Geil, Rotte:

International Interventionism 1970-1989: A Count Data Approach

Projektpartner

International Interventionism 1970-1989:

A Count Data Approach*

Peter Geil
SELAPO,
University of Munich

Ralph Rotte
SELAPO,
University of Munich
and
Institute for International Relations and International Law
University of the Federal Armed Forces Munich

March 1996

Abstract

Due to progress in statistical methods and improved data processing capabilities, count data modelling has become increasingly popular in the social sciences. In empirical international relations and international conflict research, however, the use of event count models has been largely restricted to the application of the simple Poisson approach so far. This article outlines the methodological weaknesses of the model and presents some improvements which are applied to the problem of international interventionism. The cross-sectional data set used covers the behaviour of states during the period from 1970 to 1989, and thus avoids some theoretical problems of the standard long-term dyadic approach. The main result of the analysis is the empirical irrelevance of idealist conceptions claiming pacifying effects of democratization or fostering of economic prosperity.

Correspondence to:
Ralph Rotte
SELAPO, University of Munich
Ludwigstrasse 28 RG
80539 Munich, Germany
email: Ralph.rotte@selapo.vwl.uni-muenchen.de

1. Introduction

The question of how to reduce the use of military force between countries is one core problem of the discipline of international relations. After the obvious failure of installation of universal democratic peace following the collapse of the Cold War system, and with the renaissance of military violence or threat as a valuable instrument for the pursuit of national interest (e.g. in the Balkans, in the former Soviet Union or in East Asia), it is as topical as ever. In order to identify factors making for war or peace, a vast amount of empirical work has been done so far in order to test the immense stock of theoretical literature and arguments forwarded on the topic (e.g. Singer 1979). Recent surveys of the issue, e.g. of democracies being more peaceful than other political systems, include Russett (1993) and Rummel (1995). A broader approach investigating the empirical validity of idealist theory of international affairs has been chosen by Bremer (1992), for example, which also serves as a methodological benchmark to us.

The basic problems with most empirical work in the field of war and peace so far can be summed up in four points. First, researchers often look at long periods of history, often covering more than a century, without taking into account possible changes in the technological, economic and political framework of the international system. For example, there seems to be a significant qualitative difference of a state waging war in the multipolar system of European pentarchy of the 19th century and with the limited military technology of the time, and one acting under bipolar nuclear MAD and with availability of modern conventional weaponry. Not taking into account the resulting fundamental differences in conditions of decision-making would possibly lead to doubtful empirical results.

Second, more often than not, a dyadic approach is chosen, building on data sets consisting of all combinations of theoretically possible antagonists in the international area. While this approach provides a great number of observations, which is important from a statistical point of view, it only enables identification of factors increasing the likelihood of international conflict without looking at the crucial point of which state is the aggressor in it. If one aims at providing empirical support to the scientific search for decreasing the occurence of war, one should concentrate on the special characteristics of countries starting military confrontations.

1

A third point which is closely related to this is the definition of international conflict on which data collection is based. Restricting analysis to incidents equalling the notion of "war" in international law is not adequate when actual use of military force in international relations is aimed at. Actions like "invited interventions" which do not fit the legal term of "war" must also be taken into account.

Finally, the very methods used in empirical work in international relations are often inadequate for the data situation and tend to ignore fundamental statistical problems by relying on traditional approaches inadequate for more complex empirical questions. We will discuss this for the case of event count data accounting for a great number of typical data situations in international affairs and conflict analysis.

This paper wishes to avoid those problems by choosing the following approach: We look at a limited period of time in order to identify factors fostering the use of violence in international relations given a stable overall framework of the international system. Section 2 of the paper provides the theoretical background of the hypotheses to be tested. Part 3 presents the data set which concentrates on the characteristics of individual interventionist and non-interventionist countries instead of dyads. Interventions include all kinds of distinct military operations, notwithstanding their formal legal aspect. For a statistically appropriate analysis of the data, we use several count data models which are relatively new and seldomly used in international relations. The methods applied are introduced in section 4. Part 5 presents the empirical results and compares them to the implications of theory. Part 6 concludes.

2. Theoretical Hypotheses

The theoretical aspects of the resort to the organized use of force in international relations are well covered and broadly discussed in the literature. Bremer (1992) gives an adequate overview of theoretical predictions about the occurence of interstate military conflict and some empirical evidence. The general pattern in the literature indicates that the likelihood of interstate war decreases with e.g. geographical distance, inequality in power or spread of democracy. Since our main object are methodology and some basic theoretical issues, we can concentrate on the theoretical background of the hypotheses to be tested here. In brief, we look for evidence for four traditionally mentioned elements in a state's behaviour vis-à-vis the use of military force: its

actual position as a military power, the character of its political system, its economic performance, and its degree of militarization.

First hypothesis: Great powers are more likely to use military force in pursuing their foreign policy interests than smaller states.

This claim is based on the assumption that the status of being a great power depends on being able to impose one's will onto another by force:

> "It can be quite convincingly argued that major powers achieve and maintain their status as such because, in large measure, they pursue an active, interventionist, perhaps even aggressive, foreign policy that brings them more frequently into violent conflict with other states" (Bremer 1992, p.314).

Moreover, it seems obvious that there are strong incentives for economically, militarily and demographically superior countries to use their power against weaker states since the risk of failure seems relatively low. Military force is thus a normal political instrument for a great power, and its actual use is more a question of practicability than of principle (Maurer and Porth 1984).

Second hypothesis: Democratic systems tend to avoid offensive military operations as part of their foreign policy.

The argument of the peaceful character of democracies is one of the most common ones in international relations and in practical policy (e.g. Russett 1993, Garfinkel 1994). The basic idea behind it can already be found in the works of Machiavelli (1965) or Kant (1964) who hint at the unwillingness of peoples to accept the personal costs of war, which becomes relevant for political decision-makers as soon as they are dependent on the votes of the people. Moreover, democracies being open societies in Kant's view should also be prepared to accept the rules of peaceful international interaction under international law (Archibugi 1995). Nevertheless, unless the democratic procedure requires a referendum for declaration of war, there may be incentives for politicians to wage war in order to use the "rally-round-the-flag" effect for being reelected (Hess and Orphanides 1995). This may be the reason why actual empirical evidence for the widely held theoretical belief in democratic peace is ambiguous (Chan 1984, Weede 1984, Bremer 1992, Russett 1993).

Third hypothesis: Militarized states are prepared to take military options and therefore tend to be more aggressive.

On the one hand relatively high expenses of national resources in armaments can be interpreted

as preparation for war or any actual use of military force (Mansfield 1992). On the other hand they may well be an indicator for the character of a society being generally ready for use of force in domestic as well as in foreign affairs. Even if militarization is an expression of some kind of defensive deterrence doctrine, it can result in arms races with the potential opponents leading to destabilization and, finally, to war (Angell 1910).

Fourth hypothesis: Economic wealth decreases preparedness to use military force.
If military aggression and war are seen as risky business, a country having reached a high level of material wealth will be reluctant to gamble on the basics of this wealth by endangering them by a war. This is especially relevant if economic development and prosperity depend on international interaction and interdependence in trade and finance. The "merchant's spirit" coinciding with economic development should then reinforce Kant's point on democracy: The relative decline of potential gains by successful aggression decreases incentives as well as possibilities of realization of violent foreign policy, due to domestic resistance. An opposite view that has been reforwarded recently, however, insists on the structural conditions of capitalist economic development being closely related to or even dependent on the existence of war in the international system (Wolf 1995).

3. The Data Set

The data set used here to test for those hypotheses covers the intervention behaviour of 110 states between 1970 and 1989. There were several reasons for selecting this period: First, the international system after the conclusion of most decolonization wars and after installation of military parity between the U.S. and the USSR, and before the collapse of the socialist regimes in Eastern Europe was a relatively stable one. Exogenous nuisance of behaviour is thus minimized. Second, for this short period of time, it was possible to identify clearly nuclear powers as well as democracies. Moreover, interventions like the Six-Days-War in 1967 and the invasion of Warsaw Pact troops in Czechoslovakia 1968 with their problematic distinction of formal and material aggressors (Israeli preventive strike and Warsaw Pact members' solidarity enforced by the USSR, respectively) could be excluded.

Each of the 110 states was characterized by a set of variables representing its use of military force abroad, political system, economic performance and degree of militarization during the

sample period. These variables are:

- the number of interventions observed,
- the average share in world population during the period (in %),
- the average relative military strength in % of world military manpower (only regular forces, excluding reserves and police),
- the average share in world output in % of world GNP,
- a dummy for nuclear power status (1 for nuclear power, 0 else),
- a dummy for the political system (1 for democracy, 0 else),
- the average share of military expenditure in % of GNP, and
- the average number of soldiers per 1,000 inhabitants.

In addition, we defined a simple indicator for the country's wealth, the average quotient of the share in world output and the share in world population. Distributional aspects of national income notwithstanding, the higher the quotient the higher the per capita living standard of a country should be.

The values of the variables were calculated from data from the "Military Balance" and from Gruber (1990). We preferred using relative numbers in order to avoid problems with inflation and changing base years in the indexation of US-$ numbers. In identifiying military interventions, we used the definition by Hammarström (1986, p.13):

> "(...) a military intervention will be considered to have taken place when the government of one country authorizes military personnel to undertake an operation within the borders of another country. (...) 'Military personnel' signifies persons conscripted or employed for the purpose of taking part in combat. This implies that mercenary troops are included, but 'military advisors' are not included unless they are also combatants. A military 'operation' is defined as any movement made in carrying out strategic military plans (...). More specifically, such a movement must involve combat".

Military operations within the framework of the United Nations, like the Lebanon "intervention" in 1983 were excluded since they cannot be taken as an indicator for preparedness for violent foreign policy. Following Bremer (1992), we distinguish between appearance and duration of an intervention. A military operation is therefore counted as an intervention only if it means a start or a clear escalation of use of military force. For example, Israeli offensives into Lebanon 1978 and 1982 were counted as two separate interventions, while the permanent guerilla war between Israel and Palestinians based in Lebanon was not included. Spector (1988) provided information

about nuclear powers. Finally, the basic criterion for a country being defined as a democracy, was existence of a government which was effectively controlled by a parlament created by free elections (Sartori 1987) for at least 15 of the 20 years observed.

The data show the following patterns: 31 of the 110 states were democracies, 79 had a different political system, i.e. in principle a socialist regime or a military dictatorship. There were seven nuclear powers during the period observed: the US, the USSR, Great Britain, France and China, being official possessors of nuclear weapons, Israel (since the end of the sixties) and India (since 1974). South Africa, Pakistan and Iraq were threshold powers without having nuclear weapons available (at least for most of the time between 1970 and 1989) and were thus counted as non-nuclear states. 30 countries intervened 68 times in other states (Table 1). Most frequent interventions were made by the US (6) and France (5). Descriptive statistics show that the means of the population, military strength, GNP, military expenditure and militarization variables are clearly higher for the interventionists than for the non-interventionists (Table 2).

4. Count Data Modelling

The use of count data models in estimating the relationship between a discrete, non-negative exogenous variable y and a vector of explanatory endogenous variables x_i has become a common procedure in most social sciences in recent years. Based on the problems arising from inadequate assumptions of the ordinary least squares estimation concerning event counts (King 1988), King (1989a) has introduced count data models into international relations.

The standard model for count data is the simple Poisson model with the probability distribution

$$f(y_i) = \frac{\exp(-\lambda_i)\lambda_i^{y_i}}{y_i!} , \quad \lambda_i \in \mathbb{R}, \ y_i = 0,1,2,... \tag{1}$$

and

$$\lambda_i = \exp(x_i\beta) \qquad i=1,...,n \tag{2}$$

6

x_i is the vector of observed covariates and β is a vector of coefficients. The exponential form ensures λ to be strictly positive. The assumption of a Poisson process as a rule for the underlying occurence generation especially in the case of international conflicts is supported by Houwling and Kuné (1984). Recent applications of the Poisson model in international conflict analysis have been Bremer (1992) and Kinsella and Tillema (1995).

Although it avoids basic weaknesses of the OLS model with count data, the Poisson model itself, however, may be not the best choice. The problems of the Poisson model have been largely discussed in econometric literature (e.g. Cameron and Trivedi 1986). The two most important failures of the simple Poisson approach are the assumption that the underlying stochastic process is a deterministic function of the covariates alone, and that events occur randomly over time. Thus unobserved heterogeneity, i.e. the possibility of missing exogenous variables, which seems unavoidable in complex foreign policy decision issues, is excluded. Moreover, no influence of occurences on the probability of future events is allowed for. International interventions, however, representing military commitment of a country abroad, may well be dependent on each other, e.g. by the perceived necessity to repair failures of previously not totally successful operations (Israel - Lebanon 1978 and 1982), or by being expression of a broader strategy seeking to establish some regional hegemonic regime (India - Sri Lanka 1987 and India - Maledives 1988).

Both problems lead to a violation of the basic Poisson assumption that variance equals mean. If there exists extra-Poisson variation or if present and future occurences are positively related, overdispersion results with the variance exceeding the mean, leading to overestimation of parameter significance. In order to overcome those problems, more sophisticated models have been developed. For an overview of recent progress see Winkelmann and Zimmermann (1995). One way to allow for additional variation is using compound Poisson models which introduce an additional error term into the simple Poisson framework:

$$\tilde{\lambda}_i = \exp(x_i\beta + \epsilon_i) = \exp(x_i\beta) u_i \qquad (3)$$

u_i then captures unobserved heterogeneity and is assumed to be uncorrelated with the explanatory variables. Since u_i follows a probability distribution on its own, the distribution of y

is now a mixture distribution. If u_i is gamma distributed with $\Gamma(\alpha_i, \alpha_i)$ then y_i follows a negative binomial distribution with

$$f(y_i | \alpha_i, \lambda_i) = \frac{\Gamma(\alpha_i + y_i)}{\Gamma(\alpha_i)\Gamma(y_i + 1)} \left(\frac{\alpha_i}{\lambda_i + \alpha_i} \right)^{\alpha_i} \left(\frac{\lambda_i}{\lambda_i + \alpha_i} \right)^{y_i} \qquad (4)$$

Cameron and Trivedi (1986) denote a special negative binomial model as NEGBIN II which nests the standard Poisson model. They introduce an overdispersion parameter σ_i and let $\sigma_i = \alpha^{-1}$. In addition, a nonlinearity parameter k has to be assumed a priori. Generalizations of the negative binomial model have been proposed by King (1989b) and Winkelmann and Zimmermann (1991). The generalized event count model GEC_k of Winkelmann and Zimmermann (1991) nests the Poisson and the NEGBIN models, and gives efficient estimates and correct asymptotic standard errors for all parameters including k and σ^2. The generalized variance function is thus:

$$Var(Y_i | x_i) = E(Y_i | x_i) + (\sigma^2 - 1)[E(Y_i | x_i)]^{k+1} \qquad (5)$$

If $\sigma_i < 1$ the variance is smaller than the mean, and the model takes account of underdispersion in the data, while $\sigma_i > 1$ models overdispersion.

A third problem of the simple Poisson approach not covered by those models is the possible systematic difference between the occurence of zero or more than zero events. The importance of this weakness of the Poisson model is demonstrated by King (1989a) who presents a Poisson estimation indicating that an increase in international organization by military alliances rises the risk of a state being involved in a war. This is contrary to the statement of conventional theory claiming that alliances are mainly formed for defensive purposes, i.e. to prevent war by deterrence. In order to capture this problem, a hurdle Poisson model is used. It combines a dichotomous model determining the binary outcome of the count being zero or positive with a truncated-at-zero Poisson model for strictly positive occurences. The probability distribution of the hurdle model is given by

8

$$P(Y=0) = f_1(0) \tag{6}$$

and

$$P(Y=y) = f_2(y) \; \frac{1 - f_1(0)}{1 - f_2(0)} = \Phi f_2(y) \qquad y = 1, 2, \dots \tag{7}$$

f_1 and f_2 are any probability distribution functions for non-negative integers governing the hurdle part and the process once the hurdle has been passed, respectively. In the example by King (1989a), the use of the hurdle approach leads to empirical results which are more consistent with theory: While the existence of alliances has no effect on the occurence of war, once a war has started in the international system, it increases the likelihood of the states being involved in it. Here, we apply two Poisson distributions with $\lambda_1 = \exp(x\beta_1)$ and $\lambda_2 = \exp(x\beta_2)$. All models are estimated using the standard maximum-likelihood technique.

Apart from King (1989a) and Martin (1992), for example, those models have rarely been used in international relations so far. We therefore use the range of count data models for the analysis of the characteristics of interventionist countries not only to evaluate the actual relevance of traditional theory, but also to propagate employing of those techniques in empirical work in international relations.

5. Estimation Results

We successively estimate a Poisson, a GEC_k and a hurdle Poisson model and compare their performance by using a standard likelihood ratio test for the nested Poisson and GEC_k models, and the Akaike Information Criterion (AIC) for the one-step and the hurdle models. From our theoretical considerations, we expect all variables to be significant with the great power (*population*, *military personnel*, *GNP* and nuclear status) and the militarization indicators (*defense budget* and *soldiers in population*) having a positive sign, i.e. increasing the number of interventions, and the coefficients of the variables *wealth* and *democracy* being negative.

The estimation results for the Poisson and the GEC_k models fit theory only in parts (Table 3). While *population*, *military personnel*, *GNP*, *nuclear power* and defense expenditures are

9

significant in the Poisson framework, *democracy*, militarization of the population and *wealth* have no statistically significant influence on the number of interventions realized by a country. Moreover, the coefficient of *military personnel* is negative. The GEC_k model confirms those results except for the *nuclear power* and the *soldiers in population* variables. Here, *nuclear power* has no influence while military mobilization of the population significantly increases the number of interventions. According to a likelihood ratio test with a critical χ^2-value of 3.84 on the 95%-level, the more flexible GEC_k model is of higher explanatory power than the Poisson model. However, the estimated values of σ^2 (not being significantly different from 1) and k indicate that there is no overdispersion in the data, which is why a NEGBIN approach (where k=1) is not sensible here. The results to look at are therefore those of the GEC_k model.

The one-step approach thus leads to the following conclusions: First, *population* and *GNP*, being indicators for a country's power status, have a significantly positive influence on the number of interventions. Negative significance of *military personnel* and insignificance of availability of nuclear weapons may indicate that military power is not adequately modelled by using the quantitative strength of an army without taking into account its status in equipment and training, while nuclear weapons as purely defensive instruments of deterrence play no role in conventional military operations.. The use or even any implicit recurrence on nuclear arms is ruled out due to reasons of inapplicability of this kind of weapons, including international public opinion, internal moral restraints (limiting justification of nuclear strikes to questions of actual national survival) and tactical inefficiency.

Equipment may be partly covered by the significance of defense expenditure. The main implication of the *defense budget* variable, however, is that military forces are prepared in order to be actually applied as a means of foreign policy. The positive effect on interventionism is independent of the degree of manpower available. Again, practical constraints on intervention operations hint at the need of small but highly qualified (and expensive) forces while mass armies may be employed only in strategically defensive action. Thus negative significance of the military personnel variable may also result from some kind of conventional deterrence representing a defensive, non-interventionist attitude in the direct presence of some perceived external threat. Nevertheless, a high relative number of soldiers in a society may be interpreted as a manifestation of some militarist ideology resulting in higher preparedness for military intervention.

Most interestingly, the political system is clearly insignificant in both estimations: Democracies, contrary to general belief, do not behave differently from other states as far as the use of military force in pursuit of national goals is concerned. The same is true with economic performance: Being wealthy does not imply abstention from active application of military violence.

In order to take account of the possible systematic difference between a country's principal decision to intervene at all, and how often to do this, we also estimated a hurdle Poisson model analogous to the one used by King (1989a). Its results (Table 4) confirm our interpretation of the *defense budget* variable since expenditure for military purposes is positively significant only in the first step of the regression. *GNP* is significant (on the 90%-level) only in the second step of the decision-making process on intervention. This seems sensible if the actual number of military actions is at least partly determined by economic power representing overall military potential, too. The *military personnel* variable is significant and has a negative sign, again hinting at some problem with equalling military power with the number of soldiers available. All other variables are insignificant in both steps of the regression. Contrary to the one-step approach, *population* and *soldiers in population* thus do not play any role if a two-step process is assumed underlying political and military decision-making on interventionism. Looking at the performance of the hurdle model by using the AIC for non-nested models in order to compare it to the two one-step estimations, one finds that the simple Poisson model fares a bit worse, while the GEC_k model is slightly better. The qualitative differences between the models, however, are not too striking. Assuming a separation between the basic decision to intervene and the one on the actual number of interventions seems therefore somewhat doubtful. Interventions being a crucial issue in foreign policy, gambling with soldiers' lives and valuable military resources may well require some kind of fundamental decision-making in each single case.

6. Conclusions

Summarizing the basic results of the estimations, one can state that at least two of the claims of traditional theory have to be rejected if tested in international interventionism. Neither economic wealth nor democratic political structures imply *per se* less use of force in international affairs. While democracies may not fight each other, they are ready to recur on military violence in an international environment with political systems of all sorts. Classical elements of great power definitions like population and especially GNP show that bigger countries tend to intervene more

often than small ones. Nevertheless, attributes of military great powers like availability of nuclear weapons and number of soldiers do not affect the likelihood of intervention as theory predicts. The actual degree of militarization of a society measured by the ratio of soldiers and population may be relevant to the use of force by a state, but its preparations in armaments are more clearly. This may hint at the special importance of military technology and quality of troops in military operations short of full-scale war.

In brief, responding on the hypotheses presented above, this means:

a) *Great powers tend to intervene more frequently in other countries than smaller states.* The status of a great power, however, is not necessarily defined by its actual military capabilities but by its overall military potential including economic and demographic factors.

b) *Democracies behave in the same way like other states.* Democratization may therefore be no sufficient way to promote international abstention from the use of military force.

c) *Military preparations indicate some willingness to use force not only in a purely defensive manner but also for active implementation of foreign policy goals.* However, the actual internal militarization of a society in terms of expansion of the relative numbers of the armed forces seems a less useful indicator for this attitude than military expenditure. Looking at the quantitative strength of a country's army may even lead to conclusions contrary to its actual intentions.

d) *A country's economic success does not guarantee to restrict its international behaviour to non-military action.* Wealth has no significant influence on the number of interventions, indicating a trade-off between the basic risk-aversion of richer countries vis-à-vis losses by war, and the need of modern economies to secure economic interests and resources abroad in order to keep up their performance.

These results obviously collide with the benchmark work by Bremer (1992) who concluded that, basically, the implications of traditional idealist theory calling for democratization and economic development in order to foster international peace were correct. One has to take into account, however, that our approach aims at a far broader definition of international violence than his analysis of interstate wars. Nevertheless, from a methodological point of view, it has been demonstrated here that the Poisson model most frequently used in empirical international relations may often be not the adequate way to deal with event count data. More sophisticated models are at hand and should be used by applied researchers.

Table 1: Identified Interventions 1970-1989

Iran	Iraq	1970
Syria	Jordan	1970
USA	Cambodia	1970
(North) Vietnam	Cambodia	1970
USA	North Vietnam	1970
India	Bangladesh (East Pakistan)	1971
India	Pakistan	1971
Zaire	Burundi	1972
Egypt	Israel	1973
Jordan	Israel	1973
Syria	Israel	1973
Iraq	Israel	1973
Greece	Cypres	1974
Turkey	Cypres	1974
Indonesia	Portugal (East Timor)	1975
Morocco	Western Sahara	1975
Mauretania	Western Sahara	1975
South Africa	Angola	1975
Syria	Lebanon	1976
Iraq	Lebanon	1976
Algeria	Morocco	1976
Cuba	Angola	1976
Zimbabwe	Angola	1976
Zimbabwe	Botswana	1976
Zimbabwe	Mozambique	1976
Zimababwe	Zambia	1976
Vietnam	Laos	1977
Morocco	Zaire	1977
South Africa	Mozambique	1977
South Africa	Zambia	1977
Somalia	Ethiopia (Ogaden)	1977
Cuba	Ethiopia (Ogaden)	1977
France	Mauretania	1977
Cuba	Ethiopia (Eritrea)	1978
France	Chad	1978
South Yemen	North Yemen	1978
France	Zaire	1978

Belgium	Zaire	1978
Libya	Tanzania	1978
Uganda	Tanzania	1978
Iraq	Iran	1978
Vietnam	Cambodia	1978
Israel	Lebanon	1978
South Africa	Angola	1978
USSR	Afghanistan	1978
China	Vietnam	1979
Syria	Lebanon	1980
USA	Iran	1980
Somalia	Ethiopia	1980
Senegal	Chad	1981
Zaire	Chad	1981
Senegal	The Gambia	1981
Israel	Iraq	1981
South Africa	Angola	1981
Argentina	Great Britain	1982
Israel	Lebanon	1982
Peru	Ecuador	1982
USA	Grenada	1983
Israel	Tunisia	1983
Libya	Chad	1983
France	Chad	1983
Syria	Lebanon	1985
USA	Libya	1985
India	Sri Lanka	1987
India	Maledives	1988
China	Vietnam (Spratlys)	1988
France	Comores	1989
USA	Panama	1989

Table 2: Sample Means

Variable	Total sample	Interventionists	Non-Interventionists
Interventions	0.618 (1.29)	2.267 (1.55)	0
Population	0.909 (2.70)	2.131 (4.95)	0.451 (0.57)
Military personnel	0.910 (2.30)	2.159 (4.09)	0.441 (0.60)
GNP	0.902 (2.97)	1.818 (5.21)	0.558 (1.32)
Nuclear power	0.064 (0.25)	0.200 (0.41)	0.013 (0.11)
Democracy	0.282 (0.45)	0.233 (0.43)	0.300 (0.46)
Defense budget (10^{-1})	5.556 (5.51)	9.214 (7.22)	4.184 (3.98)
Soldiers in population (10^{-1})	7.546 (7.32)	11.127 (9.32)	6.203 (5.95)
Wealth	1.141 (1.48)	0.989 (1.30)	1.199 (1.54)

Standard deviations in parentheses.

Table 3: One-Step Estimation Results

Variable	Poisson	GEC_k
Constant	-1.185** (-4.67)	-1.452** (-3.65)
Population	0.135** (2.23)	0.174** (2.75)
Military personnel	-0.212** (-2.37)	-0.157** (-2.02)
GNP	0.132** (3.40)	0.157** (3.62)
Nuclear power	1.407** (2.09)	-0.171 (-0.28)
Democracy	-0.671 (-1.18)	0.080 (0.21)
Defense budget (10^{-1})	0.539** (2.13)	0.066** (2.53)
Soldiers in population (10^{-1})	0.312 (1.59)	0.045** (2.35)
Wealth	-0.136 (-0.84)	-0.240 (-1.44)
σ^2		1.207** (2.71)
k		-2.091 (-1.04)
lnL	-106.61	-92.28
n	110	110

Endogenous variable: number of interventions 1970-1989, t-values in parentheses.

**:   significant on the 95% level (two-tailed test)
*:   significant on the 90% level (two-tailed test)

Table 4: Results of the Hurdle Poisson Estimation

Variable	First Step	Second Step
Constant	-2.213** (-4.59)	0.349 (0.89)
Population	0.457 (1.08)	0.081 (1.06)
Military personnel	-0.117 (-0.33)	-0.228* (-1.81)
GNP	0.048 (0.32)	0.082* (1.67)
Nuclear power	1.439 (1.17)	1.345 (1.39)
Democracy	0.049 (0.06)	-0.783 (-0.92)
Defense budget (10^{-1})	1.063** (2.85)	-0.063 (-0.15)
Soldiers in population (10^{-1})	0.359 (1.03)	0.225 (0.74)
Wealth	-0.318 (-1.18)	0.031 (0.13)
lnL	-89.87	
n	110	

Endogenous variable: number of interventions 1970-1989, t-values in parentheses.

**:   *significant on the 95% level (two-tailed test)*
*:   *significant on the 90% level (two-tailed test)*

References

Archibugi, D. 1995. Immanuel Kant, cosmopolitan law and peace. *European Journal of International Relations* 1: 429-456

Angell, N. 1910. *The great illusion*. London: Heinemann

Bremer, S.A. 1992. Dangerous dyads. Conditions affecting the likelihood of interstate war, 1816-1965. *Journal of Conflict Resolution* 36: 309-341

Cameron, A.C. and P.K. Trivedi 1986. Econometric models based on count data: Comparisons and applications of some estimators and tests. *Journal of Applied Econometrics* 1: 29-53

Chan, S. 1984. Mirror, mirror on the wall... Are the freer countries more pacific? *Journal of Conflict Resolution* 28: 617-648

Garfinkel, M.R. 1994. Domestic politics and international conflict. *American Economic Review* 84: 1294-1309

Gruber, P. (ed.) 1990. *Defense & Foreign Affairs handbook 1990-91*. London: Copley

Hammarström, M. 1986. *Securing resources by force. The need for raw materials and military intervention by major powers in less developed countries.* Uppsala: University of Uppsala, Conflict Research Report no. 27

Hess, G.D. and A. Orphanides 1995. War politics: An economic rational-voter framework. *American Economic Review* 85: 828-846

Houweling, H.W. and J.B. Kuné 1984. Do outbreaks of war follow a Poisson-process? *Journal of Conflict Resolution* 28: 51-61

International Institute for Strategic Studies (ed.) 1970/71-1989/90. *The military balance* (yearly). London:

Kant, I. 1964. *Werke VI: Zum ewigen Frieden*. Darmstadt: Wissenschaftliche Buchgesellschaft

King, G. 1988. Statistical models for political science event counts: Bias in conventional procedures and evidence for the exponential Poisson regression model. *American Journal of Political Science* 32: 838-863

_____ 1989a. Event count models for international relations: Generalizations and applications. *International Studies Quarterly* 33: 123-147

_____ 1989b. *Unifying political methodology. The likelihood theory of statistical inference.* Cambridge, New York

Kinsella, D. and H.K. Tillema 1995. Arms and aggression in the Middle East. Overt military interventions, 1948-1991. *Journal of Conflict Resolution* 39: 306-329

Machiavelli, N. 1965. *Politische Betrachtungen über die alte und die italienische Geschichte*. Cologne, Opladen: Westdeutscher Verlag

Mansfield, E.D. 1992. The concentration of capabilities and the onset of war. *Journal of Conflict Resolution* 36: 3-24

Martin, L.L. 1992. *Coercive cooperation: Explaining multilateral economic sanctions*. Princeton, NJ: Princeton University Press

Maurer, J.H. and R.H. Porth 1984. *Military intervention in the Third World. Threats, constraints and options*. New York, Philadelphia: Praeger

Rummel, R.J. 1995. Democracies ARE less warlike than other regimes. *European Journal of International Relations* 1: 457-479

Russett, B. 1993. *Grasping the democratic peace. Principles for a Post-Cold War world*. Princeton, NJ: Princeton University Press

Sartori, G. 1987. *The theory of democracy revisited*. Chatham, NJ: Chatham House Publ.

Singer, J.D. (ed.) 1979. *Explaining war. Selected papers from the Correlates of War Project*. Beverly Hills, London:

Spector, L.S. 1988. *The undeclared bomb*. Cambridge, MA: Ballinger

Weede, E. 1984. Democracy and war involvement. *Journal of Conflict Resolution* 28: 649-664

Winkelmann, R. and K.F. Zimmermann 1991. A new approach for modeling economic count data. *Economics Letters* 37: 139-143

_____ 1995. Recent developments in count data modelling: Theory and application. *Journal of Economic Surveys* 9: 1-24

Wolf, K.D. 1995. Capitalism and war: Globalism meets the democratic peace. *Mershon International Studies Review* 39: 239-245