

War Politics: An Economic, Rational-Voter Framework

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The frequency of foreign conflict initiations in the United States is found to be significantly greater following the onset of recessions during a president's first term than in other periods. We develop an economic theory of the political use of wars which links the election cycle, war decisions, and economic performance consistent with the observed relationships among these events. An incumbent leader with an unfavorable economic performance record may initiate a war to force the learning of his war leadership abilities and thus salvage, with some probability, his reelection. This obtains despite voter rationality and informational symmetry. (JEL D72, D74, H56)

The powerful idea that a leader may use his discretionary powers regarding economic affairs to secure reelection rather than to obtain the social good has long been a major concern for economists and political scientists.¹ Although political scientists have long recognized that leaders may use their discretionary powers for noneconomic policy matters, economists have generally restricted their attention to discretion in economic policy.² This, we believe, is an unnecessarily narrow framework for analysis. Discretion in dimensions other than economic policy may also be used by a political leader to effect his ultimate objectives.

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¹This problem was recognized at least as early as 1835 with Alexis de Tocqueville's *Democracy in America*. The pathbreaking work by Anthony Downs (1957) has provided a more recent impetus for study.

²William D. Nordhaus (1989) provides a recent survey.

Indeed, the reelection prospects of a leader are decided not only by the nation's macroeconomic performance, but by a combination of indicators which jointly affect social welfare.

In this paper, we explore the issue of politically motivated uses of discretion by concentrating on an additional decision in which leaders have considerable discretionary powers—the decision to engage in war. Hypotheses regarding the political use of force abound in the political-science literature.³ The major departure in our research is to focus upon the problems associated with discretionary power regarding war decisions in a unified economic framework. In doing so, we link the political use of discretionary war decisions to economic performance and the election cycle. Further, we illustrate that wars, in general, cannot be considered as exogenous events but may be linked to the structure of political institutions.

Our framework rests on a sharp classification of wars into potentially avoidable and unavoidable. We assume that when international conflicts arise they may be resolved

³Recent contributions include Barry M. Blechman and Stephen S. Kaplan (1978), Richard Stoll (1984), Charles W. Ostrom and Brian L. Job (1986), Bruce Russett (1990a), the conference proceedings in Bruce Bueno de Mesquita et al. (1991), Bueno de Mesquita and David Lalman (1992), Bueno de Mesquita et al. (1992), Diana T. Richards et al. (1993), and George W. Downs and David M. Rocke (1994).

peacefully or with war. Most often, wars can be avoided if the leader of the country so chooses; with some probability, however, war is unavoidable. Further, the welfare costs of war are stochastic and depend on the leader's abilities. Some leaders may have innate skills that give them a distinct advantage in handling a war. Consequently, since unavoidable wars may occur in the future with positive probability, voters prefer leaders with proven superior wartime abilities.

The ability to handle wars, of course, is not the only leader attribute of importance to the public. We assume that two main criteria affect their votes: first, the incumbent government's competency in handling the economy and, second, the incumbent government's competency in handling foreign policy and wars. If a war has not occurred during a leader's stay in office, however, no distinguishing information can separate the war-handling ability of the incumbent leader from that of the opposition. Thus, voting decisions can be based only upon the handling of the economy. Since war serves the unfortunate secondary purpose of a signaling device, the *discretionary* power to wage war gives the incumbent leader the option of forcing the learning of his war-handling ability.

Consequently, an incumbent leader facing poor reelection prospects due to the revelation of his incompetency in handling domestic economic affairs has the incentive to exercise the war option for his political advantage. Whereas in the absence of war his defeat may be inevitable, the revelation of a sufficiently good war-handling ability may lead to the leader's reelection by reducing the expected costs of the public of a possible future unavoidable war.

The welfare loss associated with the leader's abuse of discretion for political gain has been called "the cost of democracy."⁴

Of course, there is no reason why the welfare costs from discretion should be restricted to democracies. From a leader's point of view, a military overthrow may be essentially similar to electoral defeat. We explicitly restrict our attention to democracies, however, for two reasons.

The first is to emphasize that discretion can potentially have severe public welfare consequences *even in democratic regimes*. The second reason is practical. The American democracy provides, perhaps, the simplest model to examine. A popular election determines the leader, election intervals are fixed, and there is a two-term tenure limit on presidents. By contrast, in nondemocratic regimes we would need to incorporate explicitly the mechanism determining the possibility of overthrow for incumbent governments.

The model's fundamental prediction is that potentially avoidable wars may occur when the domestic performance of a leader who seeks reelection is poor. Under the assumption that the probability of unavoidable armed conflict is independent of the business and election cycles, if all conflicts were unavoidable, then the probability of engaging in conflict should be uniform over the business and election cycles. By contrast, if some conflicts were potentially avoidable, as predicted by the model, the observed frequency of war initiation should be higher when the economy is doing poorly during terms when the leader can seek reelection than during other periods.

We test the model's implications using annual U.S. data on the presidential election cycle, conflict initiations and escalations as dated by the International Crisis Behavior (ICB) Project, and the business cycle as dated by the National Bureau of Economic Research (NBER) for the time period 1953–1988. The data are supportive of the model's predictions. We estimate that, when the president cannot seek reelection or the economy is not in a recession, the probability of war initiation in a year is about 30 percent. By contrast, the probability significantly increases to over 60 percent when both the economy is doing poorly *and* the president is up for reelection. These

⁴See Alex Cukierman and Allan H. Meltzer (1986 p. 368). Note, however, that our framework contradicts the identification of the cost of discretion in democracies as being due to informational asymmetries. Rather, discretion regarding merely *the timing of learning of information* suffices to create an inefficiency.

results appear to be robust to the choice of other indicators of economic performance, such as GDP growth and changes in the unemployment rate. We also find that historical evidence back to 1897 is also consistent with the theory.

I. A Model of War Choice

A. Voter and Leader Objectives

The nation consists of a large number of (*ex ante*) identical citizens who serve as voters and potential leaders. Leader candidates are drawn at random from the ranks of voters. Elections are either between two new candidates (following a leader who cannot seek reelection) or between an incumbent leader and a new candidate. The time unit for the model is the interval between elections.

Voters are risk-neutral and rational.⁵ They vote to maximize their welfare, W_t :

$$(1) \quad W_t = E_t \sum_{s=t}^{\infty} \theta^{s-t} c_s.$$

Here, c denotes consumption and θ the discount factor, $0 < \theta < 1$.

Leaders maximize a convex combination of public welfare and the rent they receive from holding office, $x > 0$. The maximum stay in office is two terms. Thus the leader's welfare is

$$(2) \quad V_t = (1 - \rho)W_t + \rho(x + \theta x \pi_t).$$

Here ρ , $0 \leq \rho \leq 1$, is a measure of the leader's selfishness common to all leaders. If leaders are unselfish they care only about the public's welfare, and $\rho = 0$. If, on the other hand, leaders are selfish they assign relatively more value to their stay in office,

⁵Risk-neutrality significantly reduces the model's complexity. If voters were risk-averse, the resolution of uncertainty resulting from the forced learning of the leader's war-handling ability might provide yet another reason for avoidable wars. We exclude so-called "irrational" motives linking voting behavior to wars such as the "rally around the flag" effect.

and ρ is large. The variable π_t is the probability as of time t of being in office in the next period, $t + 1$. Since the leader is not allowed to seek reelection after his second term, π_t equals zero if t reflects the leader's second term in office. Otherwise, π_t is endogenously determined.

Consumption, c , depends on two idiosyncratic characteristics of the leader, γ and δ . The leader's ability to manage the economy is measured by γ . If no war occurs during a term, then consumption equals γ . The leader's ability to manage a war and minimize its costs is measured by δ . If a war occurs during a term then consumption equals $\gamma + \delta$.⁶

We assume that the two characteristics $\{\gamma, \delta\}$ are drawn independently from the continuously differentiable fixed distribution functions G and D , respectively. By assumption, peacetime consumption/utility, γ , is nonnegative with mean $\bar{\gamma}$ and support $(0, \Gamma)$, while the contribution from war, δ , is nonpositive with mean $\bar{\delta}$ and support $(-\Delta, 0)$. The assumption about δ effectively rules out the possibility that wars may be welfare-improving to the public. By restricting wars to be welfare-reducing with probability 1, we can focus on the pure informational motive for initiating avoidable wars.⁷

⁶If the costs and benefits of a war are realized long after the war is over, δ can be interpreted as the expected present discounted cost of the war. Identifying the components of consumption (and therefore utility) with the characteristics of the leader is only for notational economy. Of importance is that the two components of utility depend on characteristics that are unknown prior to the leader's election.

⁷The possibility that war could be welfare-improving, given the behavior of other countries, has received considerable attention. This approach has proved fruitful for understanding arming and military expenditures (see e.g., Michael Intriligator, 1975; Michelle R. Garfinkel, 1990, 1992; Herschel Grossman, 1991). Although it predicts occasional war outbreaks, this literature concentrates on the allocation of productive resources between productive efforts and appropriative efforts and does not provide a link between wars and election cycles. The assumption of nonbeneficial wars can be relaxed at a cost to notational and analytical simplicity. If wars are simply nonbeneficial in expected value, the thrust of our argument remains.

Information is symmetric to candidates/leaders and voters.⁸ Specifically, the potential leader's characteristics are unknown to both the voters and the leader before being put into use. After being elected for the first time, a leader tackles the problems of the domestic economy, and γ is costlessly revealed to all players. The characteristic δ , on the other hand, becomes known both to the leader and the voters only if a war breaks out.

B. Wars, Elections, and the Timing of Events

International conflicts arise frequently, but war may often be averted. With probability $\alpha > 0$, however, an unavoidable war may occur in any period. If an unavoidable war does not occur, a leader has the option of initiating an avoidable one. Whether a leader exercises this opportunity is determined endogenously.

To be specific about the timing of events, consider what happens after an election in term t . We can identify up to five events within an election cycle as shown in Table 1A.⁹ By assumption, the leader's characteristics are unknown before he takes office but are learned and remain fixed once he takes office (for γ) and once he enters a war (for δ). The result of an election between an incumbent and a new candidate can be determined with certainty once the relevant information about the incumbent is learned.

II. Optimal Strategies

In this section, we provide the solution to the model. Central to the analysis is the

TABLE 1—TIMING AND NOTATION FOR THE MODEL

A. Timing of Events	
Term t :	
0	Election is held.
1	Voters learn γ of elected leader (unless known from prior term).
2	With probability α an unavoidable war occurs.
3	If an unavoidable war has not occurred, the leader decides whether to start a war.
4	If a war has occurred, δ is learned (unless known from prior term).
5	Consumption occurs: γ if no war, $\gamma + \delta$ if war. Leader realizes rents x .
Term $t + 1$:	
0	Election is held.
B. Notation Guide	
Symbol	Definition
α	Probability of unavoidable war
β	Probability of avoidable war with recession in first term
γ	Leader's domestic handling ability characteristic
δ	Leader's war-handling ability characteristic
ρ	Leader's selfishness factor
θ	Discount factor
c	Consumption
x	Leader's rent from holding office
γ_*	Smallest γ potentially leading to an avoidable war
γ^*	Smallest γ sufficient for reelection in the absence of war
$\bar{\delta}^c$	Expected δ conditional on war and reelection occurring
π	Probability of reelection
π^c	Probability of reelection conditional on war
$W(\gamma)$	Public's welfare associated with a new leader of type γ
\bar{W}	$E_\gamma W(\gamma)$
V	Leader's welfare
V^w	Leader's welfare if war occurs
V^n	Leader's welfare if no war occurs

⁸This is a major simplification. Kenneth Rogoff and Anne Sibert (1988), and Rogoff (1990), among others, show that politically motivated economic decisions may result when the incumbent government has private information. In the present model, informational asymmetry is not necessary to motivate politically driven decisions.

⁹Within a period, events 2 and 3 need not be separated in real time. As will become apparent later, whether voters can distinguish between potentially avoidable and unavoidable wars is immaterial.

expected welfare associated with the election of a new leader. Since nothing is known about the characteristics of new leaders other than the distribution they are drawn from, the expected public welfare associated with the election of a new leader is the same for each possible candidate. We denote this welfare by \bar{W} and derive the

optimal strategies of voters and leaders by solving this problem recursively.

A. *Lame Ducks*

Consider first the problem faced by an incumbent serving his second and therefore last term. If an unavoidable war has not already occurred, he faces the decision of perhaps starting an avoidable one. Would he ever do so?

PROPOSITION 1: *A leader who cannot seek reelection never starts an avoidable war.*

The intuition is simple. Forcing the learning of δ (the implicit goal of entering an avoidable war) is of no value to the leader if his reelection is impossible. Denoting the incumbent's characteristics with i , his welfare is $V^w = (1 - \rho)(\gamma^i + \delta^i + \theta \bar{W}) + \rho x$ if war occurs and $V^n = (1 - \rho)(\gamma^i + \theta \bar{W}) + \rho x$ if it does not. Clearly $V^n > V^w$.

B. *Successful Reelections*

Next we derive the conditions under which an incumbent is reelected for a second term. Let W^i be the expected welfare for a voter if an incumbent is reelected. Since \bar{W} is the expected discounted present value in all future periods associated with the election of a new leader, the incumbent will remain in office if and only if $W^i \geq \bar{W}$.¹⁰ By Proposition 1, only unavoidable wars occur during a leader's second term. By the term limit, a new leader must follow after the second term. Thus reelection yields the expected level of consumption $\gamma^i + \alpha \delta^i$ plus the discounted expected welfare, $\theta \bar{W}$, associated with the election of a new leader. Therefore, $W^i = \gamma^i + \alpha \delta^i + \theta \bar{W}$, and the following obtains.

PROPOSITION 2: *Voters will reelect an incumbent leader if and only if $\gamma^i + \alpha \delta^i \geq \bar{W}(1 - \theta)$.*

¹⁰At the indifference threshold, $W^i = \bar{W}$, we assume that the incumbent is reelected.

The crucial element is that, since voters are forward looking, the occurrence of a war during the incumbent's first term does not influence their voting decision in any way other than the revelation of the incumbent's true δ^i .¹¹ The cost of the first term war per se is irrelevant for the decision except for its information content regarding the cost of a potential war in the leader's last term.¹²

C. *The Incumbent's First-Term War Decision*

If an unavoidable war occurs during the leader's first term, both δ^i and γ^i become common knowledge, and voters decide whether or not to reelect the incumbent in accordance with Proposition 2. However, conditional on an unavoidable war *not* having occurred, the incumbent leader has the option of initiating one. A war will be beneficial to the incumbent leader only if his defeat is imminent in the absence of war *and* only if the probability of reelection following a decision to initiate a war is positive. If both conditions are satisfied, the leader may be willing to trade the sure loss of public welfare during his first term which results from a war for the expected rents he will receive if reelected.

¹¹Note, however, that naive retrospective behavior instead of the rational retrospective behavior assumed here could be observationally equivalent. (See Morris P. Fiorina [1981] for a discussion of the alternatives.) Naive retrospective voters can be described as scoring incumbents using the reward-punishment function $r(\gamma, \delta)$ and reelecting an incumbent with performance $\{\gamma^i, \delta^i\}$ if $r(\gamma^i, \delta^i) \geq \bar{r}$ for some \bar{r} . By Proposition 2, this is observationally equivalent to rational voting if $r(\gamma, \delta) = \gamma + \alpha \delta$ and $\bar{r} = \bar{W}(1 - \theta)$.

¹²Further, whether the war was avoidable or not is irrelevant for voters since it does not affect the expected future performance of the incumbent. Therefore, whether voters can distinguish between avoidable and unavoidable wars is immaterial. If voters could follow the strategy of punishing incumbents for past wars, the ability to distinguish between avoidable and unavoidable conflicts would be significant. Such a strategy, however, is not subgame perfect and cannot be supported in equilibrium with rational voting.

First, we examine under what conditions the incumbent leader would lose his reelection bid in the absence of war. Let

$$(3) \quad \gamma^* \equiv \bar{W}(1 - \theta) - \alpha \bar{\delta}.$$

Without war, voters are unable to update their priors from the mean of the distribution, $\bar{\delta}$. Thus, by Proposition 2, a leader will lose reelection only if his economic performance has been sufficiently poor (i.e., $\gamma^i < \gamma^*$). If instead $\gamma^i \geq \gamma^*$, not initiating a war ensures reelection.¹³

Next, we examine the opposite set of circumstances, in which the leader's economic performance has been so terrible that even the best war outcome ($\delta = 0$) will not result in his reelection. Let

$$(4) \quad \underline{\gamma} \equiv \bar{W}(1 - \theta).$$

By Proposition 2, if $\gamma^i < \underline{\gamma}$ even the best realization for δ results in electoral defeat. As a result, we can restrict considerably the region of possible realizations of γ over which the decision to initiate an avoidable conflict remains relevant.

PROPOSITION 3: *Incumbent leaders with $\gamma^i < \underline{\gamma}$ or $\gamma^i \geq \gamma^*$ never start an avoidable war.*

Finally, we examine the war decision when it can potentially improve the incumbent leader's probability of reelection, when $\underline{\gamma} < \gamma^i < \gamma^*$. Let $\delta^c(\gamma^i) \equiv [\bar{W}(1 - \theta) - \gamma^i]/\alpha$. By Proposition 2, the incumbent leader will be reelected after a war if and only if $\delta^i \geq \delta^c(\gamma^i)$.¹⁴ Thus the probability of reelection

conditional on war is $\pi^c(\gamma^i) \equiv 1 - D(\delta^c)$. Further, let his expected war-handling characteristic, conditional on his being reelected as a result of a war and on γ^i , be

$$\bar{\delta}^c(\gamma^i) \equiv \frac{1}{\pi^c} \int_{\delta^c}^0 \delta dD(\delta).$$

Then, the incumbent leader's expected utility from going to war is

$$(5) \quad V^w = (1 - \rho) \left[\gamma^i + \bar{\delta} + (1 - \pi^c) \theta \bar{W} \right. \\ \left. + \pi^c \theta (\gamma^i + \alpha \bar{\delta}^c + \theta \bar{W}) \right] \\ + \rho(x + \pi^c \theta x).$$

If he does not go to war and is subsequently defeated at the polls, his utility is

$$(6) \quad V^n = (1 - \rho)(\gamma^i + \theta \bar{W}) + \rho x.$$

If $V^w > V^n$, war is preferable to peace for the leader. Clearly, the outcome depends not only on the leader's domestic performance, γ^i , but also on his priorities regarding the social good, ρ . From equations (5) and (6), for $\gamma^i \in (\underline{\gamma}, \gamma^*)$:

$$(7) \quad V^w - V^n = \rho \pi^c \theta x \\ + (1 - \rho) \{ \bar{\delta} + \pi^c \theta [\gamma^i + \alpha \bar{\delta}^c - (1 - \theta) \bar{W}] \}.$$

If $\rho = 1$, then $V^w - V^n$ is positive, and war is preferable to peace for the leader whenever $\gamma^i \in (\underline{\gamma}, \gamma^*)$. At the other extreme, if $\rho = 0$, then $V^w - V^n$ is negative for all $\gamma^i \in (\underline{\gamma}, \gamma^*)$, and avoidable wars never occur.¹⁵ Define γ_* such that $\gamma_* = \underline{\gamma}$ if $(V^w - V^n)(\gamma^i) > 0 \forall \gamma^i \in (\underline{\gamma}, \gamma^*)$; $\gamma_* = \gamma^*$ if $(V^w - V^n)(\gamma^i) < 0 \forall \gamma^i \in (\underline{\gamma}, \gamma^*)$; and γ_* is the unique zero of $(V^w - V^n)(\gamma^i)$ in $(\underline{\gamma}, \gamma^*)$ otherwise.¹⁶

¹³Note that our model has an endogenous incumbency advantage in that voters prefer an incumbent of average economic ability over a new leader, everything else equal, because incumbents have no incentive to start avoidable wars in their second terms ($\gamma^* < \bar{\gamma}$).

¹⁴Note that "winning" the war may be insufficient for reelection if by winning we mean simply a better than average performance, $\delta > \bar{\delta}$. The leader must instead "beat the spread" as defined by δ^c . The worse his domestic handling characteristic, γ^i , the larger is the spread that must be covered for reelection.

¹⁵Using the definition of δ^c to eliminate \bar{W} , $V^w - V^n = \bar{\delta} + \pi^c \theta \alpha (\bar{\delta}^c - \delta^c)$ when $\rho = 0$. Recall that, for $\gamma^i < \gamma^*$, $\bar{\gamma} < \delta^c < \bar{\delta}^c < 0$. Since $\pi^c \theta \alpha \in (0, 1)$, $V^w - V^n < \bar{\delta} + (\bar{\delta}^c - \delta^c) = (\bar{\delta} - \delta^c) + \bar{\delta}^c < 0$.

¹⁶Differentiation of equation (7) indicates that $V^w - V^n$ is an increasing function of $\gamma^i \in (\underline{\gamma}, \gamma^*)$. Thus, if a zero exists in $(\underline{\gamma}, \gamma^*)$, that zero is unique.

PROPOSITION 4: *Provided an unavoidable war does not occur, incumbent leaders will start an avoidable war during their first term if and only if $\gamma_* < \gamma^i < \gamma^*$.*

Proposition 4 is the central result of the model. As long as leaders are sufficiently selfish so that $\gamma_* < \gamma^*$, a leader who proves to be relatively incompetent in handling the domestic economy during his first term may find war initiation optimal as a means of potentially salvaging his reelection.¹⁷

Having determined voter choices and the incumbent's war decision conditional on the welfare expected to materialize in the future after the election of a new leader, \bar{W} , we can complete the characterization of the solution by utilizing the optimal strategies to solve for the equilibrium \bar{W} .¹⁸

III. Wars, Recessions, and Elections

To examine the empirical content of the theory, we formulate our central result in terms of the observed frequency of wars in relation to the business and election cycles. Let "first term" denote a term in which a leader is eligible to seek reelection. Furthermore, let "recession" be the state of the economy associated with a lower than average economic performance, $\gamma < \bar{\gamma}$.

If the economy is not in a recession, or a leader is not serving his first term, only unavoidable wars occur, and the probability of war is simply α . If a leader serves in his first term and his economic performance is below average, however, avoidable wars may occur as well. The probability of war is

$\alpha + \beta$, where β can be calculated using Proposition 4:

$$(8) \quad \beta = (1 - \alpha)[G(\gamma^*) - G(\gamma_*)]/G(\bar{\gamma}).$$

This leads to our central prediction:¹⁹

Wars occur with greater frequency following the onset of recessions during first terms.

There are two interesting limiting cases when $\beta = 0$. First, the presence of unavoidable wars may crowd out avoidable wars. If $\alpha = 1$, a leader's war-handling ability is always revealed regardless of his intentions. Second, if $\alpha = 0$ then $\gamma_* = \gamma^*$. Without the perceived threat of unavoidable wars, a leader's war-handling ability, however great, is useless to the electorate. Provided $\alpha < 1$ and $\gamma_* < \gamma^*$, however, $\beta > 0$.

IV. Wars and Election Cycles in the United States

A. The Empirical Literature on Wars

Many attempts have been made to uncover a predictable element in the timing or frequency of wars. Closely related to our study is the research that attempts to explain the outbreak of wars for the United States using political and socioeconomic data. Stoll (1984) analyzes the impact of visible military force on U.S. elections from 1947 to 1982. He finds that presidents may attempt to gain a "rally around the flag" effect by engaging in the visible use of force during reelections. Ostrom and Job (1986) examine biannual, post-World War II data for the United States and find that the propensity to use major force is significantly

¹⁷ Interestingly, leaders need not be ideal, $\rho = 0$, in order to be "sufficiently unselfish" for avoidable wars never to occur. Let $\phi(\rho)$ be the continuous function of $\rho \in [0, 1]$ defined to equal $V^w - V^n$ evaluated at $\gamma^i = \gamma^*$. The value of ρ defining "sufficiently unselfish" corresponds to the smallest root of $\phi(\cdot)$. [Since by construction $\phi(0) < 0$ while $\phi(1) > 0$, a root exists.] As long as leaders care sufficiently for the common good, they will never resort to entering a potentially avoidable war and will lead a country to war only when war is unavoidable.

¹⁸ A proof is available from the authors upon request.

¹⁹ Two auxiliary predictions are that wars occur with greater frequency following the onset of recessions and that wars occur with greater frequency during first terms. Although neither reelections nor recessions are alone sufficient to trigger the leader into engaging the nation in a potentially avoidable war, their interaction may be. This differentiates our model both from theories that relate wars only to the business cycle and from theories that relate wars only to the election cycle.

related to an "economic misery" index.²⁰ Finally, Russett (1990b) finds that U.S. participation in the initiation or escalation of a dispute is negatively related to the two-year lag of real GDP growth and positively related to a presidential-election-year dummy variable.

Empirical work in economics generally treats wars as exogenous events examined primarily because of their possible casual effect on employment and output growth. Robert J. Barro (1981), for example, uses annual data on wars from 1889 to 1978 to identify the transitory component of government purchases, in order to examine its effect on output. Of particular interest is the recent examination of voting patterns in U.S. presidential elections by Alberto Alesina et al. (1993). After controlling for the effect of military mobilizations on output, they uncover an additional effect of mobilizations on voting behavior which they interpret as a "rally around the flag effect."

In contrast to our framework, however, these studies do not examine the joint interaction between economic performance and the presidential election cycle in influencing the decision to use force. We therefore present empirical evidence on the significance of their interaction.

B. Definitions and Data

The model's prediction of an increased frequency of wars following recessions during first terms is tested using annual data for the United States. We formulate our tests at the annual frequency, rather than at the four-year (or term) frequency for the following reasons. First, the number of data points at the term frequency is quite small. Second, the deaths and resignations of presidents during a term result in terms of unequal length, which complicates the analysis at the term frequency. Third, in many instances a president's term is characterized by multiple wars and conflicts. This presents a difficulty since the model treats each term

as one period with just one conflict being possible. Further, the model assumes that a president's economic handling ability is perfectly observed right after he takes office and that his military handling ability is perfectly observed after the start of a war. We recognize, however, that voters observe noisy signals of a government's true characteristics, and that these signals may be updated more than once during a term. For example, if a first-term president facing an economic downturn early during his term were to fail in a military adventure, he might engage in an additional conflict. An analysis of the data at the term frequency would conceal this aspect of the data.

Our definition of war, constructed from the ICB Project, is as follows:²¹

Definition A war is an international crisis in which the United States is involved in direct military activity that results in violence.

We code WAR = 1 if an initiation or escalation of a war took place during a year, and zero otherwise. In doing so, consistent with the literature cited earlier, we choose to avoid issues regarding the length and termination of a war and concentrate instead on the instances in which an identifiable decision was taken either to start or significantly escalate an incident.²² Therefore, we focus our analysis on aspects of war that are more within the decision-maker's power to control, namely, the initiation or escalation of a conflict.²³ For comparison, we also present

²¹To resolve any queries about the events, we provide a chronology in the Data Appendix. There, we also provide a description of the ICB criteria for *international crisis* and *direct military activity*.

²²For example, Melvin Small and J. David Singer (1982) rank international conflicts according to severity, magnitude, and intensity. Since our model does not consider these qualitative dimensions of war, we have chosen to concentrate on the initiation or escalation of a conflict. Our model implicitly includes differences in size and duration among the stochastic factors determining the final welfare consequences of a war.

²³The exact timing of the end of a war is of particular interest in this aspect because its control, though imperfect, may also be based on political considerations. An interesting example of this is provided by Edward R. Tufte (1978 p. 55 [footnote 25]).

²⁰See, however, James Oneal and Bradley Lian (1992) for a critical reexamination.

results using an alternative definition of WAR which includes the continuation of war as well.

To define the variable RECESSION, we consider several macroeconomic variables and public-opinion data. Using these series as domestic-performance indicators, we then identify the years when the performance of the president can be characterized as below average.

The first recession measure we construct uses dates for economic peaks and troughs as determined by the NBER chronology. Since we examine annual data, we follow David Bizer and Steve Durlauf (1990) and construct the dummy variable NBER to equal 1 if six months of the year were designated part of a recession, and zero otherwise.

Alternatively, we use three measures of real economic activity as indicators of economic performance: the growth in real GNP, ΔRGNP , the growth in the index of industrial production, ΔIP ; and the negative of the change in rate of civilian unemployment, $-\Delta\text{UN}$. As a final indicator of performance we use the presidential approval rating from Gallup Poll survey data, APPROVAL .²⁴ For each of the four indicator variables used, ΔRGNP , ΔIP , $-\Delta\text{UN}$, and APPROVAL , we identify the years in which performance was "worse than average" in two ways: first, by comparing the value of the variable to its mean over the sample period; second, by comparing the value of the variable to its average over the previous eight years. With the latter, the standard to which a president's recent economic performance is measured can evolve through time. This eliminates the effect of low-frequency movements in the variables (which are unlikely to be related to the performance of individual presidents) from the determination of below-average performance.

²⁴ Public-opinion data have been used extensively as indicators in earlier studies. Recent studies include Thomas Hartley and Russett (1992), who examine the relationship between public opinion and military expenditures, and Lian and Oneal (1993), who examine the "rally around the flag" effect.

For each of the resulting indicators we define RECESSION = 1 in a year if performance was below average in the previous year, and zero otherwise. Using lagged data to identify RECESSION has the benefit that it requires recessions to lead wars, an important aspect of our model.²⁵ In addition, to avoid associating the first year of a new administration with the poor economic performance of the prior president, we set RECESSION = 0 for the first year of a new administration regardless of the economic conditions in the previous year.

To account for the presence of the reelection motive, we define the variable TERM to equal 1 in years during terms in which a president can seek reelection, and zero during years in which a president is a lame duck. Finally, we define the events WAR, RECESSION, and TERM to occur in a year if the corresponding variable is equal to 1 during the year.

C. Nonparametric Statistical Evidence: 1953–1988

In this section we use a nonparametric approach to test for the increased frequency of wars during periods when a president is seeking reelection and the economy's performance has been weak. Since the sample size is small, we employ Fisher's exact test to determine the strength of the association between the events.²⁶ This nonparametric approach has a distinct advantage over a parametric approach in that it does not require additional distributional assumptions that may be poor approximations in

²⁵ However, using only lagged data may exclude incidents in which the reelection motive may be operative on wars within the same calendar year as a recession. We report results using both current and lagged data in footnotes 28 and 32, and in a supplemental appendix (available from the authors upon request).

²⁶ Fisher's exact *right-tailed test* calculates the probability of observing a 2×2 contingency table that gives as much evidence of *positive* association between two variables as the one actually observed, conditional on the null hypothesis of independence. For a detailed discussion, see Maurice Kendall and Alan Stuart (1979).

TABLE 2—PROBABILITY OF WAR: 1953–1988

Variable for RECESSION	$\hat{\alpha} + \hat{\beta}$	$\hat{\alpha}$	p value
NBER	1.000	0.364	0.064
RGNP (mean)	0.700	0.307	0.039
RGNP (MA-8)	0.667	0.333	0.087
IP (mean)	0.625	0.357	0.171
IP (MA-8)	0.667	0.333	0.039
– UN (mean)	0.667	0.333	0.087
– UN (MA-8)	0.700	0.307	0.039
APPROVAL (mean)	0.500	0.393	0.441
APPROVAL (MA-8)	0.583	0.333	0.141

Notes: As explained in the text, $\hat{\alpha}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION})^c)$; $\hat{\alpha} + \hat{\beta}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION}))$; p values correspond to Fisher's exact right-tailed test for $\beta = 0$. Mean and MA-8 indicate whether a variable is compared to its sample mean or an eight-year moving average for defining RECESSION.

small samples and is not subject to model misspecification.²⁷

The data sample examined in this section covers the time period from President Dwight Eisenhower through the final term of President Ronald Reagan. We begin our analysis in 1953 because prior to this year the United States Constitution did not prohibit a new president from holding office for more than two full terms. Although historically only one president has ever held office for more than two full terms (Franklin Roosevelt), our exclusion of pre-1953 data makes identification of a reelection motive less ambiguous. We return to pre-1953 data in the next section. The data set ends in 1988 since this is when the most recent edition of war dates from Michael Brecher et al. (1988) is currently available.

In Table 2, we test the hypothesis that WAR is independent from $(\text{TERM} \cap \text{RECESSION})$ against the alternative hypothesis of *positive* association. The first column specifies the particular RECESSION definition we are using to test the hypothesis. The second and third columns present the observed frequency of the event WAR, conditional on the occurrence of the

event $(\text{TERM} \cap \text{RECESSION})$, and of its complement, respectively. The former provides an estimate of $\alpha + \beta$, while the latter provides an estimate of α . The fourth column reports the significance levels (p values) associated with the test of the hypothesis of no association between WAR and $(\text{TERM} \cap \text{RECESSION})$ against the alternative of positive association.

Despite the small number of observations and the low power associated with this nonparametric test, the data reject the independence of WAR and $(\text{TERM} \cap \text{RECESSION})$. The rejection of the statistical independence of WAR and $(\text{TERM} \cap \text{RECESSION})$ in favor of positive association between these events seems robust across measures of economic activity.²⁸ Using APPROVAL, the results are not statistically significant.

The conditional frequency of WAR is typically more than twice as great when the event $(\text{TERM} \cap \text{RECESSION})$ occurs relative to when it does not—approximately 60 percent versus 30 percent. From this, the additional probability of war when the event $(\text{TERM} \cap \text{RECESSION})$ occurs, β , is approximately 30 percent. Subject to the strict

²⁷ The drawback is smaller power against the alternatives. In a supplemental appendix (available from the authors upon request) we also provide estimation and testing based on a parametric model.

²⁸ In addition, if we let RECESSION = 1 when six months of either the current or past year are classified by the NBER to have been recession months, the p value is 0.035.

TABLE 3—ALTERNATIVE DEFINITION OF WAR: 1953–1988

Variable for RECESSION	$\hat{\alpha} + \hat{\beta}$	$\hat{\alpha}$	p value
NBER	1.000	0.455	0.114
RGNP (mean)	0.700	0.423	0.132
RGNP (MA-8)	0.667	0.444	0.222
IP (mean)	0.625	0.464	0.345
IP (MA-8)	0.667	0.444	0.222
– UN (mean)	0.667	0.444	0.222
– UN (MA-8)	0.700	0.423	0.132
APPROVAL (mean)	0.625	0.464	0.345
APPROVAL (MA-8)	0.750	0.375	0.075

Notes: Here, WAR is defined as the initiation, escalation, or continuation of a conflict. As before, $\hat{\alpha}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION})^c)$; $\hat{\alpha} + \hat{\beta}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION}))$; p values correspond to Fisher's exact right-tailed test for $\beta = 0$. Mean and MA-8 indicate whether a variable is compared to its sample mean or an eight-year moving average for defining RECESSION.

classification of conflicts as being either avoidable or unavoidable, our estimates suggest that perhaps half of the wars initiated or escalated during first-term presidencies during or soon after the onset of recessions may have been avoidable.

If we define WAR to include the continuation of a conflict as well, the results are somewhat weaker (see Table 3). For the time period considered, this definition codes three more years during the Vietnam conflict as WAR. Even though the conditional frequency of WAR when the event $(\text{TERM} \cap \text{RECESSION})$ occurs continues to be much higher (approximately 60 percent versus 40 percent), the results using the economic indicators become less significant. Interestingly, using the APPROVAL indicator, the results strengthen as compared to those in Table 2.

Another relevant empirical issue is whether the motives for entering an avoidable war are more operative as the election year approaches relative to the early period after an election. Empirical work originating with Ray C. Fair (1978) suggests that over this period, macroeconomic performance following an election is not an important factor for the outcome of the following election, while the macroeconomic performance closer to the election is. In terms of our hypothesis, the motive for entering an avoidable war is its information value for evaluating an incumbent's likely

performance in case of reelection. If wars late in a term are more useful than wars early in a term in this regard because they are closer to the second term, then the motive for avoidable war would be stronger closer to elections. To this end, we recompute the relative frequencies of WAR using only data for election and preelection years.²⁹ The results, presented in Table 4, suggest that the difference in the frequency of war between years when the event $(\text{TERM} \cap \text{RECESSION})$ occurs and years when it does not is larger when only election and preelection years are examined. The estimated frequency of war when the president is running for reelection and the economy is in a recession is typically 3–4 times as large than it is otherwise (approximately 70 percent versus 20 percent), and these differences in the observed frequency of war are statistically significant.

D. Additional Historical Evidence

To the extent that the two-term limit on presidential service was honored by U.S. presidents prior to 1953, our theory would suggest a similar relationship among WAR, TERM, and RECESSION in the period

²⁹ We report the results using just election years in a supplemental appendix (available from the authors upon request).

TABLE 4—ELECTION AND PREELECTION YEARS ONLY: 1953–1988

Variable for RECESSION	$\hat{\alpha} + \hat{\beta}$	$\hat{\alpha}$	p value
NBER	1.000	0.267	0.043
RGNP (mean)	0.714	0.182	0.039
RGNP (MA-8)	0.714	0.182	0.039
IP (mean)	0.667	0.250	0.117
IP (MA-8)	0.667	0.250	0.117
– UN (mean)	0.714	0.182	0.039
– UN (MA-8)	0.714	0.182	0.039
APPROVAL (mean)	0.500	0.300	0.352
APPROVAL (MA-8)	0.600	0.125	0.057

Notes: War is defined using the definition given in the text. As before, $\hat{\alpha}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION})^c)$; $\hat{\alpha} + \hat{\beta}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION}))$; p values correspond to Fisher's exact right-tailed test for $\beta = 0$. Mean and MA-8 indicate whether a variable is compared to its sample mean or an eight-year moving average for defining RECESSION.

prior to 1953 and in the 1953–1988 period. Thus, in this section, we examine a broader time span which covers the time period from President William McKinley through the end of Ronald Reagan's second term. We begin in 1897 because, prior to the McKinley presidency, a government could potentially signal its war ability by engaging in domestic armed conflicts with Indian tribes.³⁰ We obtain additional war dates for the 1971–1952 time period from the ICB project. For war dates prior to 1917, we applied the ICB criteria used for the 1917–1988 war dates to earlier international crises identified by Small and Singer (1982). For constructing a RECESSION indicator, however, data availability limits our examination to NBER, and Δ RGNP.

The 1897–1988 period can be broadly classified into three regimes based on the propensity of the United States to engage in armed international conflicts. First, prior to World War I, the main focus of the United States' foreign policy was the implementation of the Monroe Doctrine. Among other

things, this included the exclusion of European powers from the Western Hemisphere. Second, the years between the two world wars were characterized by a reduction in threats to the United States' vital interests, as the military capabilities of the European powers were greatly diminished after World War I. We classify the years 1919–1941 as isolationist years. These years reflect a sharp withdrawal by the United States from world politics after its involvement in the Russian Revolution at the conclusion of World War I to the attack on Pearl Harbor which forced the end of its isolation. Finally, the post-World War II era of U.S. foreign policy (to 1988) was characterized by the Truman doctrine of containing communism and Soviet influence. The advent of the Cold War era clearly returned the perception of a threat to U.S. interests to a level higher than during the interwar period.

Table 5 presents the results for the period 1897–1988. The top panel reveals that there is a positive association between WAR and $(\text{TERM} \cap \text{RECESSION})$ for the entire sample, although at a smaller level of statistical significance as compared to 1953–1988. However, the unconditional frequency of war during the isolationist period is 0.043 as compared to 0.406 for the nonisolationist periods. According to Fisher's exact test, the hypothesis of no shift in the unconditional frequency of war is rejected at below the

³⁰Specifically, the last major conflict between an Indian tribe and U.S. troops occurred as late as 1890 in the Battle of Wounded Knee. Small and Singer (1982) list 1862, 1876, and 1890 as the start of three major Indian wars during 1854–1897. Of these, all there were preceded by a recession, and 1862 and 1890 were years of first-term presidents (Abraham Lincoln and Benjamin Harrison, respectively).

TABLE 5—PROBABILITY OF WAR: 1897–1988

Time period	Variable for RECESSION	$\hat{\alpha} + \hat{\beta}$	$\hat{\alpha}$	p value
1897–1988	NBER	0.389	0.297	0.315
	RGNP (mean)	0.444	0.262	0.072
	RGNP (MA-8)	0.400	0.284	0.206
1897–1918	NBER	0.571	0.400	0.384
	RGNP (mean)	0.625	0.357	0.221
	RGNP (MA-8)	0.600	0.412	0.406
1919–1941	NBER	0.000	0.063	1.000
	RGNP (mean)	0.000	0.059	1.000
	RGNP (MA-8)	0.000	0.063	1.000
1942–1988	NBER	0.750	0.349	0.150
	RGNP (mean)	0.538	0.323	0.199
	RGNP (MA-8)	0.538	0.323	0.199
1897–1918 and 1942–1988	NBER	0.636	0.362	0.087
	RGNP (mean)	0.571	0.333	0.057
	RGNP (MA-8)	0.556	0.353	0.111

Notes: Separate means were calculated over the subsamples 1897–1918, 1919–1941, and 1942–1988. As before, $\hat{\alpha}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION})^c)$; $\hat{\alpha} + \hat{\beta}$ is an estimate of $\Pr(\text{WAR} | (\text{TERM} \cap \text{RECESSION}))$; p values correspond to Fisher's exact right-tailed test for $\beta = 0$. Mean and MA-8 indicate whether a variable is compared to its sample mean or an eight-year moving average for defining RECESSION.

0.001 level of statistical significance. As a result, it is inappropriate to pool the isolationist time period with the remaining years of the 1897–1988 time period. In terms of our model, the isolationist period can be interpreted as a significant reduction in α , the probability of unavoidable war. Our model predicts that, when the probability of unavoidable war is small, the probability of avoidable wars will equal zero. This is confirmed in the third panel of Table 5.

By contrast, the unconditional frequencies of war during 1897–1918 and 1942–1988 are similar (0.455 and 0.383, respectively).³¹ Thus, a more powerful test of our hypothesis can be performed by pooling these two time periods. The results from these two subsamples and their union are presented in Table 5. With the isolationist period excluded, the estimates of α and $\alpha + \beta$ are

similar to those in Table 2 and are stable across both subsamples. Using the pooled sample, the statistical independence of WAR and $(\text{TERM} \cap \text{RECESSION})$ is rejected in favor of positive association at less than the 10-percent level for the NBER-based and $\Delta \text{RGNP (mean)}$ -based classifications for RECESSION.³²

V. Extensions and Qualifications

The focus of our model has been to understand the interaction among recession, reelection, and war events. Clearly, the world is more complex than our simple paradigm. Nevertheless, we believe that the prediction, namely, that possibly welfare-

³¹ The p value associated with Fisher's exact test for the hypothesis of no shift in the unconditional frequency of war is 0.607.

³² If we let RECESSION = 1 when six months of either the current or the prior year are classified by the NBER to have been recession months, the difference is even more striking. The p value for the entire sample test is 0.128, but is less than 0.001 when the isolationist period is removed.

reducing wars may be used for political purposes, is robust to many institutional factors that we have not incorporated.

The information structure we impose on the possession and revelation of information is of significance. Suppose that incumbents possessed private information about their war-handling abilities. The model's main result is unaffected, as incumbents with poor reelection prospects will exhibit the willingness to engage in potentially avoidable conflict so as to reveal their true war-handling abilities. In this case, however, an avoidable war may be welfare-improving if the informational benefit to the public is greater than the cost of the avoidable war.³³

The assumption that the ability characteristics γ and δ remain unchanged from first to second term can be relaxed. What is required is positive correlation in the characteristics between terms, but more complicated stories could weaken our results.

Also absent from our model is the notion of partisan politics. When partisan politics are important, leaders may act as party representatives and maximize the party's welfare instead of their own (see e.g., Alesina and Stephen Spear, 1988). Clearly, this does not eliminate the use of discretion for political gain. If other potential leaders within the incumbent leader's own party could inherit his war-handling abilities, however, a partisan model would predict that avoidable wars might occur following recessions not only during first terms, but during final terms as well. Unless there is a positive correlation of the incumbent's abilities with those of potential leaders of the same party, discretionary war decisions would be used for political purposes only in first terms.

³³This is essentially the argument in Orphanides (1990), presented in the context of inflation stabilizations. A benevolent leader may willingly implement a costly stabilization program with uncertain outcome, if the benefits from revealing his determination exceed the potential costs of failure. The information is useful because it reduces the costs of possible future stabilization attempts. In our model, the revelation of private information would be useful because it would reduce the costs of possible future wars.

Finally, we assume that a leader's abilities in running the economy and handling war are independent of the probability of unavoidable war. Alternatively, if presidents who are bad at running the economy are also poor at foreign policy and get into more wars, wars and recessions would be more frequent during first terms even in the absence of avoidable conflicts, since bad presidents would not be reelected.³⁴ Again, since we cannot directly distinguish between avoidable and unavoidable wars, evidence supporting the predictions of our model could, in principle, be due to effects other than those examined in our model.

VI. Concluding Remarks

We have presented a framework for examining avoidable and unavoidable conflicts in a democracy. Voters are retrospective and rational. Leaders care about public welfare but also care about the rents they derive from holding office. Most importantly, they can exercise discretion in their decision to use military force. The main implication is that, if a war has not already revealed a leader's war-handling ability, he may nonetheless be willing to incur the costs associated with war if *his* expected benefits from winning are sufficiently large. The leader may be willing to do so when he recognizes that his reelection would be jeopardized if voters based their decisions *solely* on his conduct in other matters, such as the domestic economy. In that case, a war changes the likely outcome of the election from a sure loss to a potential victory.

We present evidence that, in the United States at least, wars follow a pattern consistent with our theory. The probability of conflict initiation or escalation exceeds 60 percent in years in which a president is up for reelection and the economy is doing poorly. By contrast, the probability is only

³⁴This alternative, however, would also suggest that the frequency of war during first terms is higher among presidents who do not gain reelection than among those who do. This is not observed in the data.

about 30 percent in years in which either the economy is healthy or a president is not up for reelection. Based on our strict interpretation of the increased frequency as being due to avoidable conflicts, we estimate that well over half the conflicts initiated or escalated by presidents seeking reelection during economic downturns were potentially avoidable.

The dynamic cycle of "war politics" and the associated cost of avoidable wars can be squarely attributed to the leader's discretionary power to wage war in order to improve his reelection prospects. From the perspective of the time-inconsistency literature, introduced by Finn E. Kydland and Edward C. Prescott (1977), society is strictly better off if rules eliminating avoidable conflicts are implemented. In our model, citizens (including potential future leaders) would unanimously vote in favor of removing the leader's discretionary power to wage war. The reason is that the informational benefit of an avoidable war is never greater than the expected cost of the war, and only leaders with below-average ability to run the economy engage in such wars. Yet, after his initial election, no leader would willingly relinquish this discretionary power.

Unfortunately, for the purposes of constructing adequate rules to solve this time inconsistency, there may be no direct mechanism to distinguish, *a priori*, between avoidable and unavoidable conflicts. If no such mechanism exists, our model provides an argument in favor of decentralizing war decisions rather than concentrating them in the hands of a single individual—a separation that the Founding Fathers attempted to impose explicitly on the U.S. Constitution.³⁵ This leads to the important question of optimal constitutional design, which falls outside the scope of this paper.

³⁵ An interesting comparison can be made with the Athenian democracy. There, military leaders were chosen by direct public vote *independently* from political leaders, and war initiations and escalations were decided *directly* by the public. Political leaders enjoyed no discretionary power in military issues or in war decisions. (See, for example, Thucydides, Book VI, [8]–[26].)

DATA APPENDIX

Chronology

NBER peak (1895.12)

W. McKinley (1897.3–1901.9) [R]:

- I. NBER trough (1897.6)
The Spanish-American War (1898.4–1898.12)
Philippine rebellion (1899.2–1901.5)
NBER peak (1899.6)
The United States sends troops to China to suppress the Boxer Rebellion in China (1900)
NBER trough (1900.12)
Killed (1901.9)

T. Roosevelt (1901.10–1909.2) [R]:

- I. NBER peak (1902.9)
United States aids Panama in secession from Colombia (1903)
NBER trough (1904.8)
- II. NBER peak (1907.5)
Nominates Taft even though he could have run (1908)
NBER trough (1908.6)

W. Taft (1909.3–1913.2) [R]:

- I. NBER peak (1910.1)
NBER trough (1912.1)
Sends troops to Nicaragua in response to its refusal to pay loans (1912.8)
NBER peak (1913.1)

W. Wilson (1913.3–1921.2) [D]:

- I. United States blockades Mexico in support of Revolutionaries (1913)
NBER trough (1914.12)
U.S. troops land in Haiti and occupy the country (1915.6)
U.S. forces enter Mexico trying to apprehend Pancho Villa (1916.1)
United States establishes military government in Dominican Republic (1916.11)
- II. United States enters World War I (1917.4)
U.S. assistance during the Russian Revolution (1918.4)
NBER peak (1918.8)
NBER trough (1919.3)
NBER peak (1920.1)

W. Harding (1921.3–1923.8) [R]:

- I. NBER trough (1921.7)
NBER peak (1923.5)
Dies (1923.8)

C. Coolidge (1923.8–1929.2) [R]:

- I. NBER trough (1924.7)
- II. NBER peak (1926.10)

- Announces he will not seek reelection (1927.8)
NBER trough (1927.11)
- H. Hoover (1929.3–1933.2) [R]:
- I. NBER peak (1929.8)
- F. Roosevelt (1933.3–1945.4) [D]:
- I. NBER trough (1933.3)
 - II. NBER peak (1937.5)
NBER trough (1938.6)
 - III. Pearl Harbor is attacked; United States enters World War II (1941.12)
D-day (1944.6)
American invasion of the island of Leyte in the Philippines (1944.10)
 - IV. NBER peak (1945.2)
Battle of Iwo Jima (1945.2)
Invasion of Okinawa (1945.4)
Dies (1945.4)
- H. Truman (1945.4–1953.2) [D]:
- I. Atomic bomb dropped on Hiroshima leads to formal end of World War II (1945.9)
NBER trough (1945.10)
NBER peak (1948.11)
 - II. NBER trough (194.10)
United Nations approves sending troops to Korea (1950.6)
Writes in his memoirs that he decided not to run in 1949, although he did not announce it until 1952
- D. Eisenhower (1953.2–1961.1) [R]:
- I. China and North Korea attack U.N. forces (1953.4)
NBER peak (1953.7)
NBER trough (1954.5)
 - II. NBER peak (1957.8)
NBER trough (1958.4)
U.S. marines sent to Lebanon in Lebanon vs. Iraq upheaval (1958.7)
NBER peak (1960.4)
NBER trough (1961.2)
- J. Kennedy (1961.2–1963.11) [D]:
- I. Cuban missile crisis (1962.10)
Killed (1963.11)
- L. Johnson (1963.11–1969.1) [D]:
- I. Gulf of Tonkin (1964.8)
U.S. troops sent to the Congo (1964.11)
Vietcong attack against U.S. army barracks at Pleiku (1965.2)
U.S. troops sent to Dominican Republic (1965.4)
Tet offensive (1968.1)
 - II. Announces that he will not run again (1968.3)
- R. Nixon (1969.2–1974.8) [R]:
- I. Vietnamese spring offensive (1969.2)
EC-121 spy plane incident with North Korea (1969.4)
NBER peak (1969.12)
Invasion of Cambodia (1970.4)
NBER trough (1970.11)
Invasion of Laos (1971.2)
Vietnam ports mined (1972.3)
 - II. Christmas bombing of Hanoi (1972.12)
NBER peak (1973.11)
Resigns (1974.8)
- G. Ford (1974.9–1977.1) [R]:
- I. NBER trough (1975.3)
U.S. merchant ship, Mayaguez, seized in Cambodia (1975.5)
- J. Carter (1977.2–1981.1) [D]:
- I. NBER peak (1980.1)
Attempts rescue of the hostages in Iran (1980.4)
NBER trough (1980.7)
- R. Reagan (1981.2–1989.1) [R]:
- I. NBER peak (1981.7)
U.S. air skirmishes with Libya (1981.8)
NBER trough (1982.11)
U.S. invasion of Grenada (1983.10)
 - II. U.S. air bombardment of Libya (1986.4)
-
- Notes:* Roman numerals denote the president's term; [R] and [D] denote the president's party affiliation.
- Data Definitions*
- War dates from 1918–1988 are from Brecher et al. (1988). Brecher et al. have identified 390 international crises for all countries for the time period 1918–1988. For additional research in coding international conflicts and foreign-policy crises see Jonathan Wilkenfeld et al. (1988) and Brecher and Wilkenfeld (1989). From the ICB's 1X data set, these dates must pass the following formal test:
1. The United States must have engaged in direct military activity (USINV = 4).
 2. An intrawar crisis must be due to the initiation of a war, the entry of a major actor into an ongoing war, a technological escalation of a war, or a major nontechnical escalation of an ongoing war (IWCMB = 1, 2, 3, 6, 7).
 3. There must have been the use of violence (VIOL = 2, 3, 4).
- Our definition of *war* is as follows:
- An *international crisis* in which the United States is involved in *direct military activity* that results in violence.

- The ICB Project defines an *international crisis* as follows:

"An *international crisis* is a situational change characterized by two necessary and sufficient conditions: (1) distortion in the type and an increase in the intensity of *disruptive interactions* between two or more adversaries, with an accompanying high probability of *military hostilities*, or, during a war, an *adverse change* in the *military balance*; and (2) a *challenge* to the existing *structure* of an international system—global, dominant or subsystem—posed by higher than normal conflictual interactions" (Brecher et al., 1988 p. 3 [emphasis in the original]).

- The ICB Project defines *direct military activity* as follows:

The "dispatch of troops, aerial bombing of targets or naval assistance to a party in a war" (Brecher et al., 1988 p. 84).

- Noteworthy features about these definitions are:

1. The crisis actors in a conflict must be sovereign. Hence the participation by the United States in another country's civil war is excluded (e.g., the stationing of U.S. troops in Lebanon in 1982).
2. A country can experience more than one crisis within a conflict (e.g., U.S. participation in the Vietnam War).
3. Only episodes that reflected greater than "normal" tensions between countries were deemed international crises.

- For the period 1897–1917, WAR dates were coded to conform with the methodology outlined by Brecher et al. (1988). Historical dates were coded from war events identified by Small and Singer (1982) and the references therein and were cross-checked for exact initiation and escalation dates with the 1991 *World Almanac and Book of Facts*.
- The WAR variable takes on the value of 1 during the following years, and 0 otherwise: 1898, 1899, 1900, 1903, 1912, 1913, 1915, 1916, 1917, 1918, 1941, 1944, 1945, 1950, 1953, 1958, 1962, 1964, 1965, 1968, 1969, 1970, 1971, 1972, 1975, 1980, 1981, 1983, and 1986.
- Years of war continuation (used for the alternative definition of WAR) are 1901 (Spanish-American War), 1942 and 1943 (World War II), 1951 and 1952 (Korean War), and 1967, 1968, and 1973 (Vietnam War).
- The TERM variable takes on the value of 1 during the following years, and 0 otherwise: 1897–1900, 1902–1904, 1909–1916, 1921–1927, 1929–1948, 1953–1956, 1961–1967, 1969–1972, and 1975–1984.
- We adopt the convention that the recession begins in the month following the peak and lasts until (and

including) the trough.

- The NBER variable takes on the value of 1 during the following years, and 0 otherwise: 1896, 1897, 1899, 1900, 1903, 1904, 1907, 1908, 1910, 1911, 1913, 1914, 1920, 1921, 1923, 1924, 1927, 1930, 1931, 1932, 1937, 1938, 1945, 1949, 1960, 1970, 1974, 1980, and 1982.
- Since the RECESSION variable is based on lagged macroeconomic activity, it is set to zero for the first year of a new administration. These years are 1897, 1909, 1913, 1921, 1929, 1933, 1953, 1961, 1969, 1977, and 1981.
- For the 1953–1988 sample, data for real GNP and the unemployment rate were obtained from published National Income and Product Accounts data. The data for industrial production are from the Federal Reserve Board. The growth rates for real GNP and industrial production are computed by taking the difference of the log of the series.
- For the 1897–1988 sample, data for real GNP were constructed by splicing the published data from Nathan S. Balke and Robert J. Gordon (1989) to National Income and Product Accounts data in 1929.
- The APPROVAL data are annual average measures constructed from the Gallup organization's Overall Presidential Approval ratings.

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