYPOTHESIS 2: By enhancing the position of status quo states, U.S. arms transfers to Israel and Iran have dampened regional rivalry in the Middle East and Persian Gulf.

HYPOTHESIS 3: Soviet arms transfers to revisionist states in the Middle East and Persian Gulf have provoked U.S. arms transfers to those states' status quo rivals, and vice versa.

Hypotheses 1 and 2 are consistent with Buzan's argument regarding the superpowers' "acquiescence in the local pattern of hostility," but they specify more precisely the nature of the impact. Hypothesis 3 delineates an action-reaction dynamic, that is, a manifestation of the regional intrusion of the superpower security complex.

Data and Methodology

I employ time-series analysis to test my hypotheses. Regional rivalry, the dependent variable in Hypotheses 1 and 2, is operationalized using events data. The "events" are drawn from the Conflict and Peace Data Bank (COPDAB) and an updated version of the World Event/Interaction Survey (WEIS) and consist of those interstate interactions which fall into any of several conflict categories. The events are weighted according to severity and summed annually. Since each event identifies the actor and target of each interaction, the unit of analysis for the resulting series is a "directed dyad" (Israel → Syria, Syria → Israel, Iran → Iraq, etc.). For each directed dyad, I concatenate the series obtained from COPDAB (1948–78) and WEIS (1966–85).[4] Because I am interested in the general pitch of regional rivalry, information regarding actors and targets is superfluous. I therefore collapse (sum) each pair of directed-dyad series into a single conflict series. Finally, the collapsed series representing Egyptian-Israeli and Syrian-Israeli conflict are further collapsed into a single series representing Arab-Israeli conflict. Soviet and U.S. arms transfers are the independent variables in Hypotheses 1 and 2, respectively, and both the dependent and independent variables in Hypothesis 3. The relevant data come from the Stockholm International Peace Research Institute (SIPRI). Each series is expressed in constant (1982)

---

and excluded variables covary, as might be the case in a cross-sectional or pooled time-series design, the system-level results will be biased at best and possibly even spurious.

[4] I use WEIS data to forecast the COPDAB series. The forecasting parameters are derived from bivariate regression results for 1966–78, the period covered by both data sets.

dollars and represents the annual flow of major weapons systems from superpower supplier to recipient. SIPRI prices weapons systems according to their estimated market value, so these data do not indicate the amounts recipients actually paid for the arms transferred to them. I collapse the Egyptian and Syrian data into a single series representing Soviet arms transfers to both states.[5]

In the previous section, I alluded to the "causal" interrelatedness of the phenomena under investigation, as well as their relationship to the phenomena left out of the investigation. With these caveats in mind, consider Granger's (1969, 428–29) definition of causality: y_{t-k} is caused by x_{t-j} if y_{t-k} can be better predicted using all available information than if the information apart from x_{t-j} is used (where the subscripts $t - j$ and $t - k$ indicate temporal specifications, and $j \geqslant k$). This definition has been operationalized in various ways in econometric research (see Freeman 1983). One common method is vector autoregression (VAR) in which each variable of interest is regressed on lags of all variables in the system, including itself (e.g., Sims 1980). I estimated the following vector autoregression:

$$
\begin{aligned}
\text{CONFLICT}_t = {} & \alpha_1 + \sum_{i=1}^{k} \beta_{11i}\,\text{CONFLICT}_{t-i} \\[4pt]
& + \sum_{i=1}^{k} \beta_{12i}\,\text{SOVARMS}_{t-i} + \sum_{i=1}^{k} \beta_{13i}\,\text{USARMS}_{t-i} + e_{1t} \\[6pt]
\text{SOVARMS}_t = {} & \alpha_2 + \sum_{i=1}^{k} \beta_{21i}\,\text{CONFLICT}_{t-i} \\[4pt]
& + \sum_{i=1}^{k} \beta_{22i}\,\text{SOVARMS}_{t-i} + \sum_{i=1}^{k} \beta_{23i}\,\text{USARMS}_{t-i} + e_{2t} \\[6pt]
\text{USARMS}_t = {} & \alpha_3 + \sum_{i=1}^{k} \beta_{31i}\,\text{CONFLICT}_{t-i} \\[4pt]
& + \sum_{i=1}^{k} \beta_{32i}\,\text{SOVARMS}_{t-i} + \sum_{i=1}^{k} \beta_{33i}\,\text{USARMS}_{t-i} + e_{3t}
\end{aligned}
\tag{1}
$$

[5]A fuller discussion of my procedures can be found in Kinsella (1994). Note that SIPRI does not publish its data in the format I have described (i.e., annual, bilateral, and dollar-valued), but they were made available to me as a guest researcher at the institute. See Brzoska and Ohlson (1987) for SIPRI's data collection and pricing methods. The updated WEIS data were provided by Rodney Tomlinson and are described in Tomlinson (1993).

where CONFLICT is conflictual relations within a particular dyad, SOVARMS and USARMS are superpower arms transfers to those states, the α's are constants, and the e's are error terms. The time series are rather short, so it is not feasible to estimate a VAR with numerous lags given the available degrees of freedom: I use $k = 3$ lags. The time period covered by the analysis is therefore 1952–85.

   Four blocks of estimated coefficients are relevant for my hypotheses: the β_{12i}'s and the β_{13i}'s suggest whether superpower arms transfers have had an impact on regional rivalry; the β_{23i}'s and β_{32i}'s suggest whether superpower arms transfers have been reactive. If a block of coefficients are jointly different from zero, then we reject the null hypotheses of no Granger causality. To get an impression of the relative importance of each of the components of the model, I compute variance decompositions over a 10-year forecast horizon. In doing so, I orthogonalize the innovation process for each series using a nonrecursive structure most consistent with the relevant hypothesis (Bernanke 1986). This, in effect, gives the hypothesis an edge over the null, but only to the degree that the residuals from model (1) are contemporaneously correlated.[6]

Results

Middle East

   Consider first the face validity of the raw time series used to estimate the model for the Arab-Israeli case. Figure 1 shows the flow of superpower arms transfers to the region from 1949 to 1988. The two initial increases in the Soviet arms transfer series reflect the "Czech" arms deals with Egypt and Syria in 1955 and 1956 (the series actually tracks follow-up *Soviet* deliveries) and the deliveries following the 1960 Soviet-Egyptian arms agreement. The first major spike corresponds to the massive Soviet resupply efforts after the Six-Day War. The prolonged increase beginning in 1970 reflects first Soviet deliveries during the war attrition (with a slight drop in 1972 after Sadat's expulsion of Soviet military advisors), and then another substantial Soviet resupply effort after the Yom Kippur War. The series plummets by 1975, capturing, of course, the rupture in Soviet-Egyptian relations. Thereafter, the series essentially represents only the Soviet-Syrian relationship, with increases

---

[6]The structures used to decompose shared variance are detailed in the tables. See Kinsella (1994) for rationale behind my specifications. The advantages and limitations of the VAR approach, in general and as compared to a structural equation approach, continue to be debated. The advantages of VAR in economics and political science are discussed in Sims (1980) and Freeman, Williams, and Lin (1989), respectively. On the limitations, see Zellner (1979) and Cooley and LeRoy (1985).

Figure 1. Superpower Arms Transfers to the Middle East
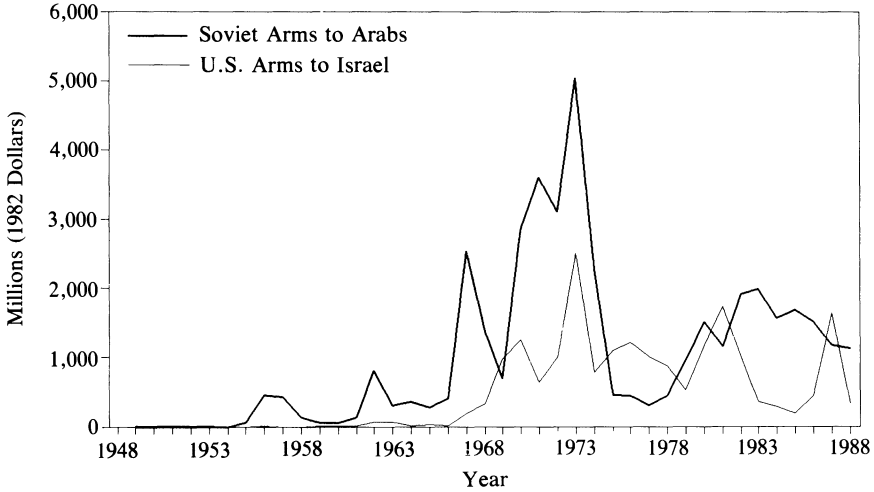
Source: Stockholm International Peace Research Institute

Figure 2. Conflict Behavior in the Middle East
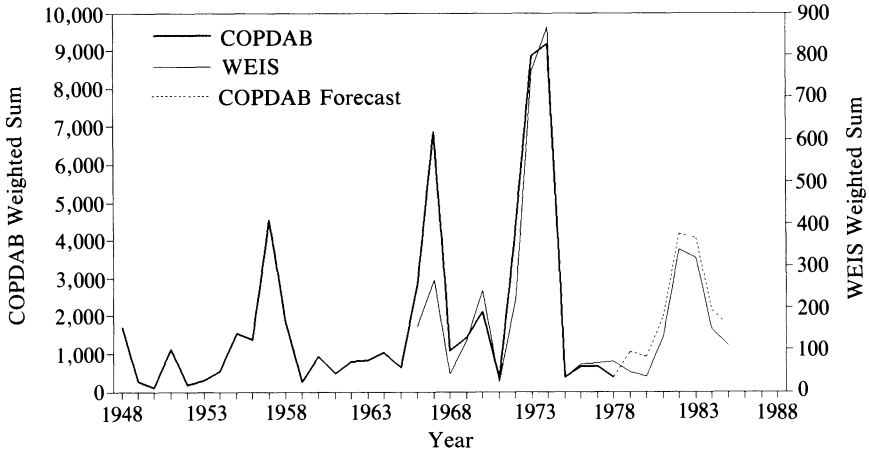
Note: Each series is the sum of four dyadic flows of conflictual behavior: Israel → Egypt, Egypt → Israel, Israel → Syria, and Syria → Israel. The COPDAB forecast is the sum of four dyadic forecasts, each based on estimates of the following model for the 1966–1978 period: COPDAB = $\alpha + \beta \cdot$ WEIS + e.

after the Camp David accords and the Israeli invasion of Lebanon. The
U.S. arms transfers series shows little movement until 1969, the year in
which Israel received its first contingent of Skyhawks. Israel relied pri-
marily on the French for their weapons imports until the Six-Day War.
As for the Soviet arms series, the major spike in the U.S. series coincides
with an analogous resupply effort after the Yom Kippur War. Another
significant increase occurs after the Camp David accords.

Even "eyeballing" the two arms transfers series, and especially the
Soviet series, suggests a high correlation between superpower arms trans-
fers and Arab-Israeli conflict. Figure 2 lends further support to these
suspicions. The figure shows both the aggregated COPDAB and the ag-
gregated WEIS data over time, with the respective scales indicated on
either side of the chart. The forecasted COPDAB series is also shown,
which, along with the original COPDAB data, composes the concatenated
series used in generating the statistical results to follow. There clearly is
a close correspondence between the two events data series, making it
entirely reasonable to concatenate them. The spikes in the time series
conform, as they should, to periods of major military conflict in the Mid-
dle East: the Suez-Sinai War, the Six-Day War, the war of attrition, the
Yom Kippur War, and the Israeli invasion of Lebanon. The data do
indeed display a great deal of face validity.

As a means of establishing the relationship between arms transfers
and conflict behavior, eyeballing the raw data will not suffice, of course.
The cross-correlations shown in Figure 3 constitute somewhat more sys-
tematic evidence. The first of the pair of series indicated in the key to
the figure is the series that is lagged or led in computing the cross-
correlations. That is, in the case of the two solid lines, the correlations
plotted on the left side of the chart are those between the *current* level
of conflict and the level of Soviet or U.S. arms transfers in each of the
five *previous* years. Correlations on the right side of the chart are those
between the *current* level of conflict and Soviet or U.S. arms transfers
in each of the five *subsequent* years. Therefore, the correlations on the
left side suggest the extent to which arms transfers precede conflict; those
on the right, the extent to which conflict precedes arms transfers. The
chart also shows the .05 level confidence band to facilitate judgments
regarding the statistical significance of the cross-correlations.

Note first the statistically significant, and positive, correlations be-
tween conflict and Soviet arms transfers one and two years previous.
The correlation between conflict and U.S. arms transfers during the pre-
vious year is also positive and statistically significant. Thus, the evidence
here suggests that both Soviet and U.S. arms transfers to the Middle
East have exacerbated the rivalry between the arms recipients. Interest-
ingly, the insignificant correlations on the right side of the chart imply

Figure 3. Cross-correlations for Superpower Arms Transfers and Conflict Behavior in the Middle East, 1954–1985
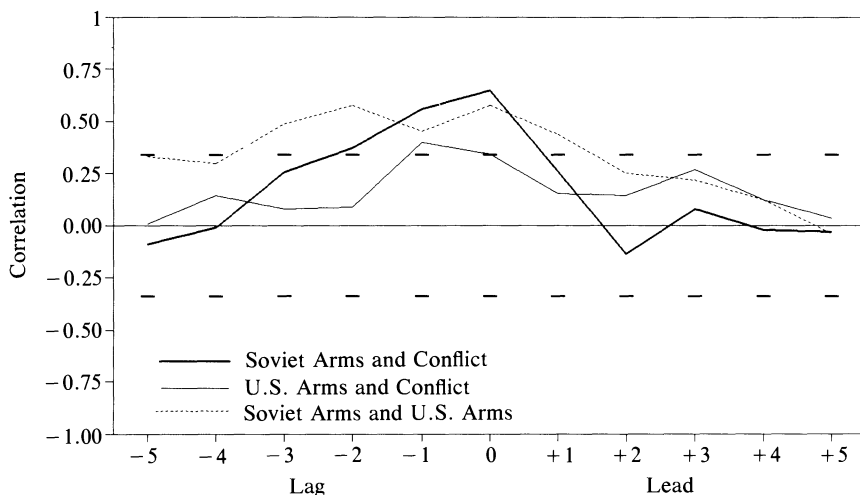
Note: The plotted correlations use the indicated lag or lead of the first series in each legend entry. The confidence bands shown are for the .05 level.

that conflict in the Middle East does not seem to have been a driving force behind either Soviet or U.S. arms transfers—with one important caveat. The contemporaneous correlation between conflict and both Soviet and U.S. transfers is statistically significant (though barely so in the latter case). Since the data series represent annual aggregations, it is possible that finer gradations in the data would yield significant correlations between conflict and subsequent superpower arms transfers.[7] What, then, has been the longer-term impetus behind superpower arms transfers to the region? The dashed line in Figure 3 offers an answer. With one slight exception, all of the correlations between Soviet transfers and subsequent U.S. transfers are positive and statistically significant at the .05 level. The positive correlation between Soviet transfers and U.S. transfers one year prior is also significant. The cross-correlation evidence suggests, therefore, that there has been an action-reaction dimension under-

[7]The Soviet postwar resupply efforts in 1967, 1973, and 1982–83, as well as Soviet transfers during the war of attrition, undoubtedly contribute substantially to that high contemporaneous correlation. Similarly, the moderate contemporaneous correlation between conflict and U.S. arms supplies probably reflects in large part its arms supplies to Israel in the wake of the Yom Kippur War. In light of the qualitative evidence, we cannot conclude that local conflict has not contributed, at least in the short term, to superpower arms transfers to the region.

lying superpower arms transfers to the Middle East. The evidence is strongest for U.S. reactivity, but Soviet arms transfer policy seems to have displayed a similar tendency.

   Although the cross-correlation evidence constitutes a reasonable first cut at the questions posed in this study, there are certain limitations inherent in this statistical method, particularly given the nature of the phenomena with which we are dealing. First, note that there are good reasons to suppose that both phenomena—arms transfers and conflict behavior—are characterized by an element of inertia. We may well suspect that a good predictor of the level of arms transfers in any given period is the level of arms transfers obtaining in the previous period. The same holds for conflict behavior. If each of these phenomena are, in fact, autocorrelated, then the contemporaneous correlations displayed in Figure 3 raise the possibility that the significant correlations evident in the lagged specifications are actually statistical artifacts. That is, if current conflict is correlated with past conflict, and if current conflict

**Table 1. Causality Tests for Arms Transfers and Conflict Behavior
in the Middle East**

Relationship	$F_{3,24}$	$r_{e_{nt}e_{mt}}$
Soviet arms ⟶ conflict	3.79 (.02)	.30
Conflict ⟶ Soviet arms	5.11 (.01)	
U.S. arms ⟶ conflict	2.10 (.13)	−.15
Conflict ⟶ U.S. arms	3.39 (.03)	
Soviet arms ⟶ U.S. arms	6.90 (.00)	.36*
U.S. arms ⟶ Soviet arms	0.46 (.71)	

Note: Arrows indicate the hypothesized direction of causality. The F values are for the joint significance of all three lags of the estimated βs from the following VAR, with R^2 and Q-statistics (Ljung-Box test for autocorrelated residuals) as indicated below. The $r_{e_{nt}e_{mt}}$ values are the contemporaneous correlations between residuals from each pair of equations.

*Statistical significance at the .05 level.

	R^2	Q_{15}

$$\text{CONFLICT}_t = \alpha_1 + \sum_{i=1}^{3} \beta_{11i}\,\text{CONFLICT}_{t-i} + \sum_{i=1}^{3} \beta_{12i}\,\text{SOVARMS}_{t-i} + \sum_{i=1}^{3} \beta_{13i}\,\text{USARMS}_{t-i} + e_{1t}$$
.63   21.7 (.12)

$$\text{SOVARMS}_t = \alpha_2 + \sum_{i=1}^{3} \beta_{21i}\,\text{CONFLICT}_{t-i} + \sum_{i=1}^{3} \beta_{22i}\,\text{SOVARMS}_{t-i} + \sum_{i=1}^{3} \beta_{23i}\,\text{USARMS}_{t-i} + e_{2t}$$
.71   13.7 (.55)

$$\text{USARMS}_t = \alpha_3 + \sum_{i=1}^{3} \beta_{31i}\,\text{CONFLICT}_{t-i} + \sum_{i=1}^{3} \beta_{32i}\,\text{SOVARMS}_{t-i} + \sum_{i=1}^{3} \beta_{33i}\,\text{USARMS}_{t-i} + e_{3t}$$
.75   24.7 (.05)

is correlated with current arms transfers, then the observed correlation between current conflict and past arms transfers may well be spurious.

The VAR approach takes this possibility into account—by regressing the dependent variable on lags of all variables in the system, including itself. The VAR results therefore constitute more robust evidence for "causality." Table 1 reports results from an estimation of the VAR model presented in the last section. The arrows represent the hypothesized direction of causality, while the F-ratios test the joint statistical significance of all three lags of the hypothesized cause. Consider first the VAR evidence for the impact of superpower arms transfers on local rivalry. The F-ratio supports the hypothesis that Soviet arms transfers to Egypt and Syria have had an impact on subsequent conflict between those states and Israel. This finding is consistent with the cross-correlation evidence. The results do not support the notion that U.S. arms transfers also had an impact on local conflict, however, since the F-ratio is not statistically significant at the .05 level. Turning to the converse relationship, both Soviet and U.S. arms transfers have, according to the VAR results, responded in part to the level of conflict in the region. The cross-correlation findings on the reactivity of U.S. arms transfer policy to Soviet arms supplies are reinforced by the VAR results, although they do not directly support the reactivity of Soviet policy. Still, we cannot dismiss the possibility of Soviet reactivity outright. Note the modest but statistically significant contemporaneous correlation ($r_{e_{mt}e_{mt}}$) between the residuals from the two arms transfers equations, a finding that implies "instantaneous causality." Nonetheless, here instantaneous causality simply means that relationships operating on a temporal basis shorter than one year are masked as a consequence of the aggregation period. Soviet arms transfer policy may too have been reactive, but only in the short term.[8]

To this point, I have highlighted the *statistical* significance of both the cross-correlation and regression results. Table 2 provides a better indication of *substantive* significance. The entries in each column indicate the percentage of forecast error variance in one series explained by the innovation process of another, over a 10-year forecast horizon.[9] The first

---

[8]The bottom portion of Table 1 reports summary statistics from the OLS regressions. Notice that the Q-statistic for the U.S. arms transfers equation suggests the possibility of inflated measures of statistical significance deriving from an autocorrelated error term. I reestimated this equation using generalized least squares and an autocorrelation correction, but this procedure did not yield results differing meaningfully from the OLS estimates.

[9]The percentages reported in the table give a general impression of the relative importance in the simulated system. A more precise interpretation of the numbers is really inappropriate. During the remainder of this paper, when I refer to the amount of "variance in y explained by x," what I really mean is the amount of "forecast error variance in y explained by x's innovation process." I do so only in the interest of expositional ease.

Table 2. Forecast Error Variance Decompositions for the Middle East

Year	Conflict Explained by Soviet Arms	Conflict Explained by U.S. Arms	Soviet Arms Explained by Conflict	U.S. Arms Explained by Conflict	U.S. Arms Explained by Soviet Arms	Soviet Arms Explained by U.S. Arms
1	14.9	8.0	8.8	31.2	8.0	0.6
2	16.7	9.1	6.8	33.1	6.0	0.7
3	22.7	8.0	9.7	28.7	33.9	2.2
4	33.0	6.5	7.9	26.2	43.2	2.9
5	32.7	6.3	8.2	28.5	41.8	2.8
6	32.8	6.9	8.7	29.6	42.4	2.9
7	32.9	6.9	8.5	27.9	46.8	2.9
8	33.4	6.8	8.6	27.5	47.9	2.8
9	33.5	6.8	8.5	27.9	48.0	2.8
10	33.5	6.7	8.6	27.3	49.2	2.8

Structural decomposition:

$e_{1t} = \gamma_1 e_{2t} + \gamma_2 e_{3t} + u_{1t}$
$e_{2t} = u_{2t}$
$e_{3t} = u_{3t}$

Structural decomposition:

$e_{1t} = u_{1t}$
$e_{2t} = \gamma_1 e_{1t} + u_{2t}$
$e_{3t} = \gamma_2 e_{1t} + u_{3t}$

Structural decomposition:

$e_{1t} = u_{1t}$
$e_{2t} = \gamma_1 e_{3t} + u_{2t}$
$e_{3t} = \gamma_2 e_{2t} + u_{3t}$

two columns in the table indicate that Soviet arms transfers explain a considerably greater portion of Middle East conflict than do U.S. arms transfers (with the remainder being explained by past conflict itself). According to the middle two columns, U.S. transfers have been more responsive to conflict behavior than have Soviet transfers. Finally, the last two columns suggest a tendency for U.S. transfers to react to Soviet transfers. There is no variance decomposition evidence to support the notion of analogous Soviet tendencies.

Overall, then, the findings are mixed. But the following conclusion is supported by even the most conservative reading of the evidence: *Soviet arms transfers to Egypt and Syria have both exacerbated conflict in the Middle East and provoked U.S. arms transfers to Israel.* The three sets of statistical results are mutually reinforcing on this score and thereby lend support to Hypotheses 1 and 3 presented above. The statistical evidence does not support Hypothesis 2. U.S. arms transfers to Israel have not had a dampening effect on regional rivalry—but neither have they had an exacerbating effect.

The qualitative evidence is generally consistent with these conclusions. Although the United States was peripherally involved in supplying weapons to the Israelis immediately after independence, it was the Soviet Union that first established anything like a patron-client relationship in the region (with Egypt), one based in large part on arms supplies. The United States did not react to the initial Soviet arms deals with Egypt and Syria in the 1950s, mostly because France was effectively meeting Israel's military needs. It was only after the Six-Day War, and the gradual erosion of the French-Israeli supply relationship, that the United States began to supply Israel in a major way. At this point, U.S. arms transfers did tend to "shadow" Soviet transfers, with initial aircraft deliveries coming in 1968 in the wake of a substantial flow of Soviet weaponry to Egypt and Syria after the war.[10] It is probably inappropriate to characterize U.S. arms supplies to Israel during the Yom Kippur War as primarily a reaction to Soviet supplies to the Arabs. Here we surely have a case of "instantaneous causality" and "feedback" in Granger's sense—and, of course, reaction to local events. Nor should we interpret the increase in U.S. supplies in 1980 and 1981 as a reaction to stepped-up Soviet supplies to Syria beginning in 1979. The Soviet Union was in the process

---

[10]It would appear from the chronology of arms transfers to the region, as well as Nasser's own statements, that the Soviet-Egyptian arms deals in the mid-1950s and early 1960s were a reaction to French arms sales to Israel, especially fighters. However, in conducting the analysis using an arms transfers series that combines both U.S. and French supplies to Israel, I find no statistical support for such Soviet reactivity (see Kinsella 1994).

of enhancing its security relationship with Syria after its break with
Egypt, while the United States was rewarding Israel's willingness to
make peace with Egypt. Both Israel and the United States justified mili-
tary assistance packages by citing tightening Soviet-Syrian ties, but that
can be only a partial explanation.

The exacerbating impact of Soviet arms supplies on local conflict is
also illustrated by reference to certain events. Egypt's newly inaugurated
military relationship with the Soviet Union appears to have partially moti-
vated Israel's collusion with the British and French in the Suez-Sinai
war. Nasser's perseverance during the war of attrition derived largely
from a continuous flow of Soviet weaponry, especially SAM missile bat-
teries. The new infusion of Soviet weaponry that accompanied increasing
tensions in 1973 seems to have further emboldened Sadat and Assad to
launch the opening round in the Yom Kippur War. Lastly, Israeli opera-
tions against Syrian positions in the Bekaa Valley during its 1982 invasion
of Lebanon were prompted by Syria's continuing deployment of Soviet-
supplied SAM missile sites. U.S. arms transfers to Israel generally did
not have the same exacerbating impact on local conflict. Still, Israel's
escalatory air raids on Egyptian positions in the Nile Valley during the
war of attrition did follow its acquisition of long-range U.S. bombers and
thus constitutes a noteworthy exception.

Persian Gulf

Figure 4 shows the pattern of superpower arms transfers to the Per-
sian Gulf. Soviet supplies to Iraq were rather limited until after the
Soviet-Iraqi Treaty of Friendship was signed in 1972. The pattern there-
after was a gradual, if erratic, increase in weapons deliveries until the
last year of the Iran-Iraq War, at which time shipments dropped precipi-
tously. The flow of U.S. weaponry to Iran was moderate from 1964, when
Iran began to acquire air defense components for its oil loading platforms,
until 1972. The border skirmishes that erupted that year along with Iran's
accumulating oil revenues provided the context for an unprecedented
surge in arms imports from the United States. This came to an abrupt
halt in 1979 with the fall of the shah. The time series plotted in Figure 5
depicts the Iran-Iraq rivalry over the period. As in the Arab-Israeli case,
the correspondence between the COPDAB and WEIS data is quite close
for the overlapping years 1966–78, thereby justifying a concatenation of
the two series. Here too the time series exhibits a great deal of face
validity. The frontier skirmishes in 1972 and 1974, while apparent in the
movement of the series, are dwarfed by the Iran-Iraq War. The lull in
the fighting before the start of the Iranian offensives in mid-1981 is also
shown by the dip in the series for that year. Unfortunately, the war period

**Figure 4. Superpower Arms Transfers to the Persian Gulf**

Source: Stockholm International Peace Research Institute

is truncated, since the version of the WEIS data set used here does not extend beyond 1985.

Figure 6 displays the results of the cross-correlation analysis. The heavy line suggests a feedback relationship between Soviet arms transfers to Iraq and conflict in the Persian Gulf: increases in Soviet arms supplies both preceded and followed increases in conflict behavior. The correlations between U.S. arms transfers and conflict, and between U.S. arms transfers and Soviet arms transfers, are for the most part statistically insignificant.[11] The degree of inconsistency between the VAR results reported in Table 3 and the cross-correlations in Figure 6 is somewhat disappointing. Whereas the bivariate correlations imply a mutual relationship between Soviet arms supplies and conflict behavior, the *F*-ratios support the conclusion that Soviet supplies were driven by local conflict, but not the reverse. The residuals from the Soviet arms transfers equation and the conflict equation are contemporaneously correlated, so these findings alone do not preclude the possibility that Soviet arms supplies have had a more immediate impact on regional conflict. Notice further

[11] Note the statistically significant correlation between conflict and U.S. transfers five years previously. The notion that arms deliveries five years in the past should exert a greater impact on state behavior than more recent deliveries would seem to require a tortured explanation indeed. I am inclined to treat this finding as anomalous.

Figure 5. Conflict Behavior in the Persian Gulf
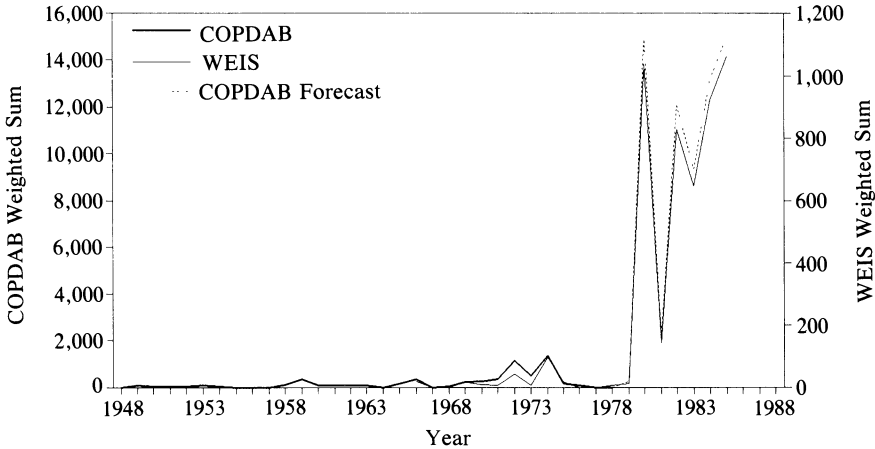
Note: Each series is the sum of two dyadic flows of conflictual behavior: Iran → Iraq and Iraq → Iran. The COPDAB forecast is the sum of two dyadic forecasts, each based on estimates of the following model for the 1966–1978 period: COPDAB = $\alpha + \beta \cdot$ WEIS + e.

that all of the four remaining F-ratios are statistically significant. Cross-correlation evidence to the contrary, the VAR results do hold out the possibility that there existed a feedback relationship between U.S. arms supplies and local conflict and between U.S. arms supplies and Soviet arms supplies.[12]

Variance decompositions are shown in Table 4. According to these results, both Soviet and U.S. arms transfers explain a moderate, if rather unstable, share of conflict behavior in the Persian Gulf under simulated conditions. Conflict itself explains Soviet transfers in slightly greater proportions but appears to be an inconsequential driving force behind U.S. transfers. Finally, to the extent that U.S. and Soviet arms transfers are mutually reactive, the variance decompositions suggest that U.S. transfers exhibit a somewhat greater reactive tendency.

Given the apparent inconsistencies, it is difficult to draw many firm conclusions regarding arms transfers and the Iran-Iraq rivalry based on the statistical evidence. Only one relationship is highlighted by all three sets of results: Soviet arms transfers to Iraq have been driven primarily by the prior existence of conflict in the region. The VAR results alone—

[12]The statistically significant Q-values for both the Soviet arms equation and the U.S. arms equation do raise the possibility of inflated F-ratios. When I reestimated these models using an iterated GLS procedure, some of the F-ratios dropped in magnitude but not to the point of statistical insignificance. The OLS F-values are the ones reported in Table 3.

**Figure 6. Cross-correlations for Superpower Arms Transfers and Conflict
Behavior in the Persian Gulf, 1954–1985**
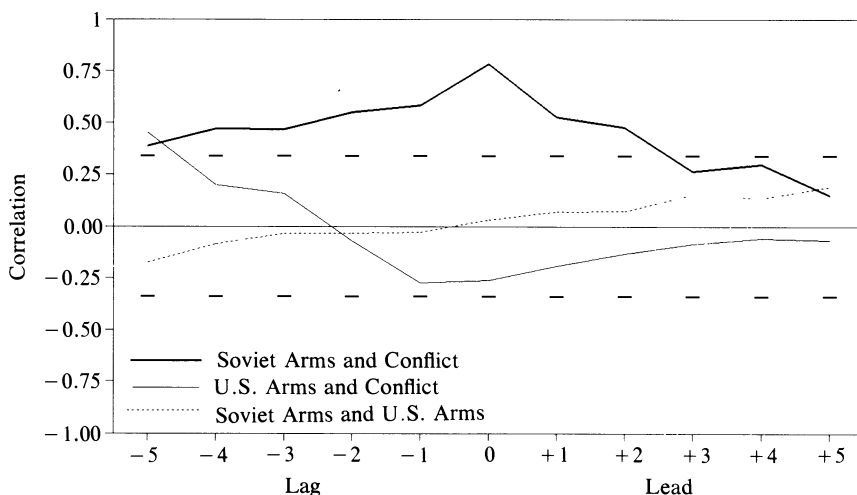
Note: The plotted correlations use the indicated lag or lead of the first series in each legend entry. The confidence bands shown are for the .05 level.

causality tests and variance decompositions—do suggest that arms transfers from each superpower react to those from the other (Hypothesis 3), though such reactivity is more evident in the pattern of U.S. arms transfers. U.S. arms supplies to Iran seem also to have had an impact on regional conflict (Hypothesis 2?), according to the VARs. But again, our confidence in these findings must be tempered somewhat by the corresponding lack of cross-correlation evidence.

That Soviet arms transfers to Iraq have followed, not preceded, conflict between Iran and Iraq is generally consistent with the history of the region. Iraq had been receiving Soviet arms since Qasim's rise to power in 1958, but it was during mounting border tension that the Soviet Union and Iraq signed their Treaty of Friendship and Cooperation in 1972, an occasion followed by a significant increase in the quantity and quality of Soviet arms transfers. In the case of the Iran-Iraq War, the Soviet Union again seems to have been reacting to local events in its arms transfer policy. The Soviets refrained from supplying arms to Iraq after the initial invasion but reevaluated this position beginning in 1982 as Iraq suffered setbacks in the face of repeated Iranian offensives.[13]

[13]Note too that when Iranian forces again went on the offensive in 1986, the Soviet Union stepped up its arms deliveries to Iraq. The flow of Soviet arms dropped sharply in 1988 as the war drew to a close. This sequence of events is also consistent with the statistical results but does not contribute to them, since the quantitative analysis ends in 1985.

Table 3. Causality Tests for Arms Transfers and Conflict Behavior
in the Persian Gulf

Relationship	$F_{3,24}$	$r_{e_{nt}e_{mt}}$
Soviet arms ⟶ conflict	1.36 (.28)	.55*
Conflict ⟶ Soviet arms	6.72 (.00)	
U.S. arms ⟶ conflict	36.23 (.00)	.19
Conflict ⟶ U.S. arms	8.72 (.00)	
Soviet arms ⟶ U.S. arms	10.11 (.00)	.37*
U.S. arms ⟶ Soviet arms	4.06 (.01)	

Note: Arrows indicate the hypothesized direction of causality. The F values are for the joint significance of all three lags of the estimated βs from the following VAR, with R^2 and Q-statistics (Ljung-Box test for autocorrelated residuals) as indicated below. The $r_{e_{nt}e_{mt}}$ values are the contemporaneous correlations between residuals from each pair of equations.

*Statistical significance at the .05 level.

	R^2	Q_{15}

$$\text{CONFLICT}_t = \alpha_1 + \sum_{i=1}^{3} \beta_{11i} \text{CONFLICT}_{t-i} + \sum_{i=1}^{3} \beta_{12i} \text{SOVARMS}_{t-i} + \sum_{i=1}^{3} \beta_{13i} \text{USARMS}_{t-i} + e_{1t} \qquad .96 \quad 15.6 \,(.41)$$

$$\text{SOVARMS}_t = \alpha_2 + \sum_{i=1}^{3} \beta_{21i} \text{CONFLICT}_{t-i} + \sum_{i=1}^{3} \beta_{22i} \text{SOVARMS}_{t-i} + \sum_{i=1}^{3} \beta_{23i} \text{USARMS}_{t-i} + e_{2t} \qquad .85 \quad 25.0 \,(.05)$$

$$\text{USARMS}_t = \alpha_3 + \sum_{i=1}^{3} \beta_{31i} \text{CONFLICT}_{t-i} + \sum_{i=1}^{3} \beta_{32i} \text{SOVARMS}_{t-i} + \sum_{i=1}^{3} \beta_{33i} \text{USARMS}_{t-i} + e_{3t} \qquad .88 \quad 26.5 \,(.03)$$

The qualitative evidence also lends credence to the VAR findings that suggest the existence of an action-reaction process underlying superpower arms transfers. The shah's carte blanche from the Nixon administration for weapons supplies immediately followed the announcement of the Soviet-Iraqi Treaty of Friendship and Cooperation. The 1975 Soviet-Iraqi arms agreement, in turn, was signed during an unprecedented expansion of Iran's military inventory. Finally, the Soviet Union's initial reluctance to further arm Iraq in the aftermath of its 1980 invasion of Iran was motivated by the hope that such restraint—when combined with the continued interruption in the flow of U.S. weapons to revolutionary Iran—would help to bring about an early end to the war.

Consider, lastly, the possibility that U.S. arms supplies have had an impact on conflict between Iran and Iraq, a relationship supported by the VAR evidence, but not the cross-correlations. It does appear that after the doors were thrown open to U.S. weapons stores, the shah was emboldened in his dealings with the Iraqi government over outstanding border disputes. The 1975 Algiers agreement was indeed a victory for the

Table 4. Forecast Error Variance Decompositions for the Persian Gulf

Year	Conflict Explained by Soviet Arms	Conflict Explained by U.S. Arms	Soviet Arms Explained by Conflict	U.S. Arms Explained by Conflict	U.S. Arms Explained by Soviet Arms	Soviet Arms Explained by U.S. Arms
1	31.1	0.0	30.5	3.6	0.9	8.1
2	30.0	11.7	27.7	2.0	25.1	16.7
3	13.6	33.3	30.1	2.0	29.8	16.1
4	11.8	35.2	29.2	1.2	47.8	18.5
5	10.3	37.1	34.4	1.1	50.2	16.4
6	11.0	31.7	34.4	1.1	50.2	19.5
7	31.9	24.4	34.5	3.5	49.1	17.9
8	27.5	21.3	39.7	3.7	48.8	19.4
9	33.9	19.1	42.2	5.0	47.1	20.2
10	35.3	18.2	44.8	7.9	45.9	20.5

Structural decomposition:

$$e_{1t} = \gamma_1 e_{2t} + \gamma_2 e_{3t} + u_{1t}$$
$$e_{2t} = u_{2t}$$
$$e_{3t} = u_{3t}$$

Structural decomposition:

$$e_{1t} = u_{1t}$$
$$e_{2t} = \gamma_1 e_{1t} + u_{2t}$$
$$e_{3t} = \gamma_2 e_{1t} + u_{3t}$$

Structural decomposition:

$$e_{1t} = u_{1t}$$
$$e_{2t} = \gamma_1 e_{3t} + u_{2t}$$
$$e_{3t} = \gamma_2 e_{2t} + u_{3t}$$

shah. But we must wonder whether the statistical results are really suggesting something different, namely, the emboldening of the Ba'th regime after the termination of the U.S.-Iranian military relationship. This, of course, would imply a negative correlation between U.S. arms transfers and local conflict (Hypothesis 2). If U.S. arms supplies served to deter Iraqi aggression throughout the 1970s, the termination of that relationship in 1979 may have lifted an important restraint on Iraqi action—as did, no doubt, the reigning disorder in Iranian society. Although the cross-correlations between U.S. arms transfers and conflict in Figure 6 tend to be statistically insignificant, those at lags 2 and 3, as well as the contemporaneous correlation, are in fact negative. So if we are willing to relax our inferential criteria regarding those negative correlations, this interpretation of the VAR results would not appear unreasonable.[14]

Conclusions

What has motivated this investigation is a suspicion that the Cold War affected the course of interstate rivalry in the Third World. My analysis is based on the assumption that if the superpower confrontation did in fact provide a generative context within which local rivalries developed and/or endured, then the flow of arms from the superpowers to rival Third World states has provided a fundamental anchor. The statistical evidence is mixed. U.S. arms transfers to Israel do not appear to have had a systematic effect on the Arab-Israeli rivalry. Soviet arms transfers to Egypt and Syria, by contrast, exacerbated it. The qualitative evidence suggests that this process became manifest both in increased Arab belligerence and in Israeli preemption. Soviet arms transfers to Iraq, on the other hand, had no such effect on the Iran-Iraq rivalry. U.S. transfers to Iran had some impact, but the statistical results indicate that they may have actually served to dampen it. The qualitative evidence suggests that this occurred not as a consequence of Iranian restraint, but because Iraqi aggression was deterred, at least for as long as the U.S.-Iranian arms relationship lasted.

The hypotheses I derived from an elaborated security complexes framework do not receive incontrovertible support from my quantitative analysis; however, the results do generally point in that direction. The expectation that Soviet arms transfers to revisionist states exacerbated Third World rivalry (Hypothesis 1) is supported by the Arab-Israeli case,

---

[14]When I compute the cross-correlations separately for the COPDAB and the WEIS data, a similar pattern emerges only using the latter, and in this case some of the negative correlations are statistically significant. The WEIS data set, remember, includes Iran-Iraq War years, whereas the COPDAB data set does not.

while the expectation that U.S. transfers to status quo states dampened it (Hypothesis 2) is supported (though not as strongly) by the Iran-Iraq case. Also telling is the fact that where these hypotheses are not supported—in the case of U.S. transfers to Israel and Soviet transfers to Iraq—the results fail to show any impact at all rather than one opposite the one expected.

The action-reaction dynamic predicted by Hypothesis 3 is only partially apparent in the quantitative results. U.S. arms transfers to Israel were reactive to Soviet transfers to Egypt and Syria, but not vice versa. The dynamic was mutual in the Iran-Iraq case, though the reactive tendency of U.S. transfers was more pronounced. The asymmetry is not altogether surprising in light of the notion of supplier-recipient congruence. As potential challengers of the status quo in their respective security environments, revisionist suppliers and recipients are more likely to initiate the arms transfer process, with defenders of the status quo reacting to it. By "initiate" I do not mean to suggest that revisionists are necessarily the first in chronological time to export/import weapons (though this may be the case), but rather that the arms flow between revisionist states is partly exogenous to the flow between status quo states. To the extent that superpower arms transfers were not *mutually* reactive, then, we would expect a greater reactive tendency on the part of U.S. transfers. And that does seem to be the case.

My results for the Middle East and Persian Gulf are consistent with the notion that when relations within security complexes are linked by alignments between security complexes—like arms transfers relationships—the security inclinations of states in the lower-level complex are reinforced. Although the quantitative results can take this analysis no further, I am not content with a conception in which the origins of the process are located in a reified subsystem structure, and here I must reintroduce those unit-level variables I have held in abeyance thus far. What are the mechanisms at work? Generally, they are likely to be found in extraregional commitments, as perceived locally. Local patterns of hostility have a great number of causes, most of which are surely regionally based. We are mistaken to see local rivals as having been nothing more than pawns in some global competition between the superpowers. Local actors seek to acquire arms for their own security. They may also prefer to receive them from a like-minded superpower, itself engaged in a congruent struggle of global proportions. The arms supplier's own prestige is therefore more likely to be gauged to the recipient's security, affording the recipient an extra measure of latitude in regional affairs, despite the occasional and fleeting constraints imposed by arms embargoes or lesser restrictions. That latitude becomes manifest in increased

assertiveness or restraint, whatever the recipient's orientation toward the regional status quo. Ironically, arms transfers also increase the latitude of the recipient's local rival—not relative to the past, but relative to the future—and with analogous consequences. Herein lies one explanation for a rival's preemptive behavior.

The whole process is complicated as countervailing tendencies are enhanced or diminished in varying degrees not only by the arms transfer policy of the opposing superpower but also by the vicissitudes of both superpowers' policies over time. In the end, the net effect is an empirical question. But post–Cold War arms flows from the United States and Russia will differ from earlier patterns in important respects. In effect, we are witnessing an evolution from hegemonic to industrial suppliers, to use SIPRI's (1971) terminology. The downgrading of the "political content" of both U.S. and Russian arms transfers means that Third World recipients can no longer expect the sort of security commitment that seemed to accompany them in the past. The extra measure of latitude afforded local actors should diminish accordingly. At the same time, however, their latitude is enhanced by an ongoing expansion in the number of willing suppliers in the international arms market. Balanced arms control efforts may help the cause of Third World security, but they can do no more than provide a context conducive to conflict resolution.

Manuscript submitted 30 June 1993
Final manuscript received 1 December 1993

REFERENCES

Baugh, William H., and Michael J. Squires. 1983. "Arms Transfers and the Onset of War, Part II: Wars in Third World States, 1950–1965." *International Interactions* 10: 129–41.

Bernanke, Ben. 1986. "Alternative Explanations of the Money-Income Correlation." *Carnegie-Rochester Conference Series on Public Policy* 25:49–100.

Bobrow, Davis B., P. Terrence Hopmann, Roger W. Benjamin, and Donald A. Sylvan. 1973. "The Impact of Foreign Assistance on National Development and International Conflict." *Journal of Peace Science* 1:39–60.

Brzoska, Michael, and Thomas Ohlson. 1987. *Arms Transfers to the Third World, 1971–85.* New York: Oxford University Press.

Bueno de Mesquita, Bruce, and David Lalman. 1992. *War and Reason.* New Haven: Yale University Press.

Buzan, Barry. 1991. *People, States, and Fear: An Agenda for International Security Studies in the Post–Cold War Era.* 2d ed. Boulder, CO: Lynne Rienner.

———. 1992. "Third World Regional Security in Structural and Historical Perspective." In *The Security Dilemma: National Security of Third World States,* ed. Brian L. Job. Boulder, CO: Lynne Rienner.

Carr, Edward Hallett. 1939. *The Twenty Years' Crisis, 1919–1939: An Introduction to the Study of International Relations.* London: Macmillan.

Cooley, Thomas F., and Stephen F. LeRoy. 1985. "Atheoretical Macroeconomics: A Critique." *Journal of Monetary Economics* 16:283–308.

Dessler, David. 1991. "Beyond Correlations: Toward a Causal Theory of War." *International Studies Quarterly* 35:337–55.

Freeman, John R. 1983. "Granger Causality and the Time Series Analysis of Political Relationships. *American Journal of Political Science* 27:327–58.

Freeman, John R., John T. Williams, and Tse-min Lin. 1989. "Vector Autoregression and the Study of Politics." *American Journal of Political Science* 33:842–77.

Gilpin, Robert. 1981. *War and Change in World Politics.* Cambridge: Cambridge University Press.

Goertz, Gary, and Paul F. Diehl. 1992. *Territorial Changes and International Conflict.* London: Routledge.

———. 1993. "Enduring Rivalries: Theoretical Constructs and Empirical Patterns." *International Studies Quarterly* 37:147–71.

Granger, C. W. J. 1969. "Investigating Causal Relations by Econometric Models and Cross-spectral Methods." *Econometrica* 37:424–38.

Huth, Paul, and Bruce Russett. 1993. "General Deterrence between Enduring Rivals: Testing Three Competing Models." *American Political Science Review* 87:61–73.

Kiefer, David. 1988. "Interstate Wars in the Third World: A Markov Approach." *Journal of Conflict Management and Peace Science* 10:21–36.

Kinsella, David. 1994. "The Impact of Superpower Arms Transfers on Conflict in the Middle East." *Defence and Peace Economics* 5:19–36.

Milstein, Jeffrey S. 1972. "American and Soviet Influence, Balance of Power, and Arab-Israeli Violence." In *Peace, War, and Numbers,* ed. Bruce M. Russett. Beverly Hills: Sage.

Modelski, George. 1978. "The Long Cycle of Global Politics and the Nation-State." *Comparative Studies in Society and History* 20:214–35.

Morgenthau, Hans J. 1948. *Politics among Nations: The Struggle for Power and Peace.* New York: Knopf.

Organski, A. F. K., and Jacek Kugler. 1980. *The War Ledger.* Chicago: University of Chicago Press.

Russett, Bruce. 1963. "The Calculus of Deterrence." *Journal of Conflict Resolution* 7: 97–109.

Schrodt, Philip A. 1983. "Arms Transfers and International Behavior in the Arabian Sea Area." *International Interactions* 10:101–27.

Sherwin, Ronald G. 1983. "Controlling Instability and Conflict through Arms Transfers: Testing a Policy Assumption." *International Interactions* 10:65–99.

Sims, Christopher A. 1980. "Macroeconomics and Reality." *Econometrica* 48:1–48.

Stockholm International Peace Research Institute. 1971. *The Arms Trade with the Third World.* Stockholm: Almqvist and Wiksell.

Tomlinson, Rodney G. 1993. "World Event/Interaction Survey (WEIS): Coding Manual." Typescript, United States Naval Academy.

Vasquez, John A. 1993. *The War Puzzle.* Cambridge: Cambridge University Press.

Walt, Stephen M. 1987. *The Origins of Alliances.* Ithaca: Cornell University Press.

Zellner, Arnold. 1979. "Causality and Econometrics." In *Three Aspects of Policy and Policymaking: Knowledge, Data, and Institutions,* ed. Karl Brunner and Allan H. Meltzer. New York: North-Holland.