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ABSTRACT

Wars, Presidents and Popularity:
The Political Cost(s) of War Re-examined

by Benny Geys *

Extensive research demonstrates that war casualties depress incumbent popularity. The present study argues that analyses of the political costs of warfare should also account for the financial toll of wars since a) financial costs of wars are substantial, b) these costs are publicly observed and understood and c) fiscal policy affects incumbents' approval ratings. Empirical evidence based on US data for the 1948-2008 period supports this theoretical claim: pecuniary costs of warfare either directly affect presidential popularity (e.g., in the Korean War) or their inclusion affects the predicted political cost of war casualties (e.g., in the Korean and Iraq/Afghanistan Wars). Interestingly, the adverse effect of war-spending is strongest under favourable economic conditions (i.e. low unemployment).

Keywords: Presidential approval, War, Casualties, Military spending

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ZUSAMMENFASSUNG

Kriege, Präsidenten und Popularität: Die politischen Kosten des Krieges

Umfangreiche Forschungen zeigen, dass Kriegsopfer der Popularität des Amtsinhabers schaden. Die vorliegende Studie liefert Argumente dafür, dass Analysen der politischen Kosten der Kriegsführung in die Berechnung der finanziellen Kriegsausgaben miteinbezogen werden sollten, da a) die finanziellen Kosten von Kriegen beträchtlich sind, b) diese Kosten von der Öffentlichkeit wahrgenommen und verstanden werden, c) Fiskalpolitik die Umfragewerte des Amtsinhabers beeinflusst. Basierend auf US-Daten über den Zeitraum 1948-2008 wird dieser theoretische Anspruch empirisch unterstützt: pekuniäre Kosten der Kriegsführung haben entweder direkt eine Auswirkung auf die Popularität des Präsidenten (z. B. Koreakrieg) oder deren Einbeziehung beeinflusst die vorhergesagten politischen Kosten durch Kriegsopfer (z. B. Korea- und Irak/-Afghanistankrieg). Interessanterweise sind die negativen Auswirkungen der Kriegsausgaben am stärksten, wenn die wirtschaftlichen Bedingungen günstig (d.h. niedrige Arbeitslosigkeit) sind.

1. Introduction

In a path-breaking study on wars and incumbent popularity, Mueller (1973, 59) designated casualty numbers as the "relevant measure (…) [of] the amount of pain caused by the war". Later studies consistently follow this choice (e.g., Kernell, 1978; Gronke and Newman, 2003; Eichenberg and Stoll, 2006; Kriner, 2006; Karol and Miguel, 2007; Gartner, 2008). Still, casualty numbers are *not* the only war characteristic affecting people's opinion about their leader. One can, for example, think of economic and fiscal impacts of wars, trade disruptions, loss of cultural heritage, environmental damage and so on. Given the human afflictions brought about by war, it may appear heartless to consider these costs. Nevertheless, when people effectively care about war-costs beyond human lives, an exclusive focus on casualties is unsatisfactory.

The present paper concentrates on the financial cost of wars. The reason is that wars – besides costing lives – also entail a significant financial burden.[1] Moreover, this financial aspect matters in people's assessment of a war. For example, "Bush's own officials are expressing doubts about sustaining a war that will cost $135 billion [in 2007]" (Sunday Times, 15/07/2007), while over 40% of Americans believes US defense and military spending is currently too high (a figure not reached since the final years of the Cold War and the Vietnam War; Gallup, 2008). Both politicians and the public at large thus convey explicit concerns regarding the Iraq conflict's financial burden. Also, Congressional Research Service reports by Belasco and Nowels (2003) and Belasco (2007) as well as studies by Nordhaus (2002), Bilmes and Stiglitz (2006) and Stiglitz and Bilmes (2008) assessing the total 'economic' costs of the Iraq War generated significant controversy and media attention (e.g., Der Spiegel, 04/06/2006; TimesOnline, 23/02/2008; Shatz, 2008). The same is true for the Bush administration's recurring requests for additional funds to finance military operations in Iraq and/or Afghanistan (e.g., CNN, 25/01/2005; LA Times, 03/02/2006; Washington Post, 27/04/2006). More generally, multi-lateral military interventions are often deemed politically more viable because, among other reasons, they disperse the financial burden (e.g., Bennett *et al.*, 1997; Lake, 1999) and "reduce public concerns about costs" (Chapman and Reiter, 2004, 897). While all this does not imply that politicians, the media or the public do not care about casualties, it forcefully demonstrates that casualties are not their only consideration.

Looking beyond war casualties in analyses of the war-popularity nexus is important because concentrating on one aspect of wars (i.c. casualties) might not adequately explain differences in public opinion across conflicts. For instance, Gallup reported in July 2007 that "the only war that compares to the current conflict in terms of public opposition is the Vietnam War" (Gallup, 2007). Yet, Vietnam casualties were of a completely different magnitude than current casualty counts, and therefore cannot account for this similarity in public opinion. Looking beyond war casualties may thus provide a more complete (and thereby more accurate) picture of the political costs of waging war.

In the next section, we embed this proposition into the existing literature and further develop the theoretical argumentation. Section 3 provides a first empirical assessment using US data over the period 1948-2008. We show that pecuniary costs of warfare either directly affect presidential popularity (e.g., in the Korean War) or that their inclusion affects the estimated

[1] We focus on the financial means required to fight the conflict. Obviously, there are also numerous economic consequences to warfare and a rapidly expanding literature investigates how wars affect the economy, and vice versa (see, e.g., Schneider and Troeger, 2006, and references therein). Such economic effects are only indirectly addressed here (see below).

political cost of war casualties (e.g., in the Korean and Afghanistan/Iraq Wars). This supports the importance of accounting for *both* casualties *and* financial burden of wars. In the final section, we summarize our main findings, and discuss avenues for further research.

2. Theoretical background

Extensive research shows that the number of casualties suffered in military conflicts undermines incumbent popularity (e.g., Mueller, 1973; Kernell, 1978; Ostrom and Simon, 1985; Gronke and Newman, 2003; Kriner, 2006; Eichenberg and Stoll, 2006; Voeten and Brewer, 2006; Karol and Miguel, 2007; Gartner, 2008). While casualty counts capture the public's appropriate sensitivity to human losses, an exclusive focus on such data to assess the political cost of wars might be incomplete. Indeed, to the extent that a) financial costs of wars are substantial, b) these costs are observed and understood by the public and c) fiscal policy affects incumbents' approval ratings, the pecuniary costs of wars will also matter.

Wars are costly

Accurate, reliable and complete data on the financial cost of military interventions are hard to obtain and estimates vary widely, even when provided by government agencies (see Wheeler, 2006). One complicating factor is whether to focus on costs of actual fighting, or to also include broader social, economic or health-care costs. Still, even leaving this crucial discussion aside, it is obvious that "the mobilization of military strength costs money" (Colaresi, 2007, 116). This price tag is illustrated in Figure 1, where we display the US Department of Defense (DoD) budget between 1948 and 2008 (with time on the X axis and Defense spending as a share of US GDP on the Y axis).[2]

Figure 1 about here

With the squares representing the starting point of the Korean, Vietnam, Afghanistan and Iraq Wars respectively,[3] Figure 1 shows that each of these wars is associated with increased defense spending. For example, the US DoD budget almost doubled since the start of the Global War on Terror: rising from $311 billion in 2001 to $598 billion in 2007 (US Department of Defense, 2007, 1). Similarly, at the height of the Korean War, the US DoD spent roughly 15% of GDP compared to 7% of GDP before the war. More generally, defense spending increases both in relation to GDP and as a share of total federal outlays during wars (US Department of Defense, 2007, 2) and this – it might be argued – is only part of the 'true' financial cost of warfare (e.g., Daggett, 2006; Bilmes, 2007; Stiglitz and Bilmes, 2008).

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[2] The data – obtained from the Bureau of Economic Analysis – include consumption expenditures and gross investment, and thus go beyond expenditures on a particular conflict. However, as a lot of war spending is taken up in the DoD budget (Stiglitz and Bilmes, 2008, 45-50), variation in DoD spending over time can serve as a valid proxy for changes in war-related spending (cf. infra). Moreover, these data constitute the closest available proxy for military spending. Data on the cost of specific military interventions – especially on a quarterly level as analysed below – simply do not exist (Joseph Stiglitz, personal communication, 23/02/2008).

[3] None of these wars had an official declaration of war, making it difficult to ascertain the exact starting date. For the Korean, Afghanistan and Iraq War, we use the beginning of major US military activity as the starting point (in July 1950, October 2001 and March 2003 respectively). For the Vietnam War, the beginning is equated with the declaration of Tonkin in August 1964 when the US Congress gave official authorization for military intervention (Oneal and Brian, 1995; Baker and Oneal, 2001).

Public awareness of wars' financial costs

As mentioned in the introduction, the media spend a substantial amount of effort, time and resources on portraying and discussing the financial costs of warfare; both directly and as a contextual interpretation of these data. For example, the New York Times (17/01/2007) recently argued that the cost of the Iraq War to date would pay for an unprecedented public health campaign, whilst leaving sufficient funds for actions towards poverty reduction and pre-school education programs. During the US Civil War, the same newspaper wondered how the government would finance a coast-to-coast railway while fighting the most expensive war in history (Vidal, 2008, 371). While this evidently does not imply that these policy programs would have been introduced in the absence of war, such contextualization is crucial in a setting where the size of numbers involved precludes an accurate understanding of their magnitude. By providing both information and context, the media thus allow the public to be aware of and understand the financial price of warfare.

Media attention, however, implies only that information is available, not that it is 'consumed'. Still, two additional pieces of information suggest that at least some of this information is absorbed. First, with respect to the current Iraq conflict, the share of Americans agreeing that money spent in Iraq could serve better purposes within the US surpassed 80% in 2005 (Hernandez and Thee, 2005) while – in March 2008 – 71% agreed that Iraq spending is partly to blame for economic difficulties in the US (CNN, 19/03/2008). Second, and more generally, the share of Americans believing US spending on defense and the military is "too high" often strongly increases when the costs of military conflicts mount. In February 2007, it surpassed 40%. As such, it more than doubled since February 2002, and reached a level not seen since the end of the Cold War and the final years of the Vietnam War (Gallup, 2008). Both elements indicate that the American public realizes there are significant financial costs to warfare, and that these costs may bear important implications (or 'opportunity costs').

One should also note here that, while public awareness as such is important, it may not be necessary for the public to possess *detailed* knowledge about the costs of war to be influenced by this information. The acquisition of some, even imperfect, information may be sufficient. One can here draw a parallel with the information on war casualties. Although this information is broadly available, most Americans have at best a rough idea about the number of military casualties suffered. For example, 20%-40% of respondents in repeated New York Times/CBS News polls asking about the number of US military casualties in Iraq answer "don't know" or "not sure", while only about 30% indicates the correct category (see also Boettcher and Cobb, 2006; Berinsky, 2007). The same result surfaces in an AIPO-survey in October 1945: 16% of Americans "don't know" how many US soldiers were killed in WWII, while only 22% indicate an answer category that comes close to the true number (see Larson, 1994: 161). Still, this highly imperfect information is generally agreed to strongly affect public opinion (cf. supra).

Fiscal policy and incumbent approval

Can we expect the public to employ this financial information in its assessment of how the incumbent is handling his/her job? Building on an extensive literature illustrating that fiscal policy tends to significantly affect incumbent popularity (for a recent review, see Geys and Vermeir, 2008), the answer is likely to be "yes". These studies indeed indicate that people favor budgetary austerity, and dislike taxes and budget deficits. As a consequence, public expenditures for war-related activities – which have to be financed either through taxes or

budget deficits (assuming it is hard to significantly reduce spending elsewhere in the budget, especially in the short run) – are likely to depress incumbent approval ratings.[4]

3. Empirical Analysis

3.1. Empirical specification

To assess the political effects of human *and* financial costs of waging war, we employ quarterly data of US presidential popularity over the period 1948:1-2008:3. Our basic specification is:

$$P_t = a + b_1 P_{t-1} + b_2 \text{Casualties}_t + b_3 \text{Fiscal}_t + b_4 X_t + e_t$$

The dependent variable – US presidential popularity (P_t) – equals the share of the population expressing approval on the standard Gallup approval question: "Do you approve or disapprove of the way President [name] has handled his job as a president?". For quarters where more than one Gallup poll is available, we take the average value while for quarters lacking a poll, we linearly interpolate the missing observation. The data range from 23% to 87% with a mean value of 54% (summary statistics for all variables are in appendix A).

As explanatory variables, the model includes one lag of the dependent variable (P_{t-1}), intended to capture the slow intertemporal adjustment commonly found in popularity ratings (e.g., Kernell, 1978). The vector of control variables, X_t, incorporates a number of 'standard' economic determinants of incumbent popularity (Anderson, 2007): i.e. real growth rate of GDP, inflation rate and unemployment rate (all in the current quarter). While the former is expected to lead to higher approval, the latter two are expected to decrease incumbent popularity. As these variables measure the overall effect of economic outcomes on incumbent popularity, they incorporate the indirect effect war-spending has on incumbent popularity via its Keynesian effect on economic outcomes (cf. Schneider and Troester, 2006; see also note 1).

Central to the analysis are the 'Casualties' and 'Fiscal' variables, capturing human and financial costs of warfare respectively. 'Casualties' is a vector of three variables (for the Korean, Vietnam and Afghanistan/Iraq War) equal to the natural logarithm of the number of casualties suffered by the US army in a given quarter.[5] For the Korean War, this variable is non-zero between 1950:2 and 1954:4. For Vietnam, this is the case between 1962:1 and 1975:4. Finally, Afghanistan/Iraq war casualties are counted between 2001:4 and 2008:3 (the most recent observation available). The use of natural logarithms allows interpreting the resulting coefficients as semi-elasticities, which are comparable across conflicts. Given the discussion in the literature on the use of marginal (i.e. quarterly) versus cumulative casualty

[4] War-spending can also be viewed as an indicator of expansionary fiscal policy (cf. Monroe, 1978). Hence, it may stimulate the economy, which might in turn positively affect incumbent popularity. Still, this indirect (Keynesian) effect will be controlled for in the analysis below by including direct measures of economic performance.

[5] In the absence of casualties, we set the natural log to 0 (rather than negative infinity). We focus on these wars as they have been studied most extensively and are arguably also the most important wars in recent US history (Nordhaus, 2002). We do not explicitly analyse the first Persian Gulf War due to its briefness. We also disregard peacekeeping missions as these are regarded differently by the public (see Larson, 1996; Burk, 1999; Gronke and Newman, 2003). Also, as the Iraq and Afghanistan conflicts are part of the broader 'Global War on Terror', we add casualties in both conflicts. Separating these two conflicts provides similar results, but introduces significant multicollinearity issues.

counts (e.g., Gartner and Segura, 1998, 2000), we report results using both indicators. In line with previous work, we expect casualties to depress incumbent popularity (i.e. $b_2<0$).

Ideally, the vector 'Fiscal' would include variables measuring spending on military operations in a conflict (Belasco, 2007). Unfortunately, however, such data are unavailable (see note 2). We therefore employ the *change* in US Department of Defense (DoD) expenditures in times of war as a proxy for war-spending. As the DoD tends to include a lot of war spending in its general budget (Stiglitz and Bilmes, 2008, 45-50), changes in DoD spending can serve as a valid proxy for variations in war-related spending (controlling for other determinants of DoD spending). In particular, we separate observed DoD-spending (as shown in Figure 1 and defined in note 2) in two components: 'baseline' spending – i.e. the expenditure level had there been no war and no casualties – and 'war-induced' expenditures – i.e. the shift in DoD-spending as a result of the war and casualties. This is achieved by running an auxiliary regression relating DoD spending to its lagged value, economic variables, a linear trend variable, indicator variables for the Korean, Vietnam, Cold and Afghanistan/Iraq War and the casualty variables as defined above. 'Baseline' DoD spending is then calculated using these regression results and imposing that all war-related variables are zero. This represents the expenditure level that would have come about had there been no war and no casualties. 'War-induced' spending is subsequently defined as the difference between observed DoD spending and the predicted 'baseline' spending. It thus represents additional spending generated by the state of war and its casualties.[6] Clearly, like the casualty variables, this 'war-induced' spending is non-zero only in times of war. We include all financial variables lagged one period to allow for some delay in public response to fiscal outcomes, and expect an increased financial war burden to depress incumbent popularity (i.e. $b_3<0$).[7]

This 'baseline' specification is, in a set of robustness checks, extended in two ways. First, we allow for the fact that casualties in the beginning of a war may not be equally harmful to political leaders (e.g., due to a 'rally-around-the-flag' effect; cf. Mueller, 1970, 1973; Eichenberg and Stoll, 2006; Colaresi, 2007; Kam and Ramos, 2008). To capture this, we interact the logged casualty count in each war with an indicator variable ('WarStart') equal to one for the first two quarters of the conflict (0 otherwise): i.e. Korea, 1950:3-4; Vietnam, 1964:3-4; Afghanistan, 2001:4-2002:1; Iraq, 2003:1-2.[8] Introducing both the level of casualties and the interaction term allows empirically distinguishing the effect of war casualties in the first two quarters of the war and its overall effect throughout the war.[9]

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[6] Due to a lack of more detailed data, we unfortunately cannot differentiate to what extent this additional spending is covered by borrowing, taxation or simply printing money. Hence, we implicitly assume that the source of funding is irrelevant. Nevertheless, current tax increases might be more harmful to the incumbent than deferred tax increases (i.e. borrowing). Future work should more explicitly address this issue.

[7] Importantly, the correlation coefficient between war-induced spending and the casualty variables is considerable for all three conflicts considered here. In fact, it equals 0.45 and 0.33 in the Korean War, 0.91 and 0.43 in Vietnam and 0.33 and 0.48 in Afghanistan/Iraq (for marginal and cumulative casualty counts respectively). This significant correlation suggests that ignoring either variable may lead to biased inferences.

[8] Although this two-quarter period is clearly arbitrary, similar results are obtained when we use the first three quarters as 'early stage' or when we eliminate this variable altogether (available upon request). Note also that while the US suffered casualties in Vietnam before the Tonkin declaration, we follow previous work in designating this declaration as the onset of the Vietnam War (Oneal and Brian, 1995; Baker and Oneal, 2001).

[9] In order not to bias our estimates, we also include the four 'Warstart'-dummies separately. While the substantive interpretation of these variables is meaningless – as their coefficients refer to the effect of the first two quarters of a war in the absence of casualties, which never occurs – their exclusion might lead to significant bias and misinterpretation of the results (see Braumoeller, 2004; Brambor *et al*., 2006).

Second, we include a number of political control variables. This vector first of all entails a set of administration dummies. Then, we account for the ebb and flow of presidential terms via a 'honeymoon' variable (e.g., Smyth and Dua, 1989; Fox and Phillips, 2003)[10] and an indicator variable capturing 'pre-election rebounds' (e.g., Goodhardt and Bhansali, 1970; Cusack, 1999; Schmitt and Wüst, 2006).[11] The lower accountability of divided governments (cf. Powell and Whitten, 1993; Nicholson *et al*., 2002) is assessed by including a dummy variable equal to 1 where the president's party does not control either House or Senate, 0 otherwise. Finally, we control for the Iran-hostage affair[12], Persian Gulf War (dummy equal to 1 in 1991:1), 9/11 (dummy equal to 1 in 2001:4)[13], Watergate (dummy equal to 1 in 1973:2-1974:2), Iran-Contra affair (dummy equal to 1 in 1986:4-1987:1) and President Clinton's Lewinsky affair (dummy equal to 1 in 1998:1-1999:1). Some specifications furthermore included president-specific or war-specific time trends (to capture a 'cost of ruling' and war weariness respectively).

3.2. Results

Prior to the analysis, unit root tests were performed to assess the stationarity of our variables.[14] The results in Table 1 indicate that all variables are stationary, with the exception of inflation and 'baseline' DoD spending. As first differences of these variables are stationary, we include them in first-differenced form.

Table 1 about here

The 'baseline' estimation results, using OLS, are in Table 2. Note that, as there generally is no residual autocorrelation after including the lagged dependent variable, we refrain from calculating Prais-Winston corrected standard errors and report t-values based on standard White heteroscedasticity-consistent standard errors.[15] Column (1) presents a model that –

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[10] This variable is 3, 2 and 1 in the second, third and fourth quarter of each administration respectively, and 0 otherwise. Lacking an observation for the lagged dependent variable, the first quarter of each administration is removed from the sample.

[11] This variable is 1 only in the election quarter. Alternative specifications – where the pre-election variable equals 1 in quarters 3 and 4 of the election year or in the entire election year – do not affect our main results, but show weaker pre-election rebounds (suggesting most of the rebound takes place in the election quarter).

[12] This variable equals 1/i (with i=1,…,5) in the quarters between 1979:4 and 1981:4, and 0 otherwise. Alternatively, modelling an exponential decline (i.e. e^{-t} with t = 0, 1, …, 4 between 1979:4 and 1981:4) as suggested by Ostrom and Simon (1989) and Marra *et al*. (1990) does not affect our findings.

[13] Some scholars argue that 9/11 had a slowly decaying effect on presidential approval (e.g., Gaines, 2002; Hetherington and Nelson, 2003). Yet, Eichenberg and Stoll (2006) estimate the event's duration at 15 weeks using New York Times news coverage data. This substantiates our choice to include a dummy for one quarter rather than model a linearly or exponentially declining impact. Note also that a more explicit modelling of the possibly declining impact of 9/11 introduces multicollinearity with the Afghanistan/Iraq War-related variables – causing severe identification problems.

[14] We perform augmented Dickey-Fuller tests. The number of lags included is based on a sequential general-to-specific rule (Hall, 1994; Maddala and Kim, 2004) taking the integer part of $[12\ (T/100)^{1/4}]$, with T representing the number of observations, as a starting point (Schwert, 1989). Consequently, as T=223, we start with 14 lags. Inclusion of a trend variable and constant term is decided by their statistical significance. The reason is that including too many 'deterministic' variables reduces the power of the test while incorrectly excluding them biases it in favour of the unit-root null hypothesis (Guilkey and Schmidt, 1991).

[15] Although OLS leads to consistent coefficient estimates in the presence of generated regressors (i.e. our spending variables), the estimated covariance matrix of the approval model needs to be adjusted to account for the variability in these variables (Pagan, 1984). Approximation of the appropriate variance-covariance

following previous studies – focuses exclusively on the effect of war casualties. In column (2), we add variables measuring the financial burden of US involvement in military conflicts. Columns (3) and (4) present the results when also including war-specific dummy variables (as one might argue the casualty- and war-spending variables to constitute an interaction with this dummy). Columns (5) through (8) replicate these analyses using cumulative rather than marginal casualty counts.

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Table 2 about here

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The results show that all three wars behave in line with previous findings as regards the effect of war casualties. That is, higher US casualty counts significantly reduce presidential approval ratings. This holds both for marginal (column (1)) and cumulative (column (5)) casualty counts. Adding war-specific dummy variables introduces significant multicollinearity issues leading both casualty variables and war dummies to be individually insignificant. Yet, in line with previous work, the overall effect of wars with casualties remains negative in all cases (and at all observed casualty levels) and, importantly, both variables are jointly significant for all three wars.

Interestingly, however, adding the financial cost of warfare (in the even columns of Table 2) changes the inferences from the model in two important ways. First, the financial cost of the Korean War had a significant negative impact on presidential popularity. This supports earlier views of a fiscally conservative electorate (e.g., Niskanen, 1979; Peltzman, 1992; Cuzán and Bundrick, 1999). Interestingly, however, such effect is much weaker in Afghanistan/Iraq and fully absent in Vietnam. One potential explanation for this divergence is that wars have become relatively less expensive for the United States over time. Both the Vietnam and the current Afghanistan/Iraq War are much less expensive in terms of US GDP than the Korean War, WWII or the Civil War (Nordhaus, 2002; Belasco, 2007). Overall, the direct impact of the financial cost of warfare on US presidential popularity thus appears largely constrained to the Korean War.

Second, including the financial cost of warfare strongly affects the findings with respect to the casualty variables in the Korean and Afghanistan/Iraq Wars. In both wars, either the effect of casualties becomes statistically insignificant (columns (2) and (6)) or the joint effects of casualties and war dummies are no longer statistically significant (columns (4) and (8)). This suggests that the strong US casualty sensitivity observed in previous studies of these conflicts derives at least in part from the absence of fiscal variables. Interestingly, the Vietnam War is different in that casualty sensitivity persists for this conflict even after the inclusion of fiscal variables. This supports earlier views of the massive impact casualties had on popular opinion during this conflict (leading to the so-called 'Vietnam Syndrome').

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Table 3 about here

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matrix using an approach based on Murphy and Topel (1985) and Hole (2006) illustrates that our main inferences are unaffected by such correction (available upon request). Given these findings, we present the

The results of a number of robustness checks are reported in Table 3. In the first two columns, we simply extend the baseline model presented in Table 2 (columns (1) and (2)) with the 'Warstart' and political variables described at the end of section 3.1. This creates a more complete model that is closer in line with those generally estimated in the literature (e.g., Cuzán and Bundrick, 1999; Nicholson *et al.*, 2002; Geys and Vermeir, 2008). In column (3), we exclude DoD baseline spending from the model. Columns (4)-(5), (6)-(7) and (8)-(9) add administration-specific time trends (to capture a possible incumbent-specific 'cost of ruling'), war-specific dummy variables and war-specific time trends (to capture the effect of war weariness), respectively, to the model. In each case, our central findings persist – though it becomes even clearer that the strongest effects of introducing fiscal variables exist for the Korean War: i.e. in all cases, a) Korean war-related spending directly and significantly depresses incumbent support, and b) the effect of Korean casualties either becomes statistically insignificant or changes sign when adding the fiscal variables. Note, however, that the coefficient estimate and statistical significance of the Afghanistan/Iraq War casualty variables now become *more negative* when introducing financial variables. This implies that the casualties' effect was underestimated when disregarding financial variables. One potential explanation is that changes in military technology over time might have led to a decoupling of the relationship between casualties and financial burdens: costly technology replaced manpower, making loss of human lives even less acceptable (cf. Sapolsky and Shapiro, 1996).

Looking briefly at the control variables in Table 3, it can be seen that these behave largely in line with previous findings. We find evidence for president-specific effects and a pre-election rebound, while fragmentation of power (i.e. divided government) and honeymoon periods have no significant independent effect. The Watergate and Iran-Contra affairs had devastating impacts on presidential popularity, whereas the reverse is true for the Lewinsky affair (in line with Zaller, 1998). Large-scale terrorist acts against the US – i.c. 9/11 and the Iran-hostage affair – boost approval ratings, supportive of a rally-around-the-flag effect. Finally, the swift and successful resolution of the 1991 Persian Gulf War also benefited the popularity of the US president.

Table 4 about here

Finally, in Table 4, we evaluate whether the impact of war-induced spending is affected by the level of casualties or economic conditions. One might indeed hypothesize that war-induced spending becomes relatively less important for incumbent popularity when casualty numbers are high (assuming casualties are more important than money), or under bad economic conditions (we are grateful to an anonymous referee for pointing this out). To this end, we interact our spending variables with the unemployment level (reported in column (1)) or casualty level (column (2)). Although such mediating effects cannot be confirmed using (marginal) casualty counts, the results indicate that high unemployment mitigates the negative effect of war-induced spending on incumbent popularity (a similar effect does not exist for GDP growth or inflation). Indeed, in the absence of unemployment, war-induced spending significantly depresses incumbent popularity in both the Korean and Afghanistan/Iraq conflicts – while increasing levels of unemployment significantly reduce this effect (it reaches zero around 5 to 5.5% unemployment in both conflicts). This suggests that war-induced

naive standard errors in all tables below, which "assume that there is no error in the generation of the spending predictor in the first-stage regression model" (Hardin, 2002, 259).

spending might under adverse economic conditions be seen by the public as a welcome stimulus for the national economy, and thus invoke a less negative evaluation.

5. Conclusion and discussion

Peace and prosperity are two key determinants of the electorate's judgement of its leader(s) (Ostrom and Simon, 1985; Zaller, 1998). Prosperity is mostly measured through economic indicators such as GDP growth, unemployment or inflation. For the effect of peace (or war), scholars have consistently depended on casualty counts. The present study argued that since a) financial costs of wars are substantial, b) these costs are observed and understood by the public and c) fiscal policy affects incumbents' approval ratings, the pecuniary costs of wars are also likely to matter for presidential popularity.

We employed data on US president approval ratings for the period 1948-2008 to analyse *both* human *and* financial costs of warfare. Our main findings are twofold. First, the financial cost of warfare had a significant negative impact on presidential popularity – though mainly for the Korean War. The absence of similar direct effects of wars' financial burdens in Vietnam and Afghanistan/Iraq may derive from the fact that wars have become less expensive – relative to the size of GDP – for the United States over time. In effect, this observation has led some DoD officials to argue for increased defense budgets on the argument that "we should spend more (…) because we can" (cited in Pemberton and Korb, 2007, 5). Second, inclusion of the financial cost of warfare affects inferences with respect to the casualty variables – especially in the Korean and Afghanistan/Iraq Wars. Exclusion of the financial cost of wars thus led to significantly biased inferences.

While these results are supportive of our theoretical argument, further work is clearly required. First, more detailed measures of the financial cost of wars need to be developed and their impact tested. One avenue is thereby to concentrate on spending for military operations *strictu senso*, while another would involve moving further beyond money burnt 'in theatre' (cf. Stiglitz and Bilmes, 2008). Second, future work should address whether, and to what extent, the source of this additional spending – i.e. borrowing, taxation or simply printing money – matters for public opinion. Third, our argument implies individuals are less likely to express presidential approval when they perceive higher financial burdens of war. This prediction should be evaluated via future individual-level or experimental studies (cf. experiments indicating lower/higher approval among those perceiving higher/lower human costs of warfare; see, e.g., Campbell, 2004; Gelpi *et al*., 2006; Boettcher and Cobb, 2006). Fourth, recent work has shown that conditions such as perceptions of success, casualty framing, domestic (or international) political and media support and elite consensus/dissensus affect casualty sensitivity and public support for the use of military force (e.g., Jentleson, 1992; Larson, 1995; Jentleson and Britton, 1998; Eichenberg, 2005; Boettcher and Cobb, 2006; Gelpi *et al*., 2006; Berinsky, 2007; for a recent review, see Aldrich *et al*., 2006, 481-483). One can clearly wonder to what extent similar effects hold for war-related spending. Finally, the argument presented here can be generalised beyond economic and fiscal impacts of wars to incorporate the costs of trade disruptions, loss of cultural heritage, environmental damage and so on. While obviously difficult to measure, it appears doubtful that their impact can be adequately proxied by war casualty numbers (which is implicitly assumed when variables for such additional costs are otherwise ignored).

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Figure 1: US Defense Spending in % of US GDP (1948-2008)

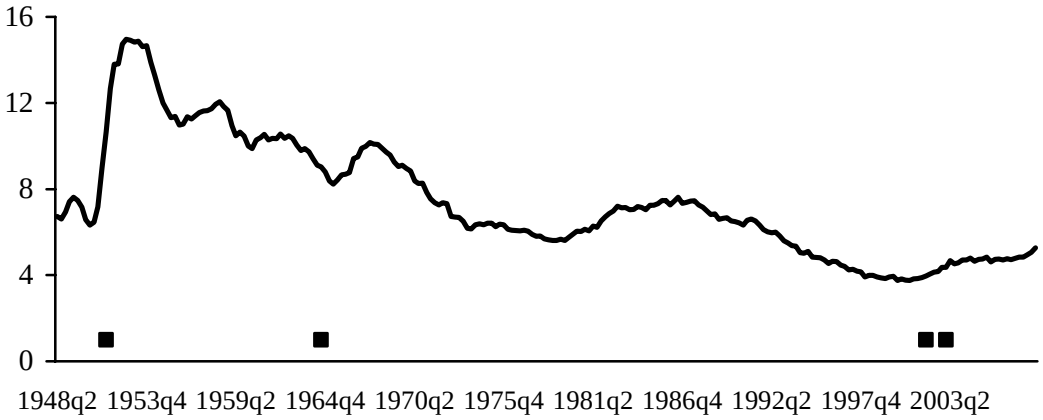

Table 1: Results from unit-root tests (Augmented Dickey-Fuller tests)

Variable	**# lags**	τ_μ	**Inference**
Presidential Approval [c]	1	-4.40***	Stationary
Growth [a]	11	-5.53***	Stationary
Unemployment [c]	12	-2.29***	Stationary
Inflation [b]	12	-1.04	Unit root
Inflation, first differences [b]	11	-6.42***	Stationary
Defense spending [b]	12	-1.86	Unit root
Defense spending, first differences [a]	14	-6.05***	Stationary
'Baseline' defense spending [a]	11	-2.24	Unit root
'Baseline' defense spending, first differences [b]	10	-7.16***	Stationary

Note: Critical values $\tau_{\mu,}$ are in Fuller (1976). Inclusion of constant term and time trend were based on their statistical significance. Superscript [a] refers to inclusion of both constant and time trend, superscript [b] indicates the absence of both while superscript [c] implies inclusion of a constant term only.

Table 2: Determinants of US Presidential approval ratings 1948-2008

	(1) **(Marg. Cas)**	**(2)** **(Marg. Cas)**	**(3)** **(Marg. Cas)**	**(4)** **(Marg. Cas)**	**(5)** **(Cum. Cas)**	**(6)** **(Cum. Cas)**	**(7)** **(Cum. Cas)**	**(8)** **(Cum. Cas)**
Intercept	8.967 *** (3.86)	6.900 ** (2.53)	8.869 *** (3.41)	7.639 *** (2.92)	8.905 *** (4.02)	7.127 ** (2.24)	9.053 *** (3.86)	7.339 ** (2.25)
Approval (lagged)	0.901 *** (35.81)	0.921 *** (28.56)	0.897 *** (31.45)	0.908 *** (32.24)	0.899 *** (36.98)	0.917 *** (23.18)	0.896 *** (32.98)	0.909 *** (21.60)
Growth	0.180 ** (2.02)	0.149 (1.62)	0.188 ** (2.09)	0.150 (1.62)	0.166 * (1.90)	0.147 (1.64)	0.185 ** (1.99)	0.164 * (1.73)
Unemployment	-0.723 *** (-2.93)	-0.537 ** (-2.04)	-0.663 *** (-2.58)	-0.547 ** (-2.06)	-0.665 *** (-2.82)	-0.530 ** (-2.01)	-0.669 *** (-2.83)	-0.508 * (-1.92)
Inflation (first difference)	-1.230 *** (-2.68)	-1.156 ** (-2.55)	-1.182 *** (-2.64)	-1.134 ** (-2.41)	-1.239 *** (-2.75)	-1.187 ** (-2.64)	-1.196 *** (-2.59)	-1.131 ** (-2.46)
Korea casualties (log)	-0.442 ** (-2.19)	0.017 (0.09)	-0.241 (-0.65)	0.479 (1.32)	-0.301 ** (-2.09)	-0.007 (-0.06)	0.319 (0.96)	0.747 ** (2.09)
Vietnam casualties (log)	-0.375 *** (-3.21)	-0.277 ** (-2.41)	-0.241 (-0.65)	-0.134 (-0.25)	-0.262 *** (-3.13)	-0.205 ** (-2.44)	-0.193 (-0.80)	-0.268 (-0.87)
Afgh/Iraq casualties (log)	-0.402 ** (-2.02)	1.509 (1.02)	0.043 (0.13)	4.479 (1.39)	-0.324 *** (-2.65)	0.942 (0.78)	0.001 (0.00)	1.892 (0.74)
DoD baseline spending (first difference)	-	-0.948 (1.08)	-	-1.253 (-1.44)	-	-1.022 (-1.16)	-	-1.132 (-1.21)
DoD Korea spending	-	-4.777 *** (-2.62)	-	-4.908 ** (-2.40)	-	-4.564 ** (-2.45)	-	-4.763 ** (-2.57)
DoD Vietnam spending	-	40.061 (1.52)	-	26.563 (0.57)	-	26.788 (1.04)	-	30.799 (0.97)
DoD Afgh/Iraq spending	-	-56.957 (-1.35)	-	-74.177 * (-1.74)	-	-53.161 (-1.08)	-	-63.083 (-0.98)
War-specific dummies	NO	NO	YES	YES	NO	NO	YES	YES
R^2	85.60	86.43	85.89	86.89	85.76	86.37	85.84	86.55
AR(1)	1.25	1.05	1.00	0.53	1.53	1.46	1.38	1.41
RESET³	0.61	0.47	2.41 *	1.62	0.71	0.47	0.92	0.53
F(casualty/wardummy)			2.29 * (K) 5.27 *** (V) 3.28 ** (I)	1.07 (K) 3.07 ** (V) 1.02 (I)			5.60 *** (K) 5.24 *** (V) 3.87 ** (I)	3.23 ** (K) 3.11 ** (V) 0.29 (I)

Note: Dependent variable: US Presidential approval ratings 1948-2008. N = 229. Numbers between brackets are t-values based on White heteroscedasticity-consistent standard errors. *** significant at 1%; ** at 5% and * at 10%. AR(1) is the Breusch-Godfrey test for first-order autocorrelation. RESET³ represents Ramsey's (1969) test for functional form misspecification. F-test assesses joint significance of casualties and war dummy for each given war (with K=Korea, V=Vietnam and I=Iraq)

Table 3: Robustness checks

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	19.252 ***	18.259 ***	18.121 ***	26.597 ***	25.588 ***	18.720 ***	18.152 ***	20.856 ***	19.600 ***
	(4.53)	(3.90)	(3.86)	(5.29)	(4.51)	(4.29)	(3.87)	(4.65)	(4.02)
Approval (lagged)	0.776 ***	0.773 ***	0.775 ***	0.680 ***	0.675 ***	0.784 ***	0.775 ***	0.746 ***	0.742 ***
	(25.75)	(24.13)	(24.02)	(17.10)	(15.85)	(24.72)	(23.86)	(22.09)	(19.99)
Growth	0.171 **	0.159 *	0.159 *	0.166 **	0.144 *	0.172 **	0.161 *	0.160 **	0.147 *
	(2.15)	(1.88)	(1.95)	(2.19)	(1.88)	(2.11)	(1.88)	(1.98)	(1.74)
Unemployment	-1.267 ***	-1.200 ***	-1.236 ***	-1.207 ***	-1.265 **	-1.243 ***	-1.185 ***	-1.237 ***	-1.230 ***
	(-3.56)	(-3.16)	(-3.34)	(-2.68)	(-2.34)	(-3.42)	(-3.07)	(-3.45)	(-3.15)
Inflation (first difference)	-0.731 *	-0.650	-0.752 *	-0.604 *	-0.631	-0.725 *	-0.658	-0.535	-0.547
	(-1.77)	(-1.44)	(-1.60)	(-1.66)	(-1.49)	(-1.75)	(-1.46)	(-1.27)	(-1.18)
Honeymoon	0.626	0.575	0.616	-0.138	-0.028	0.621	0.545	0.811 *	0.798
	(1.23)	(1.04)	(1.13)	(-0.24)	(-0.96)	(1.19)	(0.97)	(1.68)	(1.50)
Election	2.735 ***	2.515 ***	2.859 ***	3.960 ***	3.880 ***	2.712 ***	2.496 ***	2.348 ***	2.254 **
	(3.19)	(2.89)	(3.26)	(4.53)	(3.89)	(3.17)	(2.84)	(2.70)	(2.51)
Divided Government	-0.238	-0.465	-0.370	-1.087	-1.253	-0.118	-0.568	1.848	1.247
	(-0.20)	(-0.38)	(-0.31)	(-0.83)	(-0.96)	(-0.09)	(-0.45)	(1.25)	(0.82)
Watergate	-11.983 ***	-11.639 ***	-11.535 ***	-11.959 ***	-12.471 ***	-11.342 ***	-11.444 ***	-12.337 ***	-12.373 ***
	(-5.61)	(-5.19)	(-5.21)	(-6.32)	(-6.12)	(-5.28)	(-5.10)	(-5.91)	(-5.50)
Iran-Contra	-7.573 ***	-7.619 ***	-7.542 ***	-6.683 ***	-6.720 ***	-7.570 ***	-7.634 ***	-7.485 ***	-7.504 ***
	(-8.83)	(-9.51)	(-8.66)	(-8.11)	(-7.80)	(-8.72)	(-9.59)	(-9.58)	(-9.78)
Lewinsky	2.988 **	3.122 **	3.066 **	3.479 **	3.502 **	2.948 **	3.136**	2.762 **	2.972 **
	(2.25)	(2.31)	(2.29)	(2.51)	(2.48)	(2.20)	(2.29)	(2.12)	(2.24)
Korea casualties (log)	-0.643 **	-0.077	-0.137	-0.297	0.146	-0.699	0.221	-1.109 **	-0.453
	(-1.98)	(-0.21)	(-0.38)	(-0.76)	(0.33)	(-1.36)	(0.40)	(-2.19)	(-0.74)
Korea casualties * WarStart	6.340 ***	-5.241	-6.753	4.366 ***	-6.900	6.377 ***	-5.695	7.393 ***	-4.115
	(4.37)	(-0.69)	(-0.89)	(2.62)	(-1.04)	(4.01)	(-0.74)	(4.55)	(-0.55)
Korea Warstart	-49.890 ***	46.584	60.438	-34.767 ***	59.651	-50.204 ***	49.714	-56.612 ***	-38.933
	(-4.34)	(0.72)	(0.94)	(2.71)	(1.07)	(-4.03)	(0.76)	(4.58)	(0.61)
Vietnam casualties (log)	-1.232 ***	-1.244 ***	-1.248 ***	0.045	0.126	-0.987 **	-0.933	-1.193 ***	-1.237 ***
	(-3.09)	(-3.09)	(-3.12)	(0.06)	(0.16)	(-2.36)	(-1.38)	(-3.48)	(-3.44)
Vietnam casualties (log)* WarStart	-3.679	-3.201	-4.360	-10.380 ***	-9.802 **	-3.852	-3.178	-2.520	-2.222
	(-1.10)	(-0.96)	(-1.28)	(-2.71)	(-2.33)	(-1.13)	(-0.93)	(-0.76)	(-0.65)
Vietnam Warstart	14.638	13.213	17.860	43.188 ***	40.494 **	16.033	13.321	10.176	9.081
	(1.06)	(0.95)	(1.26)	(2.73)	(2.34)	(1.13)	(0.93)	(0.74)	(0.65)
Afgh/Iraq casualties (log)	-0.956 **	-1.198 ***	-1.201 ***	-1.566 ***	-1.947 ***	-0.587	-1.278	-0.013	-0.478
	(-1.98)	(-2.90)	(-2.88)	(-3.18)	(-3.55)	(-0.47)	(-1.11)	(-0.02)	(-1.02)

Afgh casualties (log) * Afgh WarStart	1.178 *** (3.39)	1.053 *** (3.34)	1.034 *** (3.35)	1.996 *** (4.79)	1.842 *** (4.50)	0.864 (1.42)	1.082 * (1.83)	0.716 * (1.84)	0.584 * (1.68)
Iraq casualties (log) * Iraq WarStart	11.301 *** (14.20)	11.478 *** (14.24)	11.447 *** (15.82)	11.495 *** (15.84)	11.661 *** (15.34)	11.068 *** (9.72)	11.468 *** (10.73)	11.356 *** (14.09)	11.543 *** (13.63)
Iraq Warstart	-43.514 *** (-11.94)	-44.471 *** (-12.15)	-44.353 *** (-13.57)	-43.229 *** (-13.25)	-44.043 *** (-12.45)	-42.235 *** (-7.18)	-44.551 *** (-8.30)	-45.902 *** (-12.17)	-46.753 *** (-12.24)
GulfWar dummy	23.986 *** (14.11)	24.107 *** (13.97)	23.911 *** (13.95)	23.505 *** (17.38)	23.545 *** (17.11)	23.993 *** (14.00)	24.156 *** (13.87)	24.072 *** (13.96)	24.077 *** (13.82)
Iran hostage	9.366 ** (2.07)	9.214 ** (2.01)	9.275 ** (2.02)	14.130 ** (2.47)	13.990 ** (2.40)	9.412 ** (2.06)	9.261 ** (2.01)	8.794 * (1.95)	8.653 * (1.89)
9/11 dummy	25.664 *** (23.31)	27.535 *** (6.97)	27.623 *** (6.99)	24.141 *** (21.35)	27.078 *** (6.96)	25.790 *** (22.75)	25.444 *** (18.79)	24.829 *** (20.42)	27.794 *** (6.99)
DoD baseline spending (first difference)	-	-0.529 (-0.58)	-	-	-0.419 (-0.45)	-	-0.728 (-0.72)	-	-0.338 (-0.37)
DoD Korea spending	-	-5.543 * (-1.74)	-5.760 * (-1.70)	-	-5.523 * (-1.83)	-	-5.800 * (-1.78)	-	-5.224 * (-1.65)
DoD Vietnam spending	-	16.948 (0.63)	15.700 (0.59)	-	-25.104 (-0.48)	-	-3.329 (-0.06)	-	6.039 (0.22)
DoD Afgh/Iraq spending	-	12.792 (0.48)	13.809 (0.52)	-	21.843 (0.81)	-	12.729 (0.44)	-	21.105 (0.79)
Administration dummies F (10, 191)	YES 3.72 ***	YES 4.02 ***	YES 3.60 ***	YES 3.11 ***	YES 3.10 ***	YES 3.45 ***	YES 3.54 ***	YES 3.17 ***	YES 2.99 ***
Administration time trends	NO	NO	NO	YES	YES	NO	NO	NO	NO
War-dummies (1 if war; 0 otherwise)	NO	NO	NO	NO	NO	YES	YES	NO	NO
War-specific time trends (cf. war weariness)	NO	NO	NO	NO	NO	NO	NO	YES	YES
R^2	92.11	92.40	92.34	93.58	93.71	92.13	92.42	92.37	92.54
AR(1)	0.00	0.08	0.00	3.14 *	2.34	0.01	0.07	0.23	0.08
RESET[3]	1.08	1.24	1.11	1.88	1.18	1.00	1.16	1.04	1.19

Note: Dependent variable: US Presidential approval ratings 1948-2008. N = 229. Numbers between brackets are t-values based on White heteroscedasticity-consistent standard errors. *** significant at 1%; ** at 5% and * at 10%. All regressions use marginal casualties. To ease comparison with Table 2, it can be noted that columns (1) and (2) presented here extend those some columns in Table 2, while columns (6) and (7) here are an extension of columns (3) and (4) in Table 2.

Table 4: Spending effects by casualty level and economic conditions

	(1) Unemployment	**(2) Casualties**
DoD baseline spending (first difference)	0.278 (0.28)	-0.190 (-0.15)
DoD Korea spending	-36.425 ** (-2.14)	-3.951 ** (-2.29)
DoD Korea spending * unemployment rate	6.687 * (1.76)	-
DoD Korea spending * Korean casualties	-	-0.657 (-0.58)
DoD Vietnam spending	167.547 (0.84)	95.051 (1.35)
DoD Vietnam spending * unemployment rate	-27.353 (-0.81)	-
DoD Vietnam spending * Vietnam casualties	-	-20.597 (-1.17)
DoD Afgh/Iraq spending	-92.714 * (-1.90)	14.859 (0.55)
DoD Afgh/Iraq spending * unemployment rate	18.848 ** (2.51)	-
DoD Afgh/Iraq spending * Afgh/Iraq casualties	-	-
R^2	92.11	92.40
AR(1)	0.00	0.08
RESET[3]	1.08	1.24

Note: Dependent variable: US Presidential approval ratings 1948-2008. All control variables included as in Table 3. N = 229. Numbers between brackets are t-values based on White heteroscedasticity-consistent standard errors. *** significant at 1%; ** at 5% and * at 10%. All regressions use marginal casualties. The "DoD Afgh/Iraq spending * Afgh/Iraq casualties" interaction is dropped due to multicollinearity.

Appendix A: Summary statistics

Table A1: Summary Statistics (N = 242)

Variable	Mean	Standard deviation	Minimum	Maximum
Presidential Approval	54.03	12.97	23.33	87.13
Growth	3.41	4.05	-10.44	17.47
Inflation	3.82	2.98	-2.79	14.43
Unemployment	5.60	1.49	2.57	10.67
Honeymoon	0.41	1.04	0	4
Election	0.07	0.24	0	1
Divided Government	0.57	0.50	0	1
Watergate	0.02	0.14	0	1
Iran-Contra	0.01	0.09	0	1
Lewinsky	0.02	0.14	0	1
Korea casualties (log)	0.53	1.89	0	8.87
Vietnam casualties (log)	1.326	2.50	0	8.60
Afgh./Iraq casualties (log)	0.55	1.57	0	5.89
Iran Hostage	0.01	0.08	0	1
9/11	0.004	0.06	0	1
Defense spending	7.45	2.74	3.75	14.96