Economic conditions, elections, and the magnitude of foreign conflicts

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Received 11 July 1998; accepted 6 July 1999

Abstract

This paper investigates the relationship between the business cycle, the election cycle, and the timing and magnitude of foreign conflict. We propose a theoretical model which suggests that in the presence of a reelection motive, the frequency of war will be greater following recessions than otherwise. However, if partially benevolent leaders can influence the size of conflicts, then the consequences may be limited to conflicts of relatively small magnitude. We test the predictions of the theory using data for the United States for the Cold War period, and obtain results consistent with the theory when leaders are partially benevolent. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: War; Elections; Recessions; Rational voters

\textit{JEL classification:} D72; D74; H56

1. Introduction

In a democratic society, rational voters will always aim to elect leaders who can enhance rather than harm the common good. And perfect leaders would always strive towards that very objective. Elected leaders, however, may lack the perfect benevolence required to always set aside their own political interests in favor of...
the public good. From a contract theoretic perspective, it may simply be impossible to perfectly align the interest of the elected leader (the agent) with that of the electorate (his principals). When the public good and a leader’s own political interest diverge, therefore, a leader may be tempted into actions that are detrimental for the public good. For instance, when an incumbent leader’s reelection is at stake, some of his actions may be designed to divert attention from issues that cast an unfavorable shadow upon him to issues where he may possess a better opportunity to shine. Such actions may pertain to a number of important policy issues, including the ‘wag the dog’ motive for war.

This paper examines the frequency, magnitude and social welfare implications of foreign conflicts in the presence of such diversionary motives. The influence of internal considerations in the use of force to settle international disputes has already drawn considerable attention in the literature. With a rational electorate, however, a diversionary action only serves a purpose when it is informative. Consequently, even though a diversionary war may have been avoidable and may force an unwarranted cost upon the electorate, it also reveals new information about the leader’s abilities which the electorate may find beneficial.

In this paper, we investigate this inherent trade-off between the cost of war and its information value. We build a model where voters care for two distinct characteristics determining a leader’s competence in handling the economy and war. The latter is important when the state faces the possibility of being forced into a costly war in which case leaders with superior war handling skills are better able to contain the cost of war. Initially, when a leader serves his first term, information regarding these characteristics is incomplete, and in the absence of war, information regarding a leader’s war handling ability remains so. A diversionary war provides information regarding the leader’s abilities which the voters take into account in deciding whether or not to reelect the incumbent. Leaders facing the option to initiate a diversionary conflict weigh the welfare implications of their actions for the electorate against their own self-interest. When considering the magnitude of a such a conflict as a decision variable, leaders also weigh the fact that small conflicts are likely to be less costly than large ones, but also less informative.

Our model provides three positions. First, with regard to the incidence of war, we find that to the extent diversionary wars occur, they will be concentrated in first terms when domestic performance is lacking. Second, with regard to the magnitude of war, we find that unless leaders are perfectly selfish, diversionary wars will likely be small. Thus only the frequency of small conflicts would tend to

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be higher in first terms when domestic performance is lacking with the incidence of more severe conflicts being uncorrelated to electoral considerations. Third, with regard to the welfare cost of diversionary war, if leaders are sufficiently benevolent so as to limit diversions to small conflicts, the welfare cost of such diversions may also be small. In fact, if the information content of small conflicts is substantial and their costs sufficiently small, our model points to the possibility of diversionary actions being welfare enhancing, in expectation.

We test the model’s predictions regarding the frequency and magnitude of war using annual data for the United States for the 1948–1988 period. Our analysis is closely related to earlier work which attempts to explain the outbreak of wars for the United States using political and economic explanatory variables. Russett (1990), finds that US participation in the initiation or escalation of a dispute is more frequent on Presidential election years and on years following sluggish real output growth. Recently, DeRouen (1995) and Wang (1996) find evidence that the severity of US responses to crises is more severe closer to presidential elections, and when there is an increase in ‘economic misery’.2 Also related to our research is the impact of war and economic outcomes on a leader’s stay in office. Bueno de Mesquita, Siverson and Woller (1992), and Bueno de Mesquita and Siverson (1995) find that wars can lead to shorter terms in office if the leader is associated with defeat in an international conflict, but can increase their terms in office if they are associated with victories. Furthermore, Bueno de Mesquita et al. (1998) find that economic contractions are related to shorter terms in office for democratic leaders.

Evidence bearing more directly on our framework, however, can be obtained by examining the joint interaction between economic performance and the election cycle in influencing the occurrence and magnitude of war. We undertake this task here using US data for the Cold War period. We find that consistent with the theory, there is an increased probability of small conflicts when a president is running for reelection and the economy is doing poorly compared to other periods. This refines the finding of an increased frequency in war incidence reported in Hess and Orphanides (1995) who do not distinguish among conflicts of different magnitudes.

The paper is organized as follows. In Section 2 we present the basics of our model. In Section 3 we derive the voters’ and leaders’ optimal strategies and develop a number of testable hypotheses. We provide empirical support for the theory in Section 4, and conclude in Section 5.

2See also Stoll (1984), Ostrom and Job (1986), and Oneal and Lian (1992) for additional evidence on the effect of economic variables on the incidence of conflict for the US. In addition, (Alesina et al., 1993) find evidence that even after controlling for the effect of military mobilizations on output, there remains an additional positive effect on voting behavior which they interpret as support for the ‘rally around the flag effect’.
2. A political model of wars

2.1. 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 no longer seeks reelection) or, between an incumbent leader and a new candidate. An incumbent leader can only be reelected once.

Voters are risk neutral and rational; they vote to maximize their welfare, $W_t$:

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

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

Leader candidates are drawn at random from the ranks of voters. Leaders maximize a convex combination of public welfare and the rent they receive from holding office, $\pi > 0$, discounted appropriately by their expected stay in office. Thus the leader’s welfare is:

$$V_t = (1 - \rho) W_t + \rho x (1 + \theta \pi_t)$$  \hspace{1cm} (2)

Here $\rho$, $0 \leq \rho \leq 1$, is a measure of the leader’s selfishness, which is assumed to be the same for all leaders. If leaders are unselfish (selfish) they care only about the public’s welfare (getting reelected) and $\rho = 0$ ($\rho = 1$). $\pi_t$ denotes the probability at time $t$ of being in office in period $t + 1$.

2.2. Consumption and leader characteristics

Consumption, $c$, depends on two idiosyncratic characteristics of the leader, $\gamma$ and $\delta$. $\gamma$ measures the leader’s ability to manage the economy. $\delta$ measures the leader’s ability to manage a war and minimize its costs. The costs of war depend on this ability but also on the size of the conflict. Let $s$ denote the size of a war occurring in period $t$. Wars can be small or large. We denote large wars with $s = 1$, and small wars with $s = \psi \in (0,1)$, where $\psi$ indicates the relative costs of a small versus a large war for given leader abilities. $\psi$ is a fixed parameter, not chosen by the leader. If a war does not occur we denote this occurrence as $s = 0$.

Consumption in period $t$, therefore, is:

$$c_t = \gamma_s + s \delta_s$$  \hspace{1cm} (3)

We assume that $\gamma$ is drawn from a distribution $\Gamma(\cdot)$ with positive support, and we denote its mean $\tilde{\gamma} > 0$. Also, we assume $\delta$ is drawn from a Normal distribution
Φ(.) with variance \( \sigma^2 \) and a sufficiently negative mean \( \bar{\delta} < 0 \) so as to render the probability of a non-negative \( \delta \) negligible.\(^3\)

Information is symmetric with respect to candidates, leaders and voters. Specifically, the potential leader’s characteristics are unknown to both the voters and the leader before being put into use. The domestic performance characteristics are observed in every period as a leader addresses the problems of the domestic economy. Thus \( \gamma \) is costlessly revealed to everyone.\(^4\) The characteristic \( \delta \), on the other hand, becomes known initially and is updated later on only if a war breaks out. We also assume, for simplicity, that only one war may occur in a term. Finally, we assume that a leader’s characteristics do not change across terms so that a reelected leader inherits his first term abilities.

2.3. 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. Of these unavoidable wars, a fraction \( \phi \) are small in scale with \( s = \psi \); otherwise, unavoidable wars are large. If an unavoidable war does not occur, the leader may decide whether to exercise the option to initiate an avoidable war. This occurs with an endogenously determined probability \( \beta > 0 \). If the leader does exercise this option, he may also choose the magnitude of the conflict.\(^5\)

To be specific about the timing of events, consider what happens after an election in term \( t \). We can identify up to seven events/decisions within an election cycle as shown in the following Timing of Events table:

<table>
<thead>
<tr>
<th>Period</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>( \gamma ) of elected leader updated.</td>
</tr>
<tr>
<td>2</td>
<td>Unavoidable war occurs with probability ( \alpha ). ( s &gt; 0 ) if unavoidable war occurs.</td>
</tr>
<tr>
<td>3</td>
<td>If no unavoidable war occurs, the leader may decide to start an avoidable one.</td>
</tr>
<tr>
<td>4</td>
<td>( s ) is chosen if war is avoidable.</td>
</tr>
<tr>
<td>5</td>
<td>If ( s &gt; 0 ) (war has occurred), ( \delta ) is updated.</td>
</tr>
<tr>
<td>6</td>
<td>Consumption realized, ( \gamma + s, \delta ). Leader realizes rents ( x ).</td>
</tr>
<tr>
<td>7</td>
<td>Election decides next period’s leader.</td>
</tr>
</tbody>
</table>

\(^3\)The assumption of normality is imposed for simplicity. It allows for an exact solution of the signal extraction problem associated with the characteristic \( \delta \) which we study later on.

\(^4\)This is a simplification which allows us to focus on the war decision. Rogoff and Sibert (1988) and Rogoff (1990) explore the problem where a government’s economic competency must be inferred in an environment of incomplete information.

\(^5\)In reality, even small conflicts may unintentionally get out of hand and get large, ex post. Consequently, a large conflict may occasionally be observed even if a small conflict was intended.
By assumption, the leader’s characteristics are unknown before he takes office but are learned and updated in every period he stays in office (for $\gamma$), and once he enters a war (for $\delta$). 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.

The assumption that only with war can a leader’s war handling ability be revealed is consistent with the view that ‘All voters are from Missouri’, the Show-Me state – see Rogoff and Sibert (1988) and Rogoff (1990). This assumption rules out the possibility that a leader can claim a good war handling ability even without entering a conflict. For example, a leader could claim that through diplomatic skill he has avoided a conflict with another country, which if it could be credibly conveyed, would be similar to signalling a good war handling characteristic as the leader would have minimized the cost of conflict. If this were possible, then every leader would claim that a critical situation had happened, was successfully avoided, and that the leader deserved great praise and support. But this is simply not verifiable by the voters, and hence war handling skills can only be credibly conveyed to voters if an actual war takes place.

3. Optimal strategies

This section provides the model’s solution. Let $W(\gamma,\delta)$ denote the expected welfare associated with the election of a leader with characteristics $\gamma$ and $\delta$. Since nothing specific is known about the characteristics of a new leader the expected public welfare associated with the election of a new leader is the same for each possible candidate. We denote this welfare by $W$ and derive the optimal strategies of voters and leaders by solving this problem recursively.\(^6\) The analysis of second terms is trivial since voters and leaders know that at the end of the term a new leader will be drawn from the population with characteristics unrelated to the events during the term. And only unavoidable wars occur in second terms as the reelection motive is absent. Consequently, we concentrate our attention on first terms.

3.1. Reelection voting

When elections involve an incumbent, voters compare their expected welfare from reelecting the incumbent versus the expected welfare associated with a new leader of unknown characteristics. The expected welfare associated with the election of a new leader is $\bar{W}$. For the incumbent, voters compute their expected

\(^6\)In equilibrium, of course, $\bar{W}$ must be consistent with the strategies of voters and leaders. The characterization of the solution can be completed by utilizing the optimal strategies to solve for the equilibrium $\bar{W}$. 
consumption for the period conditional on the incumbent’s re-election, and then recognize that in the subsequent period a new leader will be elected yielding expected welfare $W$. Thus, for their election decision, voters compare $E(c') + \theta W$ to $W$, where the superscript $i$ refers to the incumbent.

To compute $E(c') = E(\gamma + s, \delta_i)$, the public incorporates information about the incumbent’s characteristics. Since $\gamma'$ is known, the problem is simply to compute the expected costs from possible wars, $E(s, \delta_i)$. Voters know that if the incumbent were to be re-elected the incentive for an avoidable war will not be present as further re-elections are not possible. Thus the cost of war is limited to unavoidable ones, so that the expected cost is:

$$E(s, \delta_i) = \alpha(\psi \phi + (1 - \phi)) \delta_i = \alpha \mu \delta_i$$

where $\mu = (\psi \phi + (1 - \phi))$ and $\delta_i$ is the voters’ best guess regarding the incumbent’s war handling abilities. This leads to the useful result that an incumbent leader is reelected if and only if $\gamma' + \alpha \mu \delta_i > W(1 - \theta)$.

### 3.2. The information content of war

Since the election outcome depends crucially on the voters’ best estimate of the incumbent’s war handling ability, $\delta_i$, we describe next how these estimates are formed. As the incumbent’s true characteristic is a realization of the random variable $\delta$, the prior distribution for the incumbent’s characteristic is $N(\delta, \sigma^2)$. For their voting decision, voters form their best estimate regarding $\delta'$, $\hat{\delta}$. This estimate is the mean of the posterior distribution for $\delta'$ formed after observing the events during the period, that is $\hat{\delta} = E(\delta'|\delta)$, where $\delta'$ is a random variable with the posterior distribution of $\delta'$. In the absence of war, $\hat{\delta} = \delta$ and $\hat{\delta} = \delta$. In the presence of a war, this estimate will depend on the war’s outcome.

Small wars and big wars, however, are not necessarily equally informative regarding a leader’s true war handling characteristic, $\delta'$. To parsimoniously capture that large conflicts are more informative about a leader’s true war handling ability, we assume that the costs from a large war perfectly reflect the true characteristic, $\delta'$, while the costs from a small war do so only imperfectly. Specifically, we assume that the costs from a small war are equal to $c \delta$ where the observed characteristic $\delta''$ is a weighted average of the true $\delta'$ and an independent draw from the distribution of $\delta$:

$$\delta'' = \chi \delta + (1 - \chi)\delta'$$

where $\chi \in [0,1]$ measures the relative information content of small wars. If $\chi = 0$ small wars are as informative as big wars and either type produces complete learning. If $\chi = 1$, small wars are completely uninformative about $\delta'$, as the
observed characteristic, $\delta^o$, is uncorrelated with $\delta^i$. Viewing this inference as a signal extraction problem, the voter’s estimate, $\hat{\delta}$, given an observed characteristic $\delta^o$ is:

$$\hat{\delta} = \chi \tilde{\delta} + (1 - \chi)\delta^o$$  \hspace{1cm} (6)

That is, the distribution of $\hat{\delta}^o$ conditional on the observation $\delta^o$ is a normal distribution with mean shown in Eq. (6) and variance $(1 - \chi)^2\sigma^2$. It follows that the unconditional distribution of $\hat{\delta}$ is $N(\tilde{\delta}, (1 - \chi)^2(\chi^2 + (1 - \chi)^2)\sigma^2)$.

The two limiting cases are of interest. When $\chi = 1$ a war is not informative, so the inference is the same as it would have been in the absence of war, namely $\hat{\delta} = \tilde{\delta}$ with probability one and the variance of the distribution of $\hat{\delta}$ is 0. When $\chi = 0$ a war provides a perfect signal so the inference is equal to $\delta^o$ and the distribution of $\hat{\delta}$ coincides with the distribution of $\tilde{\delta}$ which has variance $\sigma^2$. For $\chi > 0$ the variance of the distribution of $\hat{\delta}$ is strictly smaller than that for $\tilde{\delta}$. Therefore, if small wars are only partially informative, the distribution from which the inference of $\delta^i$ will be drawn from after a small war will be narrower than the distribution from which the inference of $\delta^i$ will be drawn from after a large war. Both distributions are centered at $\tilde{\delta}$.

3.3. The welfare consequences of war

We now solve the public’s expected welfare associated with the absence of or the occurrence of war, incorporating the information content of these events. Since without war no additional information is available about the incumbent’s war handling characteristic, voters are unable to update their priors from the mean of the distribution, $\tilde{\delta}$. Let:

$$\gamma^* = W(1 - \theta) - \alpha \mu \tilde{\delta}$$  \hspace{1cm} (7)

so that, consistent with rational voters, a leader will lose reelection without a war only if $\gamma^i < \gamma^*$ and win reelection otherwise. Using this as a benchmark, we refer to leaders with $\gamma^i < \gamma^*$, as leaders with poor economic records (i.e. recessions). In the absence of war, the expected value of $\delta$ relevant for the leader in case of reelection is $\tilde{\delta}$, and the expected welfare to the public is:

$$W^N = \gamma^i + (1 - \pi^N) \theta \bar{W} + \pi^N \theta (\gamma^i + \alpha \mu \tilde{\delta} + \theta \bar{W})$$  \hspace{1cm} (8)

In the case of war, the probability of reelection will be a function of the updated

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7Note that $\delta^i$ has a normal distribution with mean $\tilde{\delta}$ and variance $(\chi^2 + (1 - \chi)^2)\sigma^2 < \sigma^2$ if $\chi \in (0, 1)$. 
estimate of a leader’s characteristic $\hat{\delta}$. Let $\delta^c$ be the minimum value for $\hat{\delta}$ which would result in reelection, given a leader’s characteristic $\gamma'$, so that:

$$\delta^c = \frac{W(1 - \theta) - \gamma'}{\alpha \mu} \quad (9)$$

Thus the probability of reelection conditional on a big or small war is $\pi^B = 1 - \Phi^B(\hat{\delta})$, and $\pi^S = 1 - \Phi^S(\hat{\delta})$, respectively, where $\Phi^j$ is the cumulative density of the normal distribution with mean $\hat{\delta}$ and variance $\sigma^2$ for $j = B$ and $(1 - \chi)^2(\chi^2 + (1 - \chi)^2)\sigma^2$ for $j = S$.

Therefore, the expected welfare to the public if there is a small war is:

$$W^S = \gamma' + \phi \bar{\delta} + (1 - \pi^S) \theta W + \pi^S \theta (\gamma' + \bar{\delta^S} + \theta W) \quad (10)$$

where $\bar{\delta^S} = [1 - \Phi^S(\hat{\delta})]^{-1} \int_{\hat{\delta}}^\infty \hat{\delta} d\Phi^S(\hat{\delta})$ is the expected war handling characteristic for a reelected leader who started an avoidable small war. Correspondingly, the expected welfare to the public if there is a big war is:

$$W^B = \gamma' + \bar{\delta} + (1 - \pi^B) \theta W + \pi^B \theta (\gamma' + \bar{\delta^B} + \theta W) \quad (11)$$

where $\bar{\delta^B} = [1 - \Phi^B(\hat{\delta})]^{-1} \int_{\hat{\delta}}^\infty \hat{\delta} d\Phi^B(\hat{\delta})$ is the expected war handling characteristic for a reelected leader who started an avoidable big war.

3.4. The incumbent’s war decision

We now investigate the incumbent’s war decision. If an unavoidable big war occurs during $t$ then both $\gamma$ and $\delta$ are common knowledge, and $\hat{\delta} = \delta'$. If an unavoidable small war has occurred, then while $\gamma$ is known, the voter’s best estimate of the leader’s war ability, $\hat{\delta}$, is based on Eq. (6). However, conditional on an unavoidable war of any magnitude not having occurred during his first term, the incumbent leader has the option of initiating one.

The decision of whether to engage in an avoidable conflict, and its corresponding magnitude requires that the leader maximize his payoff by choosing between a Big conflict (superscript B), a Small (superscript S) conflict and No conflict (superscript N), max$\{V^B, V^S, V^N\}$, based on (Eqs. (2), (8), (10),and (11)). The model’s key parameters which affect these decisions are his selfishness ($\rho$), the informativeness of small wars ($\chi$), and the relative cost of small wars ($\psi$). To simplify the permutations of comparisons, we organize the remainder of this section based on a number of alternative predictions.

3.4.1. Benevolent incumbents

Consider a benevolent incumbent who places no weight on obtaining the rents from office, and instead maximizes the public’s welfare, namely $\rho = 0$. Under
these circumstances, the leader’s decision between starting an avoidable small conflict versus no conflict hinges on:

\[
V^S - V^N = \psi \delta + \pi^S \theta [\gamma + \alpha \mu \delta^S + \theta W - W] - \pi^N [\gamma + \alpha \mu \delta + \theta W - W]
\]

(12)

The first term is the expected cost of the small conflict which is negative and depends of the relative cost of small wars \(\psi\). The second term is the ‘information benefit’ of small war which reflects the expected gain to the public from learning about the incumbent leader’s war handling skills. The final term is the value associated with the reelection decision in the absence of war. As such it depends on whether the leader has a sufficiently good economic performance to gain reelection in the absence of war.

Consider first the case \(\gamma < \gamma^*\) so that in the absence of war the leader is not reelected, \(\pi^N = 0\). Under these circumstances, expression (12) becomes:

\[
V^S - V^N = \psi \delta + \pi^S \theta [\gamma + \alpha \mu \delta^S + \theta W - W]
\]

(13)

The first term is negative as wars, even small ones, are costly. The second is non-negative, and reflects the potential information benefit to having a small war, as it allows the voters to choose to retain only those leaders who demonstrate superlative war skills.\(^5\) As the costs of small wars fall \((\psi \to 0)\), the information benefit to small wars exceeds its expected cost, and small wars become ex ante welfare improving to the public. Essentially, very low cost small wars provide the public with an inexpensive option for evaluating the leaders war handling ability, which relies on small wars being sufficiently informative \((\chi < \chi^*, \text{ otherwise } \pi^S = 0)\).

Next consider the case \(\gamma \geq \gamma^*\) so that in the absence of war the leader is reelected with certainty, \(\pi^N = 1\). Under these circumstances, after adding and subtracting \(\theta \alpha \mu \pi^S \delta\) and using Eq. (7), expression (12) becomes:

\[
V^S - V^N = \psi \delta + (1 - \pi^S) \theta [\gamma^* - \gamma] + \pi^S \theta \alpha \mu [\delta^S - \delta]
\]

(14)

The first two terms are the expected cost of a small war, which are negative – the first term is the loss in today’s consumption from a small war, whereas the second term is the potential loss of an incumbent who, in the absence of war, would have been reelected.\(^6\) The final term, which is positive, is the information benefit from a small war as voters can update their expectations. The sign of \(V^S - V^N\) is indeterminate, and depends on the relative economic costs and information benefits of small wars.

We summarize our findings in the following proposition.

\(^5\)If \(\pi^S > 0\), then \([\gamma + \alpha \mu \delta^S + \theta W - W] > 0\) due to voter rationality.

\(^6\)Recall by voter rationality that since \(\pi^N = 1\), \([\gamma + \alpha \mu \delta + \theta W - W] = \gamma - \gamma^* > 0\).
Proposition 1. If small wars are sufficiently low cost and leaders are completely benevolent, small wars will be more frequent in first terms than otherwise.

There are three noteworthy aspects to this proposition. First, as big wars are never welfare improving, a benevolent leader would never initiate an avoidable big war. Unlike small wars that are expected to have very low cost, there is no advantage in causing with certainty an avoidable big war today just to learn about a war handling ability that is useful to the leader in his second term with probability $\alpha < 1$.

Second, a benevolent leader may start small wars in his first term despite the negative consequences it may have on his reelection. If small wars are of sufficiently low cost, voters would prefer to know both of the leader’s attributes before deciding to reelect the leader. Finally, for a benevolent leader, if small wars are of sufficiently low cost, small wars will occur more frequently in first terms independently of the economy’s performance. However, if $\pi^b = 1$, then the leader’s economic handling skill is so good that, regardless of his war handling ability he will get reelected. In this case, there is nothing to be gained from learning about the leader’s war handling ability. Also, if $\pi^b = 0$ then the leader’s economic handling skill is so bad that he will never get reelected.

3.4.2. Selfish incumbents

In contrast to a benevolent leader who cares only about the public’s welfare, a totally selfish leader cares only about his reelection prospects. Accordingly, if $\gamma > \gamma^*$, and an unavoidable war has not occurred a leader will not start one as he is already assured of reelection ($\pi^N = 1$). However, if the leader were to lose the election in the absence of war, but could salvage his chances for reelection with some probability in case of war, then he would initiate one.

Under these circumstances, the relative payoff between big and small wars is $V^b - V^s = (\pi^b - \pi^s)\theta x$. Recall that as long as small wars are noisy signals of the leader’s true war handling ability ($\chi > 0$), $\pi^b = 1 - \Phi^{\delta^0}(d^0) > \pi^s = 1 - \Phi^{\delta^s}(d^s)$, as $\Phi^{\delta^0}(d^0)$ has a smaller variance than $\Phi^{\delta^s}(d^s)$. Completely selfish leaders will therefore always choose big wars over small ones. As leaders can only be reelected once, this incentive is only present in first terms.

Proposition 2. If leaders are completely selfish, big wars will be more frequent in first terms if economic conditions are poor.
3.4.3. Partially benevolent incumbents

We now investigate the intermediate case when leaders are not entirely benevolent so that they only initiate avoidable war when doing so can improve their reelection chances, but are not totally selfish so that they consider the relative cost of war in their decision. First, we consider why a partially selfish leader would prefer a small war to a big one. The decision depends on the following expression:

\[ V^B - V^S = \rho x \theta (\pi^B - \pi^S) + (1 - \rho)(W^B - W^S) \] (15)

From Section 3.4.1 we know that as long as small wars are noisy signals of a leaders war handling ability, it will be harder to get reelected with a small avoidable war than a big avoidable war. Namely, \( \pi^B \geq \pi^S \) for \( \chi \geq 0 \). Furthermore, as big wars never improve the public’s welfare, \( W^B < W^N \) – see footnote 10 – and if small wars are relatively costless so that \( W^S > W^N \), then for \( \psi \) sufficiently low, it follows that \( W^B < W^S \). Therefore, since \( (V^B - V^S)(\rho = 1) > 0 \), \( (V^B - V^S)(\rho = 0) < 0 \), and \( V^B - V^S \) is increasing in \( \rho \), for \( \rho < \rho^* \) a partially benevolent leader will prefer small wars to big wars.

However, while partially selfish leaders may prefer small wars to big ones, will they prefer a small war to no war? The decision is based on the following expression:

\[ V^S - V^N = \rho x \theta (\pi^S - \pi^N) + (1 - \rho)(W^S - W^N) \] (16)

where \( W^S - W^N \) is equal to the right hand side of expression (12). If the leader has a poor economic record, so that in the absence of war he will lose reelection, then a leader who places sufficient weight on getting reelected (\( \rho > \rho_* \)) will start a small war, as long as the chance of reelection remains (\( \gamma > \gamma_i \)). If, however, the leader has a good economic record such that \( \gamma \geq \gamma^* \), then he will prefer peace to even a small war. Together, we see that partially benevolent leaders (\( \rho^* > \rho > \rho_* \)), will only start avoidable small wars in their first terms if they have poor economic records.\(^{12}\)

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\(^{12}\)For example, suppose that small wars are perfectly informative (\( \chi = 0 \)) and that small wars are very low cost (\( \phi \rightarrow 0 \)). Then if \( \rho < \rho^* = 1 \), the leader will prefer small wars to big ones as they are lower cost ex ante. Also, given a poor economic performance such that \( \pi^S = 0 \), since very low cost small wars imply that \( W^S > W^N \) a leader will always prefer a small war to no war as it both raises the public’s welfare and provides him a chance for reelection. This will be true for all values of selfishness. If his economic performance is good so that \( \pi^N = 1 \), however, and he is sufficiently selfish he may not start a small war as this will lower his reelection chances. This will depend on \( \rho \) satisfying \( \rho > \rho_* = (W^S - W^N)/( (W^S - W^N) + (1 - \pi^S)x\theta) < 1 = \rho^* \), where \( (W^S - W^N) \) is defined by the right hand side of expression (14). Therefore, for this simple example, if \( \rho \) satisfies \( \rho \in [\rho_*, \rho^*] \), leaders will start small wars in first terms only if the economy’s performance is poor.
Proposition 3. If leaders are partially benevolent, small wars are sufficiently informative about a leader’s capabilities and sufficiently less costly than large wars, then small wars will be more frequent in first terms if economic conditions are poor.

Surprisingly, if leaders are partially benevolent, the frequency of war may actually be smaller than if leaders are completely benevolent. Whereas completely benevolent leaders may initiate welfare improving small avoidable wars in first terms even when their reelection would be assured in the absence of war, partially benevolent leaders will only do so in first terms if their economic performance is poor.

4. An empirical investigation

4.1. The data

The predictions from Propositions 1–3 are tested using annual data for the United States from 1948–1988. Importantly, this time period was fundamentally influenced by the Truman Doctrine of containing communism and Soviet interests. Since the theoretical decomposition of wars into avoidable and unavoidable requires that the perceived probability of unavoidable conflict be constant, the Cold War period which was dominated by a bi-polar rivalry provides an appropriate environment for testing the theory. For instance, this assumption is unlikely to hold during the World War and interwar periods, or after the end of the Cold war during the Bush presidency. Second, the U.S. constitution’s term limit on the presidency, adopted during Truman’s presidency, accords well with the model’s first term versus final term distinction.

Following Hess and Orphanides (1995), we test the theory at the annual frequency, rather than at the 4-year (or term) frequency for the following reasons. First, there are too few data points at the term frequency. Second, the deaths and resignations of presidents during a term makes the analysis at the term frequency problematic. Third, often times a president’s term is characterized by multiple wars and conflicts, as well as fluctuating economic performance. While the model treats each term as one period with just one conflict being possible and one perfectly observed economic handling ability revealed right after he takes office, we recognize that voters observe noisy signals of a government’s true characteristics. Moreover, these signals may be updated more than once during a term. An analysis of the data at the term frequency would conceal this aspect of the data.

Our definition of war, constructed from the International Crisis Behavior (ICB) Project, is: ‘An international crisis in which the United States was involved in direct military activity that resulted in violence.’ $\text{WAR} = 1$ is coded if an initiation
or escalation of a war took place during a year, and zero otherwise. This definition of war ignores issues regarding the length, size and termination of a war, but rather focuses on the instances in which an identifiable decision was taken either to start or significantly escalate an incident. Unfortunately, this data set does not distinguish wars based on the joint characteristics which distinguish big and small wars (Brecher et al., 1988; Wilkenfeld et al., 1988).

To distinguish big wars from small wars, we use the essential reference on major international conflicts, Small and Singer (1982), who classify major international conflicts jointly according to severity, magnitude and intensity. Their essential element for defining a major international conflict is that the conflict have two or more participants which resulted in more than 1000 battle deaths. During the time period considered, only the participation by the US in the Korean (1950–1953) and Vietnam wars (1965–1973) are deemed major by the Small–Singer criteria. Accordingly, years where $WAR = 1$ due to a conflict in either the Korean or Vietnam wars are coded as $BW = 1$, and $BW = 0$ otherwise. The remaining years where $WAR = 1$ are coded as $SW = 1$, and $SW = 0$ otherwise. Alternative ex ante definitions to distinguish big and small wars such as military mobilization also arrive at the same delineation between big and small wars.

To explore the robustness of our findings, we also consider an alternative definition of wars to include the continuation of a conflict in addition to initiations and escalations. Since the only conflicts that span more than one year happen to also be big wars, we code $WAR = 1$ for those time periods. This specification has the effect of adding additional years where $BW = 1$, but leaves $SW = 1$ unaffected.

We consider several definitions for poor economic performance based on macroeconomic variables and public opinion data. Using each of these variables as an indicator, we create the binary variable $RECESSION$ to identify those years when the president’s performance was below average. We let $RECESSION = 1$ 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 theory. Also, to avoid associating the first year of a new administration with the poor economic

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13 A chronology of these dates (and all the data) is available upon request from the authors, from the working paper version of this paper, Hess and Orphanides (1997), or as published in Hess and Orphanides (1995).

14 Excluding civil wars is consistent with the definition of $WAR$ employed by the ICB project.

15 Note that years in which there were both big and small wars are coded as $BW = 1$ and $SW = 0$. This is consistent with our theory since big wars are perfect signals of war handling abilities as compared to small wars which are noisy signals.

16 This way of coding the data also helps to circumvent a criticism of diversionary theories of war that they cannot separate out whether domestic events affect foreign policy actions or foreign policy actions affect domestic events, e.g. Levy (1989). Since recessions (i.e. domestic events) are coded as lagged values, they are exogenous/predetermined factors of conflict (i.e. foreign policy actions) in our empirical work.
performance of the prior president, we set $RECESSION = 0$ for the first year of a new administration regardless of economic conditions.

The first recession measure we construct is based on the NBER chronology. The dummy variable $NBER$ equals one if 6 months of the year were designated part of a recession, and zero otherwise. In addition, we use three measures of real economic activity as indicators of economic performance: real GNP growth, $\Delta RGNP$; the growth in the index of industrial production, $\Delta IP$; and the change in rate of civilian unemployment, $-\Delta UNEM$. (Since a rising unemployment rate reflects poor economic performance, we multiply $\Delta UNEM$ by $-1$ for consistency). As a final indicator of performance we use the presidential approval rating from Gallup Poll survey data, $APPROVAL$. We then identify the years in which performance was ‘worse than average’ by comparing the lagged value of the variable to its mean over the sample period. For example, using $\Delta RGNP$, we set $RECESSION = 1$ whenever $\Delta RGNP$ in the previous year was below its sample mean, and zero otherwise.

Finally, to account for the presence of the reelection motive, we define the variable $TERM$ to equal one in years during terms in which a president seeks reelection, and zero during years in which a president does not.

4.2. The empirical model and results

We employ the following empirical model to test the model’s propositions. Recall from the Timing of Events table that first an unavoidable war occurs with a fixed probability, and then conditional on not observing an unavoidable war an avoidable may occur depending on the election and business cycle. Based on the model’s decomposition and timing, the probability of a big war, small war, and no war are, respectively:

$$P(B) = P(U^B) + (1 - P(U^B) - P(U^S)) \cdot P(A^B)$$

$$P(S) = P(U^S) + (1 - P(U^B) - P(U^S)) \cdot P(A^S)$$

$$P(N) = 1 - P(B) - P(S)$$

where $P(.)$ is Probability, $U$ refers to unavoidable war, $A$ refers to avoidable war, and superscript $B$ and $S$ denote whether the war is big or small, respectively. Since a critical identifying assumption of the model is that the probability of unavoidable wars is constant, we write:

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1Public opinion data has been used extensively as an indicator in earlier studies. Recent studies include Hartley and Russett (1993), Lian and Oneal (1993), DeRouen (1995) and Wang (1996).

17The more stringent condition, where we compare the current and lagged value of the variable to its sample mean, provides similar results to those presented in Table 1. See, Hess and Orphanides (1997).
so that the probability of unavoidable war is \( P(U^B) + P(U^S) = \alpha^B + \alpha^S \). Since the probability of avoidable wars is jointly linked to the business and electoral cycles, we model these as:

\[
P(A^B) = \beta^B \times \text{RECESSION} \times \text{TERM} \tag{21}
\]

\[
P(A^S) = \beta^S \times \text{RECESSION} \times \text{TERM} + \beta^T \times \text{TERM} \tag{22}
\]

The log-likelihood function is:

\[
llk = \sum_{t=1948}^{1988} B_t^* \log(P(B_t)) + S_t^* \log(P(S_t)) + N_t^* \log(N_t) \tag{23}
\]

We report the estimation results in Table 1. The estimates are under the null hypothesis that \( \beta^B = 0 \) and \( \beta^T = 0 \), so that only small wars are avoidable and they respond to the joint interaction of poor economic performance during first terms rather than first terms alone (Proposition 3). The first column specifies the particular \text{RECESSION} measure used. The standard errors of the estimates are reported in parentheses. \( L^T(1) \) reports the \( p \)-value of the likelihood ratio test of the null hypothesis that \( \beta^B = 0 \), when \( \beta^S \) freely estimated. This test allows us to gauge whether avoidable wars are big (Proposition 2). \( L^T(1) \) reports the \( p \)-value of the likelihood ratio test of the null hypothesis that \( \beta^T = 0 \), when \( \beta^S \) is freely estimated. This test allows us to gauge whether small avoidable wars are increased in first terms independent of the economy’s performance (Proposition 1).

The top panel of Table 1 presents estimates of the model when we consider only the initiations and escalation of a conflict. These results reveal that overall the data supports the existence of small avoidable wars, but not big avoidable conflicts. For all economic recession measures, the null hypothesis that \( \beta^B = 0 \) can be rejected at below the 0.10 level of statistical significance. The probability of a small avoidable war when \( \text{RECESSION} \times \text{TERM} = 1 \), \( \beta^S \), varies from 0.4 to 1.0 for these results. The results using \text{APPROVAL}, however, are weaker although the sign of estimated coefficient for \( \beta^S \) is consistent with the theory. The values reported for \( L^B(1) \) suggest that the null hypothesis that the probability of a big war is unrelated to the joint economic and electoral cycle cannot be rejected at the 0.10 level of statistical evidence. Also, the results for \( L^T(1) \) suggest that the null hypothesis that the probability of a big war is unrelated simply to \text{TERM} cannot be rejected at the 0.10 level of statistical evidence.

From our estimates, the probability of an unavoidable big war occurring in a
<table>
<thead>
<tr>
<th>Recession measure</th>
<th>$\alpha^B$</th>
<th>$\alpha^S$</th>
<th>$\beta^B$</th>
<th>$L^B(1)$</th>
<th>$L^S(1)$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initiations and escalations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBER ($\Delta RGNP$)</td>
<td>0.220***</td>
<td>0.130*</td>
<td>1.000***</td>
<td>0.999</td>
<td>0.999</td>
</tr>
<tr>
<td>(0.065)</td>
<td>(0.054)</td>
<td>(0.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta IP$ (mean)</td>
<td>0.220***</td>
<td>0.097*</td>
<td>0.429**</td>
<td>0.624</td>
<td>0.141</td>
</tr>
<tr>
<td>(0.065)</td>
<td>(0.053)</td>
<td>(0.207)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$- \Delta UNEM$ (mean)</td>
<td>0.220***</td>
<td>0.097*</td>
<td>0.429**</td>
<td>0.508</td>
<td>0.141</td>
</tr>
<tr>
<td>(0.065)</td>
<td>(0.053)</td>
<td>(0.207)</td>
<td></td>
<td></td>
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<tr>
<td>APPROVAL (mean)</td>
<td>0.220***</td>
<td>0.156***</td>
<td>0.375</td>
<td>0.637</td>
<td>0.608</td>
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<tr>
<td>(0.065)</td>
<td>(0.058)</td>
<td>(0.335)</td>
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<td></td>
</tr>
<tr>
<td><strong>Initiations, escalations and continuations</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NBER ($\Delta RGNP$)</td>
<td>0.341***</td>
<td>0.132**</td>
<td>1.000**</td>
<td>0.999</td>
<td>0.999</td>
</tr>
<tr>
<td>(0.074)</td>
<td>(0.055)</td>
<td>(0.000)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>$\Delta IP$ (mean)</td>
<td>0.341***</td>
<td>0.104*</td>
<td>0.406*</td>
<td>0.569</td>
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<td>(0.074)</td>
<td>(0.056)</td>
<td>(0.218)</td>
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<tr>
<td>$- \Delta UNEM$ (mean)</td>
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<td>0.125**</td>
<td>0.382</td>
<td>0.954</td>
<td>0.539</td>
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<tr>
<td>(0.074)</td>
<td>(0.058)</td>
<td>(0.260)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APPROVAL (mean)</td>
<td>0.341***</td>
<td>0.125**</td>
<td>0.382</td>
<td>0.534</td>
<td>0.539</td>
</tr>
<tr>
<td>(0.074)</td>
<td>(0.058)</td>
<td>(0.260)</td>
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<td></td>
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</tbody>
</table>

Notes: $P(\cdot)$ is Probability, $U$ refers to unavoidable war, $A$ refers to avoidable war, and superscripts $B$ and $S$ denote big and small war, respectively. The model sets:

\[ P(U^B) = \alpha^B \quad P(U^S) = \alpha^S \]  
(17)

\[ P(A^B) = \beta^B \cdot RECESSION \times TERM \]  
(18)

\[ P(A^S) = \beta^S \cdot RECESSION \times TERM + \beta^T \cdot TERM \]  
(19)

Standard errors are in parentheses. ***, **, and * refer to $p$-values for the test that the coefficient is insignificantly different from zero at the 0.01, 0.05 and 0.1 levels, respectively. The reported estimates were obtained under the constraint that $\beta^B = \beta^S = 0$. $L^B(1)$ and $L^S(1)$ are the $p$-values for the likelihood ratio test for the null hypothesis that $\beta^B = 0$, and $\beta^S = 0$, respectively.

Denotes that the $p$-value was derived from a likelihood ratio test $\beta^T = 0$. TERM equals 1 in first terms and 0 otherwise. APPROVAL denotes presidential approval ratings from Gallup Poll data. $\Delta UNEM$ is the annual change in unemployment, $\Delta IP$ and $\Delta RGNP$ denote the annual growth of industrial production and real GNP, respectively. For these variable, RECESSION equals 1 when they fall below their mean and zero otherwise. For NBER, RECESSION is set to 1 when 6 or more months of a year are part of a recession.
given year is approximately 0.2, whereas the probability of an unavoidable or avoidable small war are approximately 0.1 and 0.4, respectively. Subject to the strict classification of conflicts as being either avoidable or unavoidable, using expression (18), we estimate that the probability of small war fluctuates between 0.1 and 0.38 $(0.38 = 0.1 + (1 - 0.2 - 0.1) \times 0.4)$. Based on our strict classification of wars into avoidable and unavoidable, about three-quarters of the small wars during the period 1948–1988 initiated or escalated during first term presidencies during or soon after the onset of recessions may have been avoidable. These estimates reflect a wide scope for domestic political factors to influence the decision to use force.

The bottom panel of Table 1 presents estimates of the model when we consider the initiation, escalation or continuation of a conflict. While the results are somewhat weaker than those for just initiations and escalations, the $p$-values are below 0.10 for the NBER, ΔRGNP and ΔIP recession measures (the $p$-values for $-ΔUN$ and APPROVAL are both 0.142). Moreover, the magnitude of the coefficients are similar to those in the top panel of the table. Again, the null hypotheses that electoral and business cycle factors do not affect the probability of big wars and that electoral factors alone do not affect the probability of small wars cannot be rejected, as is shown in the results reported in the columns for $L^N(1)$ and $L^T(\cdot)$, respectively.

5. Conclusion

This paper provides a framework for analyzing the magnitude of foreign conflicts based on an economic model with rational voters. We demonstrate how war decisions are affected by the relative cost and information content of small wars as compared to big wars, and by leader benevolence. Selfish leaders who care only about their own reelection would be tempted to initiate large conflicts if their reelection prospects are poor on the basis of domestic considerations alone. This willingness to enter large conflicts is because such leaders discount the costs of war borne by the public and place greater value to the additional information benefit of war and its influence on their reelection prospects. By comparison, partially benevolent leaders who place weight on both their reelection prospects and voter welfare would be more likely to initiate small conflicts when their reelection chances are poor. Perfectly benevolent leaders who care only about the voters’ welfare would never initiate large conflicts, but may initiate small wars in their first terms, even if the economy is not performing poorly, if they are informative to the public and are not expected to be very costly.

The model’s empirical predictions regarding the relationships between the

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21The overall probability of war, either big or small, fluctuates between 0.3 and 0.6.
timing and magnitude of wars with respect to the business and election cycles are examined using US data for the Cold War era. Three findings emerge. First, small wars appear significantly more frequently in first terms following recessions than otherwise. Second, no such increased frequency appears in first term years not following recessions. Third, the frequency of large wars appears unrelated to the election and business cycle. These findings are consistent with the theoretical predictions for partially benevolent leaders.

Acknowledgements

We would like to thank seminar participants at the University of Cambridge, the Federal Reserve Bank of Kansas City and the 1997 Society for Economic Dynamics Conference at Keble College, Oxford as well as Richard Porter and Alastair Smith for comments. Hess gratefully acknowledges a grant from the University of Kansas which partially supported this research. Part of this paper was written while Hess was a visiting scholar at the Federal Reserve Bank of Kansas City. The opinions expressed are those of the authors and do not necessarily reflect views of the Federal Reserve Bank of Kansas City or of the Board of Governors of the Federal Reserve System.

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