'Guns and butter' in U.S. presidential elections

Stephen Haynes
Department of Economics, University of Oregon

Joe Stone
Department of Economics, University of Oregon

Abstract

Previous models of the popular vote in U.S. Presidential elections emphasize economic growth and price stability, the role of parties and incumbency, and pre−election expectations for the future. Despite the closeness of the pre−election polls in 2004, formal models instead predict a landslide victory for President Bush. An obvious question is whether this anomaly arises, at least in part, from national security concerns – in particular, the conflict in Iraq. We explore this pre−election anomaly by introducing two opposing electoral forces capturing national security concerns, which for the 2004 election reduces President Bush's predicted vote share. In general, the impact of national security concerns on the vote share of the incumbent (or the incumbent's party) can be substantial, whether positive, as in the 1944 election during World War II, or negative, as in the 1952 election during the Korean war and the 1968 election during the Vietnam war.

1. Introduction

In this paper we explore the role of national security issues in determining the popular vote in Presidential elections in the United States. Prior to the 1992 election, models of the popular vote for President (e.g., Fair, 1978 and 1988) emphasized a dominant role for economic growth and price stability in closely replicating the popular vote. However, in 1992 these models falsely predicted a landslide victory for the incumbent, President George H.W. Bush. Instead, he lost in a close election to Governor William Clinton. In response to the shortcomings of earlier models in the 1992 election, subsequent studies (e.g., Gleisner 1992, Haynes and Stone 1994, and Fair 1996) introduced additional factors, e.g., how long the incumbent party has held the Presidency, whether or not the nominee of the incumbent party is also the incumbent President, the number of quarters of exceptionally high growth (above 3.2%), and the rate of change in the Dow-Jones stock market average in the period prior to the election. These factors in various forms not only improved estimates of the 1992 election, but also improved predictions of the popular vote in the later 1996 and 2000 elections.

Model predictions prior to the 2004 election again appear to pose a quandary. As in 1992, the models predict a landslide victory in the popular vote for the incumbent President (e.g., Fair 2004), ironically for President George W. Bush, the son of the former President Bush. As columnist Tom Raum (2003) put it, "American Presidents seeking re-election almost always try to rev up the economy a year or so out. George W. Bush is no exception. And he has a big advantage over most of his predecessors, including his father: an obliging same-party Congress and an accommodating Federal Reserve." Yet most polls predict a close race with his Democratic challenger, Senator John Kerry. Why? Of course, the polls could turn out to be wrong in accurately reflecting what the popular vote will be in November, in which case there is no quandary. However, the models may also again be wrong because they have not accurately captured other important factors important to voters. Indeed, no model can accurately project the role of every factor. The relevant question is whether the models are wrong in predictable, rectifiable ways.

The most obvious omitted factor in the current election campaign is the conflict in Iraq. Rep. Paul Ryan (R-Wisconsin) argued earlier in 2004 that "The economy is firing on all cylinders … and it's completely overshadowed by Iraq." Despite signs of a slowing economy in the latter half of 2004, Rep. Ryan's explanation that the conflict in Iraq overshadows the current election is compelling. Even so, how can national security be introduced in measurable ways into a formal model? Many have argued informally that a typical response of voters to armed conflict is to "rally round the flag" in support of the incumbent President, and indeed that is consistent with the post-September 11, 2001 popular support for President Bush. But that explanation would push model predictions toward an even greater margin of victory for President Bush. If Iraq explained at least part of the divergence between the polls and the model's predictions, then the role of armed conflicts and national security must be more complex, as one might expect.

In this paper, we introduce two factors, working in opposition, to account more fully for the potential role of armed conflicts and national security. These factors reduce President Bush's predicted vote share in the 2004 election, thereby narrowing the divergence between the model's

prediction and the election polls. In general, the impact of national security concerns on the vote share of the incumbent (or the incumbent's party) can be substantial, whether positive, as in the case of the 1944 election during World War II, or negative, as in the cases of the 1952 election during the Korean war and the 1968 election during the Vietnam war.

2. Model

The point of departure for our model is Fair's (1978, 1988) framework, where voter utility (U) is determined by economic performance (E) and non-economic factors (N).

$$U = U[E, N] \tag{1}$$

The voter then chooses either the Democratic candidate D or Republican candidate R based on expected outcomes of E and N for each party. Thus, the probability V that a Democrat is chosen over a Republican depends on the difference between the corresponding expected utilities for the two political parties (see Judge et al 1985, p. 769, for a general derivation):

$$V = prob\ [U_R \prec U_D] \tag{2}$$

In the present context, V is interpreted at the aggregate level as the Democratic share of the two-party vote. Although V is a continuous variable, it is bounded between zero and one. However, the log-odds transformation is unbounded, permitting estimation with ordinary least squares (OLS):[1]

$$VOTE = log[V/(1-V] \tag{3}$$

Our primary contribution is the inclusion of national security concerns as a key component of non-economic determinants, N. The few previous studies that have considered the issue have specified only one dimension of national security, e.g., the magnitude of the commitment to the military or simply a dummy variable for world wars, and have typically assumed that this strengthens the vote share of the incumbent party. However, even in the context of popular wars, costs are associated with national defense that may weaken the vote share of an incumbent party, all else the same. Voters presumably prefer goods and benefits at the lowest cost, even in armed conflicts.[2]

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[1] In our sample, both observed and predicted values of V in linear specifications are concentrated toward the middle of the range, with none outside the range. Even so, we use the log-odds transformation to avoid potential issues beyond the current sample.   Given the very limited number of observations, OLS estimation is useful given its desirable small sample properties.

[2] In Haynes and Stone (1994), we explored this potential tension by introducing both direct and indirect effects of military factors, the latter affecting the importance of the standard economic variables. Below, we find that the direct effects dominate in the current specifications.

3. Estimation Equations and Data

We employ two alternative base specifications, to which proxies for national security are added. The first specification combines the essential elements of Fair (1978), extended by Gleisner (1992) to include a variable on the Dow-Jones stock market performance, and Haynes and Stone (1994) to include a variable on the number of consecutive terms the incumbent party has been in office. We also explore the robustness of our findings in a second specification used more recently by Fair (1996, 2002). Eq. (4) summarizes the first specification, where expected signs are listed above the regressors and the variables are defined below the equation.

$$\overset{?}{\text{VOTE}} = f[\overset{-}{\text{PARTY}}, \overset{}{\text{DURATION1}}, \overset{+}{\text{DOWJONES}}, \overset{+}{\text{GROWTH1}}, \overset{-}{\text{INFLATION1}}] \qquad (4)$$

where VOTE = log[V/(1-V)], where V is the incumbent share of the two-party Presidential vote;
PARTY = 1 if incumbent is a Democrat, and -1 if a Republican;
DURATION1 = number of consecutive terms the incumbent party has been in power;
DOWJONES = annual rate of change in the Dow-Jones, January to October of election year;
GROWTH1 = annual growth rate of real per capita GNP (GDP) in 2d and 3d quarters of election year;[3]
INFLATION1 = absolute value of the annualized inflation rate (GNP/GDP deflator) in the two-year period prior to the election.

The alternative base specification follows that of Fair (1996, 2002):

$$\overset{?}{\text{VOTE}} = f[\overset{?}{\text{PARTY}}, \overset{}{\text{PERSON}}, \overset{-}{\text{DURATION2}}, \overset{+}{\text{GOODNEWS}},$$
$$\overset{+}{\text{WAR}}, \overset{+}{\text{GROWTH2}}, \overset{-}{\text{INFLATION2}}] \qquad (5)$$

where VOTE and PARTY are defined above;
PERSON = 1 if the incumbent is running for election and 0 otherwise;
DURATION2 = 0 if the incumbent party was in power for one term, 1 for two consecutive terms, 1.25 for three consecutive terms, 1.5 for four consecutive terms, etc;
GOODNEWS = number of quarters in the first 15 quarters of the administration in which the growth rate of real per capita GDP is greater than 3.2 percent at an annual rate except for 1920, 1944, and 1948, where the values are zero;
WAR = 1 for the elections of 1920, 1944, and 1948, and 0 otherwise;
GROWTH2 = annual growth rate of real per capita GDP in the first 3 quarters of election year;
INFLATION2 = absolute value of the growth rate of the GDP deflator in the first 15 quarters of the administration (annualized) except for 1920, 1944, and 1948, where values are zero.

We turn, now, to the question of how best to capture the potentially conflicting forces at work regarding national security and defense. For a measure of positive support, we employ ARMY, the annualized percentage change in the proportion of the population in the armed forces

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[3] To maintain consistency with prior data and analyses, estimates of eq. (4) use real per capita GNP for 1992 and earlier years, and real per capital GDP in subsequent years, with the two series scaled to be identical in 1996. Estimates are insensitive to the distinction.

over the previous two years, as a factor in "support for the troops" and "rally round the flag" forces in favor of an incumbent President. For a counter measure, we employ ARMYSPEND, the annualized percentage change in the proportion of government spending devoted to national security over the previous two years, as a measure of the costs of national defense.[4] We also combine the measures in ARMYDIFF, defined as ARMY minus ARMYSPEND.

Our sample begins with the 1908 Presidential election, following Gleisner (1992) and Haynes and Stone (1994). Data used to estimate eq. (4) are from Haynes and Stone (1994), updated as detailed in the data appendix. Data for eq. (5) are from Fair (2002, 2004). While similar, the estimates differ modestly because of somewhat different proxies and because some variables are specified over different time horizons. We present estimates of both specifications, since the objective is to explore the importance and robustness of national security variables, not to select between the two base specifications.

4. Estimates

The dependent variable, VOTE, is the log-odds ratio for V, the incumbent share of the two-party Presidential vote. The first column in Table 1 presents ordinary least squares estimates of eq. (4), with t-statistics based on heteroskedasticity-corrected or robust (White) standard errors in parentheses.[5] The coefficient on the PARTY variable is negative and significant, indicating a net Republican advantage.[6] Coefficients on the remaining regressors have the predicted signs, and all are significant except inflation. These estimates are generally consistent with previous studies. The second column in Table 1 reports estimates after ARMY and ARMYSPEND are added to eq. (4). Coefficients on these national security variables have the correct expected signs and are significant at the five percent level. The final column in Table 1 presents estimates after inclusion of ARMYDIFF, where the coefficients for ARMY and ARMYSPEND are restricted to be equal and opposite in sign, and the coefficient on ARMYDIFF is correctly signed and significant at one percent.[7]

Table 2 repeats the analysis of Table 1, but is based on the Fair (2002) specification, definition of variables, and data. The first column of Table 2 presents ordinary least squares estimates of eq. (5). The coefficient on PARTY is again negative and significant, and the PERSON and WAR coefficients are insignificant. The remaining variables have significant

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[4] Estimates are not qualitatively sensitive to using longer time periods (e.g., the full 15 quarters prior to the election), instead of just the two years prior to the election.

[5] For all estimates, the White test fails to reject homoskedasticity at the five percent level (e.g., the relevant chi square test statistic is 9.27 for column two, Table 1, and 8.14 for column two, Table 2), but we report t-statistics based on robust standard errors in any event. OLS standard errors are qualitatively equivalent.

[6] One could interpret this advantage as either a simple historical artifact or as an inherent Republican advantage.

[7] The correlation coefficient between ARMY and ARMYSPEND is 0.40. While modest, multicollinearity is addressed by combining the variables into ARMYDIFF. The restriction that the coefficients on ARMY and ARMYSPEND are equal and opposite in sign in column three of Table 1 (or Table 2) is not rejected at the five percent level.

coefficients with the predicted signs. These estimates for the 1908-2000 period are similar to those for the 1916-2000 period presented in Fair (2002). The second column in Table 2 adds ARMY and ARMYSPEND to eq. (5). Both variables have coefficients with the correct expected sign, and the coefficients are significant at the one percent level. In the final column of Table 2, the coefficient on ARMYDIFF is correctly signed and also significant at one percent.

Estimates in Tables 1 and 2 suggest the statistical importance of the national security variables in explaining the popular vote for the President, and the results are robust to the differences in the two specifications.[8] The effect is also numerically important in terms of actual vote share. For example, in column three of Table 2, a shift in the value of ARMYDIFF from one-standard deviation below its mean to one standard deviation above yields an increase in the vote share (after reversing the log-odds transformation) of 4.2 percentage points, which is 36.2% of the average winning margin of 11.6 percentage points in our sample. Clearly, national security concerns can emerge as an important factor in the election outcome.

5. Alternative Specifications

A central argument of this paper is that both opposing national defense variables are crucial to voting. In fact, a simple test of omitted relevant variables supports this contention. For the second column of Table 1, dropping ARMY from the estimate causes ARMYSPEND to become insignificant, and dropping ARMYSPEND from the equation causes ARMY to become insignificant.[9] And the exact same pattern is true for Table 2 -- dropping ARMY in column two causes ARMYSPEND to become insignificant, and vice versa. This necessity of including both opposing dimensions of national security may help to explain why earlier studies, which tested only a single measure such as ARMY, were generally unsuccessful.

Reestimation using the traditional linear specification, where the dependent variable is the incumbent vote share V, rather than VOTE, the log-odds ratio of V, leads to very similar estimates regarding measures of fit and magnitudes of coefficients (after adjusting for the different functional form). For example, linear estimation of the model in column three, Table 2, yields:

$$V = 54.21 - 2.42 \text{ PARTY} - 0.15 \text{ PERSON} - 5.75 \text{ DURATION2} + 0.88 \text{ GOODNEWS}$$
$$(24.84) \quad (-5.55) \qquad (-0.11) \qquad\quad (-6.94) \qquad\qquad (4.35)$$

$$SE = 1.89$$
$$+ 4.35 \text{ WAR} + 0.50 \text{ GROWTH} - 1.09 \text{ INFLATION} + 0.07 \text{ ARMYDIFF} \qquad R \text{ bar-squared} = 0.920$$
$$(2.90) \qquad (6.16) \qquad\quad (-6.02) \qquad\qquad (5.01) \qquad\qquad DW = 2.05$$

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[8] Partial F-tests reinforce the t-statistic evidence on the significance of the national security variables. For example, addition of ARMY and ARMYSPEND to the second column of Table 1 yields an F-statistic of 3.82, significant at five percent, and addition of the variables to the second column of Table 2 yields an F-statistic of 8.54, significant at one percent.

[9] Interactions between either of the military variables and economic growth or inflation (as in Haynes and Stone, 1994) are statistically insignificant, while the military variables still yield significant direct effects.

A simple extension of the above models is implied by partisan or reputation models of voting (e.g., Swank 1993), where the response of voters to economic variables depends on the party of the incumbent President. To evaluate this extension, we reestimate the models after permitting the coefficients on the growth and inflation variables and on ARMYDIFF to differ by the party of the incumbent President. For the column three specification in both Tables 1 and 2, the null hypothesis of identical coefficients is not rejected at the five percent level (F statistics equal 2.32 and 0.408, respectively), supporting the symmetry restriction imposed across parties.

6. Implications for the 2004 Election and other War-Related Elections

Although the two national security variables, ARMY and ARMYSPEND, are directly correlated, they appear to have distinct influences on Presidential voting since they enter with opposite signs. An obvious question concerns the net influence of these national security variables in the 2004 Presidential election. At this writing, the 2004 magnitude for ARMY is -0.005, indicting virtually no change over the past two years in the fraction of the population in the armed forces, yet the 2004 magnitude for ARMYSPEND is 26.88, indicating a dramatic increase in the fraction of government spending directed to national defense. These magnitudes, in combination with the parameter estimates on ARMY and ARMYSPEND in the two tables, suggest that President Bush's prospects for reelection are diminished by national security concerns. We explore this issue more formally in two related, but distinct ways.

First, we compare out-of-sample forecasts for the 2004 election for the three estimates in each table, which are reported at the bottom of each column (for these comparisons we reverse the log-odds transformation to simplify the interpretation). In the first column in Table 1, which excludes national security, the predicted incumbent (in the current case, Republican) vote share for the 2004 election is 56.89. The prediction in the second column after adding ARMY and ARMYSPEND to the equation drops to 54.83, and the prediction in the final column after instead adding ARMYDIFF is 55.49. Repeating the same exercise for Table 2 yields forecasts of 57.51 without the national security variables, 56.04 with ARMY and ARMYSPEND, and 55.51 with ARMYDIFF.[10] Comparing 2004 forecasts in the first column to those in the second and third columns across both Tables 1 and 2 indicates that national security concerns reduce the predicted 2004 vote share by an average of 1.73 percentage points. However, this approach has the potential drawback that coefficients on the other, non-military variables change (albeit modestly) after including the national security variables.

A second method for measuring the impact of national security issues is to compute, using parameter estimates for a given specification, the separate effect of the 2004 magnitudes of ARMY and ARMYSPEND (or ARMYDIFF) on V, the vote share.[11] For Table 1, this effect is -1.97 for column two, and -1.45 for column three. And for Table 2, the effect is -1.65 for column two, and -1.85 for column three. The average of these four estimates is -1.73, i.e., a

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[10] A vote share of 57.51 is consistent with the base model estimate provided by Fair (2004) on his website: http://fairmodel.econ.yale.edu/vote2004/vot0704.htm

[11] Since the equations are not linear, the computation involves netting out the influence of the non-military regressors prior to reversing the log-odds transformation.

decline in the predicted vote share attributed to national security issues which in fact is identical to that found in the first method.

Thus, in either approach to calculating the influence of the national security concerns on the 2004 election, the predicted margin of victory is reduced by about one and three-quarters percentage points. If one interprets the role of the PARTY dummy as an historical artifact, rather than an inherent Republican advantage, then the predicted vote share for President Bush is between 53 and 54 percent, regardless of the specification, which implies a closer election still, given the relevant confidence interval.

The negative impact of national security for the 2004 election is, of course, specific to this election. What impact do the magnitudes of ARMY and ARMYSPEND imply in other elections, especially during armed conflicts? Given data on these variables for the 1944 reelection bid of President Roosevelt and using parameter estimates in the third column of Tables 1 and 2, we find that national defense concerns improve the incumbent vote share on average by 2.22 percentage points, indicating that the "rally round the flag" factor dominates the opposing military cost factor during World War II. However, the two more recent military conflicts have negative impacts on the Presidential vote share of the incumbent party -- the Korean war in the 1952 election, with a shift of -1.71 percentage points, and the Vietnam war in the 1968 election, with a more modest shift of -0.39 percentage points. It is interesting to note that neither the incumbent President in 1952, President Truman, nor the incumbent President in 1968, President Johnson, chose to run for reelection, even though eligible to do so. In both cases, the Korean and Vietnam wars, respectively, were factors in the decision not to seek reelection.

7. Conclusion

Clearly, the war in Iraq tends to overshadow the Presidential election of 2004. However, the election appears to be relatively close in the polls, despite predictions from electoral models of an easy victory for President Bush. In this paper, we extend standard voting models to account for two opposing influences of national security and defense concerns. One we interpret as a "support the troops" or "rally round the flag" effect, captured empirically by the rate of change in the share of the population in uniform. The other is a measure of the economic cost of defense expenditures, which can draw support away from an incumbent. These two forces, together, help to narrow the gap between current polls and the predictions from electoral models for the election of 2004, as the models predict a narrower Bush victory. In addition, these forces help to explain the reelection success enjoyed by President Roosevelt in 1944, yet the difficulties faced by Presidents Truman and Johnson in their prospects for reelection in 1952 and 1968, had they chosen to run. Numerically, the influence of national security concerns on vote share can be large relative to the average margin of victory and thus an important factor in the outcome of some elections. Hence, we believe that these variables are a first step in improving our understanding of the complexity of national security and defense issues in Presidential elections. Alternative specifications of national security variables may also prove fruitful, e.g., the percentage change in troops abroad, the duration of troop deployments abroad in armed conflict, or war-related casualties. Finally, we emphasize that our findings need to be tested in subsequent elections, especially given the small number of observations, and that no formula, however elaborate, can fully capture in advance voters' decisions on the day of the election.

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TABLE 1
Log-Odds Ratio of the Incumbent Share of Presidential Vote -- Eq. (4), 1908-2000

Variable	Eq. (4)	Extension A	Extension B
Intercept	0.26*	0.31**	0.31*
	(2.31)	(3.91)	(3.49)
PARTY	-0.90*	-0.06	-0.07
	(-2.47)	(-1.47)	(-1.77)
DURATION1	-0.68*	-0.07*	-0.08**
	(-2.33)	(-2.57)	(-3.01)
DOWJONES/100	0.55**	0.47**	0.46**
	(3.31)	(3.39)	(3.52)
GROWTH1/100	0.23**	2.02**	2.00**
	(3.44)	(3.51)	(3.38)
INFLATION1/100	-1.83	-2.93*	-2.31
	(-1.24)	(-2.55)	(-1.94)
ARMY/100		0.16*	
		(2.82)	
ARMYSPEND/100		-0.30*	
		(-2.34)	
ARMYDIFF/100			0.22**
			(3.61)
S.E.	0.148	0.135	0.135
R bar-squared	0.701	0.752	0.754
DW	2.18	2.07	2.27
Number Obs.	24	24	24
Pred. VOTE (2004)	56.89	54.83	55.49
(Conf. Interval)	(±4.00)	(±3.77)	(±3.69)

**Significant at one percent level; *Significant at five percent level.
Notes: Sample is 1908 through 2000. Dependent variable is VOTE, the log-odds ratio for V, the incumbent share of the two-party Presidential vote. Equations are estimated with ordinary least squares, and robust (White) t-statistics are in parentheses. See text for explanation of variables.

TABLE 2
Log-Odds Ratio for the Incumbent Share of Presidential Vote -- Eq. (5), 1908-2000

Variable	Eq. (5)	Extension A	Extension B
Intercept	0.03	0.18	0.17
	(0.27)	(2.01)	(1.91)
PARTY	-0.11**	-0.10**	-0.10
	(-5.90)	(-5.77)	(-5.48)
PERSON	0.09	-0.01	-0.01
	(1.45)	(-0.14)	(-0.11)
DURATION2	-0.17**	-0.24**	-0.23**
	(-3.15)	(-7.40)	(-6.89)
GOODNEWS	0.04**	0.04**	0.04**
	(2.99)	(4.32)	(4.36)
WAR	0.16	0.19*	0.18*
	(1.16)	(2.86)	(2.87)
GROWTH2/100	2.49**	1.97**	2.06**
	(4.65)	(5.32)	(6.13)
INFLATION2/100	-3.47**	-4.40**	-4.36**
	(-4.20)	(-5.85)	(-5.94)
ARMY/100		0.33**	
		(4.64)	
ARMYSPEND/100		-0.25**	
		(-4.23)	
ARMYDIFF/100			0.28**
			(5.01)
S.E.	0.108	0.078	0.077
R bar-squared	0.842	0.918	0.920
DW	2.44	2.01	2.06
Number Obs.	24	24	24
Pred. Vote (2004)	57.51	56.04	55.51
(Conf. Interval)	(±3.25)	(±2.49)	(±2.36)

**Significant at one percent level; *Significant at five percent level.
Notes: Sample is 1908 through 2000. Dependent variable is VOTE, the log-odds ratio of V, the incumbent share of the two-party Presidential vote. Equations are estimated with ordinary least squares, and robust (White) t-statistics are in parentheses. See text for explanation of variables.

DATA APPENDIX

A. DATA FOR EQUATION (3), TABLE 1

YEAR	V	PARTY	DURA-TION1	DOW JONES	GROWTH1	INFLA-TION1	ARMY	ARMY-SPEND
1908	54.483	-1	3	37.8	-7.60	1.68	4.76	3.00
1912	54.708	-1	4	16.7	4.08	1.71	3.25	0.69
1916	51.682	1	1	12	6.38	7.73	2.33	4.04
1920	36.119	1	2	-23.5	-6.14	8.01	-107.6	11.24
1924	58.244	-1	1	6	-2.16	0.62	-3.38	-23.05
1928	58.820	-1	2	31.3	-0.63	0.81	-0.48	10.15
1932	40.841	-1	3	-25	-13.98	10.01	-2.97	-37.56
1936	62.458	1	1	24.9	13.41	1.36	7.60	28.86
1940	54.999	1	2	-12.9	6.97	0.53	16.79	8.33
1944	53.774	1	3	9	6.88	1.98	53.10	17.16
1948	52.370	1	4	6.3	3.77	10.39	-38.82	-86.56
1952	44.595	1	5	-1.8	-0.34	2.66	43.89	71.59
1956	57.764	-1	1	2.4	-0.69	3.59	-9.93	-14.34
1960	49.913	-1	2	-13.9	-1.92	2.16	-4.10	-8.44
1964	61.344	1	1	15.8	2.38	1.73	-3.68	-5.88
1968	49.596	1	2	10	4.00	3.94	0.06	6.28
1972	61.789	-1	1	5.4	5.05	5.17	-11.91	-19.71
1976	48.948	-1	2	3	0.78	7.64	-2.56	-20.15
1980	44.697	1	1	12.4	-5.69	8.99	-1.37	-0.44
1984	59.170	-1	1	-6.9	2.69	3.68	-0.22	7.38
1988	53.902	-1	2	12.6	2.43	3.30	-1.58	-1.09
1992	46.545	-1	3	-0.9	1.34	3.15	-7.33	-10.11
1996	54.736	1	1	24.5	3.08*	1.95*	-5.62	-12.67
2000	50.265	1	2	-5.0	2.95*	1.80*	-2.00	1.83
2004	NA	-1	1	-5.9**	2.70* **	1.88* **	-.005**	26.68**

* Based on GDP 1996 on, but on GNP in prior years.
** Estimate

Notes: All data on V are from Fair (2002, p.5). Data and sources on PARTY, DURATION1, DOWJONES, GROWTH1, INFLATION1, and ARMY from 1908 through 1992 are from Haynes and Stone (1994, p.126). 1996-2004 updates on PARTY and DURATION1 follow from their definitions. Updates on DOWJONES are from Dow Jones and Co.; GROWTH and INFLATION1 from the Bureau of Economic Analysis; and ARMY from U.S. Census Bureau, Statistical Abstract of the United States, Section 10: National Defense and Veterans Affairs. Data on ARMYSPEND for years up to 1957 are from U.S. Census Bureau, Historical Statistics of the United States, Colonial Times to 1957; and subsequent to 1957 from U.S. Census Bureau, Statistical Abstract of the United States, Section 9: Federal Government Finances and Employment.

B. DATA FOR EQUATION (4), TABLE 2

Except for ARMY and ARMYSPEND, data and sources from 1908 through 2000 are from Fair (2002, p.5), http://fairmodel.econ.yale.edu/RAYFAIR/PDF/2002DHTM.HTM , and for 2004 are from Fair (2004), http://fairmodel.econ.yale.edu/vote2004/vot0704.htm . See above for data and sources on ARMY and ARMYSPEND.