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Base Stealers versus Power Hitters: A Nation-State-Level Analysis of the Frequency and Seriousness of War

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It is often said that major league baseball clubs follow one of two strategies in building a team. They either emphasize speed and acquire players who can get ground ball base hits, turn singles into doubles, hit and run, steal bases, and create scoring opportunities by moving along one base at a time, or they emphasize strength and acquire power hitters capable of hitting home runs, which provides the opportunity to score several runs with one swing. Teams based on speed tend to have high batting averages and many stolen bases but fewer home runs and lower slugging percentages. They have fewer scoreless innings but fewer innings with large numbers of runs. Teams based on strength tend to be characterized by the opposite: they have lower batting averages but higher slugging percentages, fewer stolen bases but more home runs, more scoreless innings but no fewer runs overall. The existence of an inverse correlation between the two sets of indicators and a tradeoff between "sprinters versus sluggers" has been frequently noted (Axthelm 1982; Quinn 1982), perhaps to the point that this proposition has acquired the status of conventional wisdom among knowledgeable analysts.

We are less concerned here with the empirical validity of this hypothesis, or with the important question of whether one strategy is more successful than the other, than with its heuristic value in suggesting testable propositions in a rather different issue area: international conflict. It has been argued that the wars a state fights in a given period tend to be either frequent but limited or infrequent but more serious in nature. These two patterns can alternate over time, just as an emphasis on strength can evolve into an emphasis on speed.

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What is unlikely to occur are periods in which wars are both frequent and serious, just as baseball teams rarely have a strong emphasis on both speed and strength.

Although the hypothesized inverse relationship between the frequency and seriousness of war is implicit in numerous theories of international politics and in the worldviews of many statesmen, and its empirical validity has been widely taken for granted, the hypothesis has not been subjected to a systematic empirical test at the nation-state level of analysis. The purpose of this study is to conduct such a test; the results have a bearing on the theoretical generalizations from which the hypothesis is derived and on the policy implications that follow from it. Earlier (Levy and Morgan 1984) we provided evidence suggesting a moderate, inverse correlation between the frequency and seriousness of war at the systemic level, but it does not necessarily follow that this relationship would also hold at the nation-state level. Since we were unable to explain this observed pattern using predictor variables at the systemic level (Morgan and Levy 1986), the results presented here may shed light on the earlier finding, which may be a system-level manifestation of a nation-state-level phenomenon.

Theoretical Perspectives

A number of theoretical arguments lead to the expectation of an inverse relationship between the frequency and seriousness of wars. This proposition follows from the plausible assumptions that wars consume resources (and, by definition, the greater is the seriousness of a war, the more resources it consumes) and states have limited resources that can be devoted to warfare.¹ When a state becomes involved in an extremely serious war, it does not have sufficient resources to engage in many other wars during the same period. On the other hand, for a state to fight in several wars during a period, none can require a significant commitment of resources, and all must be relatively minor. Note, however, that this argument does not exclude the possibility of a state's fighting relatively few, minor wars (unless we assume that states will always devote as many resources as they can to fighting wars). Since this would have a dampening effect on any inverse correlation, we should expect a moderate, negative association between the frequency and seriousness of war.²

This hypothesis also follows from the assumption that nation-states behave as if they are rational actors whose decisions for war are based on cost-benefit calculations. If this is the case, states will engage in war if and only if the expected utility of war is greater than the expected utility of every other policy alternative.³ The expected utility of war is a function of the expected payoffs associated with the various possible outcomes of the war and the costs

of fighting the war. These costs would be affected by anything that influences the severity of war, including, but not limited to, the destructiveness of weapons systems, the offensive-defensive balance of military technology, the nature of strategic doctrine, the ability of the combatants to mobilize resources for the war effort, and public support for the war. When the expected costs of war are relatively high, there would be few situations in which the expected benefits of war would outweigh the costs, and hence few wars. When the expected costs of war are lower, however, there would be more situations for which war is a rational policy choice, and presumably more wars would ensue. Thus, we would expect to observe an inverse correlation between the frequency and seriousness of war.

Balance of power theorists also provide a number of propositions leading to the expectation of such an inverse relationship. Although these arguments are generally cast at the systemic level, many can be applied to the rational behavior of individual states. The explanations for major wars offered in this tradition provide one type of argument leading to our hypothesis. Major wars call upon the full attention of all or nearly all major actors in the system and are typically fairly lengthy, so a period in which a major war occurs would be characterized by few (probably one) wars of, on average, high severity. Such a war would be serious for each actor, and none would be likely to fight other wars.

At least two conditions can lead to a major war. First, it can occur when a state develops sufficient military power to threaten credibly all other great powers combined. Although alliance formation and internal increases in military strength are the most common means by which such threats to the equilibrium of the system are diffused, many balance of power theorists suggest that by fighting minor wars, great powers can correct minor imbalances and prevent them from becoming more serious (Gulick 1955; Bull 1977). This can be accomplished either by fighting limited wars to reduce somewhat the power of a growing state or by each major power fighting minor states or imperial wars to augment its own power. Thus, depending on how they behave, states will be involved in either several minor wars or a few serious wars in a given period.

The second way in which balance of power and realpolitik theorists argue that major wars can occur is when one or more states attempt to change the system rather than just alter their power position within it. In these situations, the entire system will be thrown into a total war, and populations will be driven by nationalistic fervor, religious fanaticism, or some other ideological motivation. Since the war is perceived as threatening the survival of nations, each will fight to the fullest extent of its abilities and will be involved in few, serious wars. At other times, wars will be fought for limited aims and will be limited in scope. Wars will be minor, and each state may fight several to bring about modest changes in its situation (Kissinger 1957; Wright 1965b;

Morgenthau 1965). Again, we are led to the expectation of an inverse correlation between the frequency and seriousness of war. Note, however, that there is no reason to expect there to be many wars in nonrevolutionary periods. Since there may be few or many, we should expect the observed correlation to be relatively moderate.⁴

Balance of power theorists have also argued that specific structural variables can affect the nature of war in the international system. Rosecrance (1969:329-333), for example, has written that it is "highly probable that a multipolar world order will increase the number of international conflicts, though it may possibly reduce their significance," while under bipolarity, conflicts should be infrequent but more violent. Another such variable is the relative openness of the "colonial frontier," which is inversely related to the degree to which core powers have partitioned the periphery. When the colonial frontier is open, wars should be frequent but limited because imperial expansion and minor conflicts on the periphery serve as a safety valve for the system. Competition for power is diverted from the core to the periphery, where it does not involve the vital interests of the great powers and where it can be moderated (Hoffmann 1968).⁵ When the territory on the periphery has been completely partitioned, further expansion by any single power can occur only at the expense of another great power (Lenin 1939; Chatterjee 1975). The costs and risks of expansion are thereby increased so attempts at expansion become less frequent. Thus, the frequent but limited wars of an open colonial frontier give way to the less frequent but more serious great power wars of a system with closed peripheries.⁶

The notion that the wars a state fights in a given period will be either infrequent and serious or frequent and less serious is central to a number of policy-relevant debates. It might be argued that by fighting a small war now, a state may expect to resolve issues before the situation deteriorates further and before other actors get increasingly involved, and thus reduce the likelihood of a larger war later. It might also be argued that by fighting a small war now, a state demonstrates its resolve with minimum costs and deters potential challengers from initiating future challenges to more important interests, and in this way reduces the risk of a larger war later. These ideas constitute important assumptions underlying theories of deterrence and coercive diplomacy as well as the American doctrines of containment, intervention, and limited war. Osgood (1957), for one, argues that limited wars serve as a substitute for all-out war between the superpowers in the nuclear age and that only a strategy of limited war would allow the United States to avoid the alternatives of total war, surrender, and ineffective resistance.

Many of the specific applications of the U.S. policy of containment were rationalized by leaders or later explained by analysts on the grounds that it is better to fight a number of small wars now than a major war later. President Truman defended the U.S. involvement in Korea on the grounds that such

actions were necessary "to prevent a third world war," and President Johnson invoked the same arguments in explaining his Vietnam policy (Paterson 1978:331, 447). These arguments were drawn from the "lessons" of World War II, which suggested that the appetite of an aggressor is insatiable and, if unchecked, can lead only to global war or global subjugation. In a similar vein, it has been suggested that the United States' uses of limited force in Grenada and Libya have reduced the likelihood of a larger confrontation later. By demonstrating a willingness to use military force, the president has lessened the chances that a potential enemy will underestimate U.S. resolve and challenge American interests (Mandelbaum 1986:399). This contention also has been expressed in a number of policy debates in other countries. In justifying the British actions in the Falklands crisis, for example, the *Economist* argued that to shrink from "tiny" challenges today would only encourage "bigger losses in the future" (April 10, 1982) and that "only by being willing to shed some blood can a lot of it be left unshed" (June 19, 1982).

Research Design

The general hypothesis under consideration can be stated as follows: The frequency of the wars that a state fights in a given period is inversely related to their seriousness. We will transform this hypothesis into operational form and suggest a research design for testing it. (Readers interested in a more complete description and justification of the data generating procedures can refer to Levy [1983] and to Levy and Morgan [1984].) Because the analysis will focus on the nation-state level and because the data must be aggregated into relatively long time periods, the necessity of ensuring a sufficient number of cases requires extending the temporal domain of the study as far back in time as possible. Thus, the analysis extends to the origins of the modern system at the end of the fifteenth century (Wallerstein 1976; Modelski 1978; Thompson 1983; Levy 1983). Since many of the theoretical arguments (particularly those from the balance of power perspective) focus specifically on the great powers and because fairly reliable war data before 1815 exist only for these states, the hypothesis will be tested only for the great powers, as defined and identified in Levy (1983).⁷ Thus, the focus is only on wars involving at least one great power (including those against smaller states or peripheral actors).

The conceptualization of the frequency of war poses two major questions: What classes of wars should be included? What is the minimum threshold of violence, if any, for inclusion? Because the hypothesis involves small wars and because imperial wars are explicitly mentioned in some of the arguments, imperial as well as interstate wars must be incorporated into the analysis. However, the hypothesis generally refers to wars, so that uses of force short of war, such as border disputes, should not be included. This leaves the more

difficult question of the minimum threshold defining a war. The Singer and Small (1972) one thousand battle deaths criterion is too high for imperial wars and other small wars encompassed by the hypothesis. Since any lower threshold poses problems of data accuracy and availability, we have relied on multiple sources to determine whether a conflict excluded by the Singer-Small criterion went beyond minor skirmishing to open warfare. Existing compilations of war data are not adequate for these purposes, so a new data set of international wars involving the great powers has been generated (Levy and Morgan 1984).

The most widely used indicator of the seriousness of war is battle deaths (Richardson 1960b; Singer and Small 1972; Levy 1983). A state's total number of battle deaths in a given period will be used as an indicator of the seriousness of war for the state. Because this measure partially depends on the number of wars occurring (the variable with which it is to be correlated), it must be supplemented with other indicators. A state's average number of battle deaths per war is perhaps the best measure of the seriousness of the wars in which the state is involved in a given period because it captures the total severity while factoring out the effects of frequency. One limitation of this indicator, however, is that it does not distinguish a period in which a state is involved in several large wars from one in which it is involved in one enormously destructive war and many smaller wars. This additional dimension of seriousness will be tapped by the frequency of wars above a certain threshold. The number of wars between great powers ("great power wars") in which the state suffered more than 50,000 battle deaths is a fairly discriminating measure of severity and is our third indicator.⁸ An even more discriminating indicator is the number of general or hegemonic wars occurring in a period. These are the cataclysmic struggles, involving nearly all the great powers and enormous casualties and include the ten most serious wars in modern history (Levy 1985).⁹

We thus have four indicators of the seriousness of war in a period: a state's total number of battle deaths, its average number of battle deaths per war, the number of great power wars in which a state suffered more than 50,000 fatalities, and the number of general wars in which a state is involved. The fact that these indicators cover a range of seriousness is useful given the inherent ambiguity of the concept. Our confidence in the validity of the findings will increase if the empirical results are consistent across this range of indicators.

The battle death data are taken from Levy (1983), whose data are based, with some modifications, on the Singer and Small (1972) data (updated in accordance with Small and Singer [1982]) for the post-1815 period and on the Sorokin (1937) data for the earlier period.¹⁰ Because fatality estimates for imperial wars are often unavailable or unreliable and because these make only a marginal contribution to the total fatalities as compared with interstate wars involving the great powers, only fatalities from the latter are used to

compute the severity indicators. The four indicators of the seriousness of war can easily be constructed from the list of all international wars involving the great powers.

For the purposes of this analysis, the data on the frequency and seriousness of war have been aggregated for each great power by twenty-year periods. The periodization for each state begins with the year in which it entered the great power system. This permits us to have a large number of data points and, by staggering the temporal partitioning, helps to minimize the danger that our findings could be an artifact of arbitrary periodization. In Levy and Morgan (1984) the analysis was performed using twenty-five-year periods of aggregation; the analyses were replicated, with similar results, using twenty-year periods (Morgan and Levy 1986).

The hypothesized inverse relationship between the frequency and seriousness of war calls for a simple correlation analysis between their respective indicators. Pearson's product-moment correlation coefficient is used as the primary measure of association. Because the theoretical development of the hypothesis did not necessarily specify that the relationship would be linear but only monotonic, Spearman's rank-order correlation coefficient is also used.¹¹ Because the seriousness indicators based on battle deaths are highly skewed, they are logarithmically transformed.

In order to determine whether the relationship between the frequency and seriousness of war has been relatively constant over time, the analysis will be performed for three distinct subperiods (1500-1650, 1650-1815, 1815-1980), as well as for the entire 1500-1980 time span. The breakpoints correspond roughly to the congresses of Westphalia and Vienna, widely regarded as marking major transformations in the international system. The separate analyses of these periods will facilitate the determination of whether the frequency-seriousness relationship has changed in response to these (purportedly) fundamental systemic transformations.

Our primary concern is with the general relationship between the frequency and seriousness of war at the nation-state level of analysis. The main analyses will therefore be conducted on all great powers in aggregate, without regard for the identities of particular states. We also are interested in determining whether there are any differences in the relationship across states. If the aggregate patterns hold for each of the individual powers, confidence in their validity would be strengthened. For this reason the analyses will also be performed on the individual great powers for which there are ten or more data points: France, Great Britain, Spain, Austria, and Russia.

One final methodological point must be mentioned. A number of states did not fight in any wars during a particular twenty-year period, leading to a coding of "0" on the frequency and the severity indicators for that period. Since the predicted value of severity is technically undefined when the frequency of war equals zero, these cases are not covered by the hypothesis and have therefore been omitted from the analysis.¹²

Data Analysis

The correlations between the frequency of war and each of the indicators of the seriousness of war per twenty-year period are presented in tables 4-1 and 4-2. Table 4-1 contains the Pearson's r coefficients and table 4-2 the Spearman's rho coefficients. Correlations are provided for all states in aggregate over the entire period and for each of the subperiods, as well as for five individual states over the time of the great power status of each. Coefficients marked with an asterisk are statistically significant at $p < .05$.¹³

A comparison of the tables indicates that the differences between the Pearson's and Spearman's coefficients are relatively minor and in no way systematic, suggesting that we may safely treat the relationship as if it were linear. Beyond this, the vast majority of the coefficients are in the predicted direction,

Table 4-1
Correlations (Pearson's r) between the Frequency and Seriousness of War

State and Period	Indicator of Seriousness			
	BD ^a	avgBD ^a	GPW > 50,000	GenWar
All states, 1500-1980 ($N = 126$) ^b	-.16	-.29*	-.16*	-.06
All states, 1500-1650 ($N = 34$)	.20	-.00	-.16	-.32*
All states, 1650-1815 ($N = 41$)	.01	-.29*	-.24	-.21
All states, 1815-1980 ($N = 41$)	-.24	-.31*	-.18	-.20
France, 1500-1980 ($N = 23$)	-.24	-.48*	-.21	-.30
England, 1500-1980 ($N = 22$)	-.57*	-.67*	-.15	-.27
Spain, 1500-1519, 1556-1808 ($N = 13$)	.11	-.26	-.06	-.56*
Austria, 1500-1519, 1556-1918 ($N = 16$)	-.50*	-.66*	-.33	-.52*
Russia, 1721-1980 ($N = 13$)	.43	.35	.08	.30*

Notes: BD = total battle deaths; avg BD = average battle deaths per war; GPW > 50,000 = frequency of great power wars of 50,000 or more battle deaths; GenWar = frequency of general wars.

^aA logarithmic transformation is used.

^bThe N for the subdivided periods will not sum to this N because cases that span a breakpoint are omitted.

*Significant at $p < .05$.

Table 4-2
Correlations (Spearman's rho) between the Frequency and Seriousness of War

State and Period	Indicator of Seriousness			
	BD ^a	avgBD ^a	GPW > 50,000	GenWar
All states, 1500-1980 ($N = 126$) ^b	-.00	-.22*	-.12	-.18*
All states, 1500-1650 ($N = 34$)	.19	-.12	-.22	-.33*
All states, 1650-1815 ($N = 41$)	-.09	-.35*	-.22	-.22
All states, 1815-1980 ($N = 41$)	-.03	-.17	-.01	-.09
France, 1500-1980 ($N = 23$)	-.14	-.37*	-.15	-.28
England, 1500-1980 ($N = 22$)	-.25	-.54*	-.13	-.24
Spain, 1500-1519, 1556-1808 ($N = 13$)	.11	-.14	.00	-.57*
Austria, 1500-1519, 1556-1918 ($N = 16$)	-.55*	-.61*	-.36	-.52*
Russia, 1721-1980 ($N = 13$)	.44	.22	.11	.40

Notes: BD = total battle deaths; avg BD = average battle deaths per war; GPW > 50,000 = frequency of great power wars of 50,000 or more battle deaths; GenWar = frequency of general wars.

^aA logarithmic transformation is used.

^bThe N for the subdivided periods will not sum to this N because cases that span a breakpoint are omitted.

*Significant at $p < .05$.

indicating an inverse correlation between the frequency and seriousness of war; but when we consider all states in aggregate, their magnitudes are generally weak. Only about a fourth are statistically significant at the .05 level, and none exceeds .35 in magnitude. Overall there are a few positive coefficients, but these are sufficiently low to be attributable to measurement error. Many of the significant relationships involve the "average battle death per war" severity indicator. Since this is probably the best single indicator of the seriousness of the wars in a period, this does suggest modest support for the hypothesis. The differences between the results for the entire period and the various subperiods are not substantial, suggesting that the frequency-seriousness relationship has not changed over time.

It is interesting to consider the patterns of the frequency and seriousness of war for the individual states since it is possible that the modest correlations

for all states in aggregate are concealing significant differences across states. In fact, these coefficients may reveal more about the frequency-seriousness relationship in general than the aggregate results; it is mathematically possible for every state to have a strong negative coefficient while the aggregate results are weak (or even positive). For four of the five states for which there are sufficient data points to conduct the analysis, there is a moderate, inverse relationship between the frequency of war and the severity indicators. For the most part, the coefficients are somewhat greater in magnitude than were those for the aggregate results and, in general, are consistent with the hypothesis.

Russia is an anomaly. Each of the coefficients for it is positive, and, though none is statistically significant (because of the small number of cases), most are moderately strong. One possible explanation can be found by examining the data. Of the thirteen cases, two periods were characterized by a few imperial wars (in one case, there was one war; in the other, there were two). These two cases were among the lowest, for all great powers, in terms of the frequency of war and were by far the lowest in terms of the severity of war. For a state with a relatively short tenure as a great power, two such cases can have a significant impact on the correlation coefficient. (When these cases are removed from the analysis $r = .03$ for battle deaths, $r = -.21$ for average battle deaths, $r = -.09$ for great power war exceeding 50,000 battle deaths, and $r = .20$ for general war.) Removing these outliers biases the analysis in favor of the hypothesis, but it should be noted that such cases are not inconsistent with some versions of the theoretical argument, which allow for the possibility of some periods having very few minor wars. Thus, although the relationship between the frequency and seriousness of Russia's wars differs from the predicted pattern and that observed for other great powers, that difference can be explained in terms consistent with the initial hypothesis.

Conclusion

The hypothesis that there exists an inverse relationship between the frequency of wars that a state fights in a given period and the seriousness of those wars has received modest confirmation with respect to the behavior of the great powers over the last five centuries of the modern international system. The relationship is somewhat weaker than expected when all great powers are considered in aggregate, but, with one somewhat explicable exception, the results for the individual states are consistent with the hypothesis. Our confidence in these findings is increased by their stability over time and by their relative consistency over several indicators tapping different degrees and dimensions of the seriousness of war.

Our ability to generalize from these findings is constrained by the absence of a well-confirmed causal explanation for what is basically an interesting

descriptive empirical generalization. Although the disconfirmation of the proposition would have cast doubt on certain aspects of each of the theories that predicted the relationship, the qualified confirmation of the hypothesis provides little positive empirical support for any of these theories. Because we have not tested any causal models that specify the mechanism leading to the hypothesized behavior, we cannot be certain which of the theoretical perspectives with which the pattern is consistent actually explains that pattern or whether the observed pattern might be explained by some other mechanism. More specifically, we cannot be certain on the basis of this analysis whether the observed pattern exists because the anticipation of the costs of a big war deters a state from getting involved in such a war; whether participation in several small wars leaves states without the resources to fight a larger war or without the need to fight such a war, either because the threats to its interests have been removed or because its increased credibility has deterred potential adversaries from encroaching on its interests; or whether the structure of the international system or some other third variable affects the frequency and seriousness of war. We have not even established that statesmen's decisions for war or peace are based on an awareness of a possible relationship between the frequency and seriousness of war or that the outcomes of such wars are consistent with the expectations that helped shape the decisions for war. In fact, it is possible that the observed empirical pattern has gained some support from behavior directly contrary to the prescriptive theory from which the hypothesis is derived. Consider the following: Political leaders, following the logic discussed, initiate what they expect to be a small war, hoping to reduce the risks of a more serious war in the future. This war inadvertently escalates into a larger war, which in turn reduces the number of smaller wars that follow. The observed empirical pattern of one large war and no smaller wars in that period would be consistent with the hypothesized inverse relationship between the frequency and seriousness of war.

The exception noted above involves a state (Russia) whose deviation from the hypothesized pattern was caused by two periods in which there were only one or two imperial wars and no more serious conflicts. These two periods were sufficient to shift the correlations between the indicators of the frequency and seriousness of war from negative to positive, though technically such behavior is not inconsistent with some theoretical explanations for the hypothesized relationship. This case is significant because this pattern may be quite common for the superpowers in the future. There is no reason to expect that minor wars involving the superpowers with smaller states will disappear, and presumably there will be some periods in which there will be few of these. If the incalculable destructiveness of nuclear weapons and long-range delivery systems has significantly decreased the likelihood of a major war between the superpowers, the result would be numerous periods with few, or no, small wars and no particularly serious war. If this occurs, the expected inverse

relationship between the frequency and seriousness of war would become much weaker. All of this is highly conjectural, of course, because of the difficulty of predicting superpower behavior and because of the absence of a well-confirmed causal explanation for the observed empirical relationship in previous eras.

It would be interesting to speculate as to whether the observed relationship for great powers also applies to other states, but the inability to distinguish among the causal explanations complicates the analysis. Several of the theoretical arguments considered would seem to apply equally to all states. Smaller states are affected by resource constraints no less than are great powers, so the number and type of wars they fight should be affected in similar ways (though the maximum severity of their wars would be proportionately lower). Similarly, from an expected-utility perspective, the likelihood and therefore the frequency of war for smaller states should decrease as the anticipated severity of war becomes greater. Balance of power considerations, on the other hand, should be less likely to apply to smaller states, for balance of power theory is essentially a theory of great power behavior (Waltz 1979; Levy 1983:2-3). Whereas great powers have an important stake in maintaining the stability of the international system as a whole, the interests of smaller states tend to be confined to their immediate environment or perhaps their regional subsystem. To the extent that the frequency-seriousness relationship for great powers is affected by considerations such as the polarity of the system, the structure of the international alliance system, the safety valve effect of expansion on the periphery of the system, and the concern to prevent any single state from achieving a position of hegemony in the system, we would expect that the hypothesized relationship would hold to a much lesser extent for other states. We might also expect the relationship to be less valid for smaller states because they have historically had much less control over the overall seriousness of war than have the great powers. The outbreak of hegemonic wars, for example, is determined almost exclusively by the decisions of the great powers (according to most theories of hegemonic war). To the extent (which is not complete) that the seriousness of an individual state's involvement in war is affected by the overall seriousness of the war, its relationship with the frequency of war should be weaker for smaller states. Thus, we might expect that the hypothesized inverse relationship between the frequency and seriousness of war would be less valid for the smaller states than for the great powers.

Earlier we raised the possibility that a state that initiates a small war in the hope of avoiding a larger war later might find that the war inadvertently escalates and that such a war is then followed by a period of relative peace. Possibly some of the statistical support for the hypothesized inverse relationship between the frequency and seriousness of war has been provided by the occasional occurrence of this chain of events. This could be determined by

further research guided by an appropriate causal model. As it stands, however, this possibility, along with the more general absence of a causal explanation for our descriptive empirical generalization, makes us extremely hesitant to offer any definitive policy recommendations on the basis of this research. We certainly do not urge statesmen to consider initiating small wars in the hope of minimizing the likelihood of a more serious war in the future. Any such recommendation would have to be based on additional research that demonstrates that small wars can reduce the risk of larger wars in the future, specifies the conditions under which this occurs, identifies the types of small wars that have this effect, and evaluates the risks associated with such actions.

Notes

1. Blainey (1973:276) suggests that an adequate financial base and an "ability to sustain the kind of war envisaged" is very nearly a necessary condition for war.
2. Another factor weakening the hypothesized relationship is the fact that while a state's lack of resources may significantly reduce its proclivity to initiate a war, that same lack of resources increases the attractiveness of war for potential adversaries, perhaps to the point of military intervention. The first state still has the option, of course, of making sufficient concessions to avoid war or at least terminate it at an early stage.
3. We have stated this as a necessary and sufficient condition for war involvement. This differs from Bueno de Mesquita's (1981) familiar formulation, which specifies a necessary, but not sufficient, condition for war initiation. The difference arises because he compares the expected utility of war initiation to the expected utility of the status quo, not to all policy alternatives.
4. A more comprehensive argument along similar lines has been made in many of the more recent theories of hegemonic war. These arguments suggest that the occurrence of major war is the result of a combination of strategic, economic, and ideological factors, but the implication of these studies regarding the frequency-seriousness relationship remains the same. A summary and review of these theories can be found in Levy (1985).
5. Thompson (1962:473-474), Craig and George (1983:46), and others have made this argument explicitly with respect to the pre-World War I period.
6. The polarity of the system and the openness of the colonial frontier may combine interactively as well as additively to affect the frequency and seriousness of war. For an analysis of these interactive effects at the system level of analysis, see Morgan and Levy (1986).
7. The great powers included in this study and the dates of their inclusion in the system are: France, 1500-1980; England/Great Britain, 1500-1980; Austrian Hapsburgs/Austria/Austria-Hungary, 1500-1519, 1556-1918; Spain, 1500-1519, 1556-1808; Ottoman Empire, 1500-1699; United Hapsburgs, 1519-1556; Netherlands, 1609-1713; Sweden, 1617-1721; Russia/Soviet Union, 1721-1980; Prussia/Germany/West Germany, 1740-1980; Italy, 1861-1943; United States, 1898-1980; Japan, 1905-1945; China, 1945-1980.

8. The 50,000 battle death threshold (rather than, say, 100,000 or 10,000) was selected because it provides a distinctive intermediate measure between the total battle death and the number of general wars indicators. Employing this threshold captures about 10 percent of the total number of cases.

9. For our purposes, it is necessary to make some slight changes in Levy's earlier compilation of general wars. The French Revolutionary and Napoleonic wars will each be treated as a distinct general war (each individually satisfies the criteria), whereas in Levy's (1985) study, these wars were combined. Since the Thirty Years' War satisfies the criteria for a general war only after 1625, it will be treated as such only after that date.

10. Levy's battle death data for individual great powers are available, but they were not reported in his 1983 study.

11. Spearman's rho, rather than tau-b, is appropriate because there are few ties in the rank ordering of the cases on the variables.

12. There is another methodological problem that may bias our results in favor of the hypothesis and that concerns the independence of the measurements of the frequency and seriousness of war. A general or hegemonic war involves nearly all the great powers in the system and many minor powers as well, and there may be a tendency for some smaller wars to be defined as part of the larger general war. To the extent that this occurs, the result would be to reduce the number of smaller wars during periods of general war, thus artificially increasing the support for the hypothesis. We have tried to avoid this problem by identifying smaller wars independently of general wars unless they involve similar issues or coordinated military operations.

13. We refer to the statistical significance of our results, although we are dealing with an entire population rather than a random sample from that population. For a justification, see Hagood (1970).

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