Presidential and Congressional Vote-Share Equations: November 2010 Update

Ray C. Fair*

November 11, 2010

Abstract

The three vote-share equations in Fair (2009) are updated using data available as of November 3, 2010. The equations are reestimated incorporating the new data, and forecasts of the 2012 presidential and House elections are made.

1 Introduction

Three vote-share equations are estimated in Fair (2009)—presidential, on-term House, and mid-term House. These equations are updated in this paper using data available as of November 3, 2010. The sample period is 1916–2008 for the first two equations and 1918–2010 for the third. No specification changes have been made; the equations are simply reestimated using one more observation.

The history of the equations is briefly discussed in Section 2; the data are discussed in Section 3; the estimates are presented in Section 4; a comparison

*Cowles Foundation and International Center for Finance, Yale University, New Haven, CT 06520-8281. Voice: 203-432-3715; Fax: 203-432-6167; email: ray.fair@yale.edu; website: http://fairmodel.econ.yale.edu.

of ex ante and ex post forecasts is made in Section 5; and forecasts for the 2012 presidential and on-term House elections are presented in Section 6. Appendix A contains a complete description of how the data were collected and a listing of all the data. The results in this paper can be duplicated using these data if desired.

2 History of the Equations

The presidential vote equation was first presented in Fair (1978). The previous updates of this equation are in Fair (1982, 1988, 1990, 1996a, 1998, 2002a, 2006). The specification of the equation has not been changed since changes following the 1992 election. The easiest paper to read regarding the changes that were made to the equation between the original specification and the specification after the 1992 election is Fair (1996b). A non technical discussion is in Fair (2002b). The on-term and mid-term House equations were first presented in Fair (2009). The specification of these two equations has also not been changed for this update.

Counting the original presidential vote paper and the seven updates, there are eight estimated equations, one before each of the elections between 1980 through 2008. In Section 5 I have examined eight ex ante forecasts. Each forecast uses the relevant estimated equation and the economic data that existed at the time of the election. These forecasts are compared to ex post forecasts using the currently estimated equation and the latest revised economic data. This gives one a sense, among other things, of how important the specification changes after the 1992 election were.

3 The Updated Data

The National Income and Product data available as of October 29, 2010, from the Bureau of Economic Analysis (BEA) have been used. Data prior to 1929 have been obtained, as before, from Balke and Gordon (1986). The appendix discusses the splicing of the Balke and Gordon data to the BEA data.

The vote data have been obtained when possible from the 2010 Statistical Abstract of the United States and the Office of the Clerk of the U.S. House of Representatives. Some of these data are slightly different from the data used previously, which were based on data from the CQ Press (a division of Congressional Quarterly, Inc.). The differences are small between these two data sources, but the use of the new data source does mean that some of the vote-share values used for the current update do not match exactly the values used previously. The previously used data were used when data were not available from the Office of the Clerk. The value used for the mid-term 2010 House two-party vote share, 45.9, is preliminary. I am indebted to David Mayhew for this estimate.

4 The Updated Estimates

Tables 1–4 are the same as in Fair (2009) except for one more observation used. If you compare the new tables to the old, you will see that the current results are quite close to the previous results. None of the conclusions reached in Fair (2009) are changed. It is assumed that the reader is familiar with this earlier discussion; it is not repeated here.

Table 1
Variables

Variable	Definition
V^p	Democratic share of the two-party presidential vote.
V^c	Democratic share of the two-party on-term House vote.
V^{cc}	Democratic share of the two-party mid-term House vote.
I	1 if there is a Democratic presidential incumbent at the time of the election and -1 if there is a Republican presidential incumbent.
$DPER$	1 if a Democratic presidential incumbent is running again, -1 if a Republican presidential incumbent is running again, and 0 otherwise.
DUR	0 if either party has been in the White House for one term, 1 [-1] if the Democratic [Republican] party has been in the White House for two consecutive terms, 1.25 [-1.25] if the Democratic [Republican] party has been in the White House for three consecutive terms, 1.50 [-1.50] if the Democratic [Republican] party has been in the White House for four consecutive terms, and so on.
WAR	1 for the elections of 1918, 1920, 1942, 1944, 1946, and 1948, and 0 otherwise.
G	growth rate of real per capita GDP in the first three quarters of the on-term election year (annual rate).
G^{cc}	growth rate of real per capita GDP in the first three quarters of the mid-term election year (annual rate).
P	absolute value of the growth rate of the GDP deflator in the first 15 quarters of the administration (annual rate) except for 1920, 1944, and 1948, where the values are zero.
P^{cc}	absolute value of the growth rate of the GDP deflator in the first 7 quarters of the administration (annual rate) except for 1918, 1942, and 1946, where the values are zero.
Z	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.
Z^{cc}	$\frac{15}{7}$ times number of quarters in the first 7 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 1918, 1942, and 1946, where the values are zero.

• Sample period: 1916, 1920, . . . , 2008 for the V^p and V^c equations and 1918, 1922, . . . , 2010 for the V^{cc} equation.

Table 2
Estimated Equations

	Eq. 1 V^p	Eq. 2 V^c	Eq. 2a V^c	Eq. 3 V^{cc}	Eq. 3a V^{cc}
$Index$	–	–	0.571	–	0.717
			(6.65)		(2.90)
$G \cdot I$	0.672	0.413	0.384	–	–
	(6.22)	(4.06)			
$P \cdot I$ or $P^{cc} \cdot I$	−0.654	−0.297	*−0.373*	−0.494	*−0.482*
	(−2.31)	(−1.15)		(−2.20)	
$Z \cdot I$ or $Z^{cc} \cdot I$	0.990	0.526	*0.565*	0.691	*0.710*
	(4.31)	(2.43)		(2.48)	
$DPER$	2.92	2.35	2.48	–	–
	(2.18)	(2.29)	(2.70)		
DUR	−3.41	–	–	–	–
	(−2.87)				
I	−1.91	−3.86	−3.85	−2.98	−3.09
	(−0.85)	(−2.37)	(−4.56)	(−2.49)	(−3.17)
WAR	5.06	3.40	3.21	0.84	0.97
	(1.99)	(1.49)	(1.93)	(0.39)	(0.50)
$CNST$	47.38	49.57	49.56	48.51	48.53
	(77.56)	(87.82)	(93.00)	(66.90)	(69.38)
$V^{cc}_{-2} - 50$	–	0.644	0.624	–	–
		(4.87)	(5.54)		
$V^{c}_{-2} - 50$	–	–	–	0.646	0.635
				(3.27)	(3.52)
$V^{p}_{-2} - 50$	–	–	–	−0.322	−0.330
				(−2.10)	(−2.30)
SE	2.49	2.23	2.11	2.49	2.43
R^2	0.912	0.856	0.855	0.778	0.778
No. obs.	24	24	24	24	24

- Estimation method: OLS; t-statistics are in parentheses.
- Estimation period: 1916–2008 for V^p and V^c, 1918–2010 for V^{cc}.
- $Index$ for V^c is $0.672 \cdot G \cdot I - 0.654 \cdot P \cdot I + 0.990 \cdot Z \cdot I$. The hypothesis that the weights in this index are correct is not rejected: F-value of 0.093, which with 2,16 degrees of freedom has a p-value of 0.912.
- $Index$ for V^{cc} is $-0.654 \cdot P^{cc} \cdot I + 0.990 \cdot Z^{cc} \cdot I$. The hypothesis that the weights in this index are correct is not rejected: F-value of 0.036, which with 1,17 degrees of freedom has a p-value of 0.852.
- Values in italics are implied values.

Table 3
Predicted Values and Estimated Residuals from Table 2

	Act.	Eq. 1		Act.	Eq. 2a		Act.	Eq. 3a		
t	V^p	$\hat{V}^p$	$\hat{u}^p$	V^c	$\hat{V}^c$	$\hat{u}^c$	V^{cc}	$\hat{V}^{cc}$	$\hat{u}^{cc}$	$t+2$
1916	51.7	50.1	-1.6	48.9	49.4	0.5	45.1	45.1	0.0	1918
1920	36.1	39.4	3.3	38.0	41.5	3.5	46.4	44.8	-1.6	1922
1924	41.7	42.4	0.7	42.1	46.4	4.4	41.6	41.8	0.2	1926
1928	41.2	42.8	1.5	42.8	42.5	-0.3	45.7	48.1	2.4	1930
1932	59.1	61.2	2.0	56.9	54.3	-2.6	56.5	51.0	-5.5	1934
1936	62.2	63.6	1.4	58.5	61.0	2.5	50.8	51.4	0.5	1938
1940	55.0	55.5	0.5	53.0	54.7	1.7	47.7	46.6	-1.0	1942
1944	53.8	52.0	-1.7	51.7	51.6	-0.2	45.3	46.3	1.0	1946
1948	52.3	50.8	-1.5	53.2	49.8	-3.3	50.0	51.2	1.2	1950
1952	44.7	45.4	0.7	49.9	49.1	-0.9	52.5	52.2	-0.4	1954
1956	42.9	43.6	0.7	51.0	51.0	0.0	56.0	54.3	-1.7	1958
1960	50.1	48.7	-1.4	54.8	54.9	0.1	52.5	54.0	1.5	1962
1964	61.2	60.9	-0.3	57.3	56.9	-0.5	51.2	52.8	1.5	1966
1968	49.4	50.3	0.9	50.9	51.2	0.3	54.4	53.2	-1.2	1970
1972	38.2	41.5	3.3	52.7	50.9	-1.7	58.5	58.0	-0.5	1974
1976	51.0	50.2	-0.9	56.9	57.3	0.5	54.4	52.4	-2.0	1978
1980	44.8	45.7	0.9	51.4	49.4	-1.9	56.0	54.5	-1.5	1982
1984	40.9	38.2	-2.6	52.8	50.0	-2.7	55.1	56.0	1.0	1986
1988	46.2	49.2	3.0	54.0	54.6	0.6	54.2	55.7	1.6	1990
1992	53.6	48.8	-4.8	52.7	52.5	-0.2	46.5	48.0	1.5	1994
1996	54.7	53.2	-1.5	50.2	48.7	-1.4	49.5	47.9	-1.6	1998
2000	50.3	49.3	-1.0	49.8	49.5	-0.3	47.6	52.3	4.7	2002
2004	48.8	45.5	-3.3	48.6	48.9	0.3	54.1	51.2	-2.9	2006
2008	53.7	55.2	1.5	55.5	57.4	1.9	45.9	48.8	2.9	2010
RMSE			2.04			1.83			2.10	

- $\hat{u}^p = \hat{V}^p - V^p$.
- $\hat{u}^c = \hat{V}^c - V^c$.
- $\hat{u}^{cc} = \hat{V}^{cc} - V^{cc}$.
- RMSE = root mean squared error.

Table 4
Full Information
Maximum Likelihood Estimates

	Eq. 1 V^p	Eq. 2a V^c	Eq. 3a V^{cc}
$G \cdot I$	0.684	0.379	–
	(8.09)	(6.07)	
$P \cdot I$ or $P^{cc} \cdot I$	−0.650	*−0.360*	−0.366
	(−3.47)		(−2.08)
$Z \cdot I$ or $Z^{cc} \cdot I$	0.984	*0.545*	*0.554*
	(5.65)		
$DPER$	2.53	2.80	–
	(2.24)	(3.37)	
DUR	−3.62	–	–
	(−4.03)		
I	−1.58	−3.92	−2.61
	(−1.01)	(−4.29)	(−2.76)
WAR	5.16	3.12	0.72
	(2.66)	(2.11)	(0.42)
$CNST$	47.39	49.59	48.91
	(95.23)	(108.20)	(71.19)
$V^{cc}_{-2} - 50$	–	0.611	–
		(6.44)	
$V^{c}_{-2} - 50$	–	–	0.572
			(3.39)
$V^{p}_{-2} - 50$	–	–	−0.261
			(−1.92)
SE	2.04	1.84	2.19
No. obs.	24	24	24

- Estimation method: FIML.
- Coefficient constraints on equations (2a) and (3a) imposed.
- Errors assumed to be correlated across equations.
- t-statistics are in parentheses, not adjusted for degrees of freedom.
- Values in italics are implied values.

The variables are listed in Table 1. The coefficient estimates are presented in Table 2: there is one estimate for the presidential equation and two each for the on-term and mid-term House equations. The second estimate for each House equation contains restrictions on the coefficients of the economic variables based on estimates from the presidential equation. Table 3 presents the predicted values and estimated residuals from the presidential equation and the two restricted House equations. Table 4 contains FIML estimates of the three equations.

Looking at Table 3, the ex post error for 2008 for the presidential election is 1.5 percentage points (Obama got 53.7 percent and was predicted to get 55.2 percent). For the 2008 on-term House election, the ex post error is 1.9 percentage points (the Democrats got 55.5 percent and were predicted to get 57.4 percent). For the 2010 mid-term House election, the ex post error is 2.9 percentage points (the Democrats got 45.9 percent and were predicted to get 48.8 percent). The estimated standard errors of the three equations are 2.49, 2.11, and 2.43, respectively, so all but the third error is within one standard error. Given that these errors are relatively small, it is not surprising that the coefficient estimates have not changed much from adding the new observation. There are no big surprises.

All the robustness tests discussed in Fair (2009) were repeated, with no change in any of the conclusions. Again, this discussion is not repeated here.

5 Ex Ante versus Ex Post Forecasts

As noted in Section 2, eight estimated presidential equations can be examined, one for each of the elections between 1980 and 2008. Beginning with the 1996 election, the last forecast before the election is available from my website. In each case this forecast uses the actual economic data that were known at the time (no predicted economic data are needed right before the election). For the elections of 1984, 1988, and 1992, tables of vote forecasts were presented in the respective papers—Fair (1982, 1988, 1990)—for different values of the economic variables. For present purposes I took the values of the economic variables that were available right before the election (from past issues of the *Survey of Current Business*) and chose the relevant vote forecast from the tables. Interpolation was used to get the correct forecast. For the 1980 election I used the equation in row 4 of Table 2 in Fair (1978) along with the economic data that were available right before the election.

The ex ante forecasts are presented in Table 5 along with the ex post forecasts from Table 3. The ex post forecasts use the estimated equation in Table 2 and the latest revised economic data. The mean absolute error (MAE) for the eight ex ante errors is 3.60, which compares to 2.33 for the ex post errors. The largest ex ante and ex post errors are for the elections of 1992 and 2004. In 1992 Clinton, running against President George H.W. Bush, got 53.6 percent of the vote and was predicted to get much less—the ex ante error is -10.5 percentage points. In 2004 Kerry, running against President George W. Bush, got 48.8 percent of the vote and was predicted to get much less—the ex ante error is -6.5 percentage points. The

Table 5
Ex Ante and Ex Post Forecasts
Democratic Share of the Two-Party Vote

		Ex Ante		Ex Post	
	Actual	**Forecast**	**Error**	**Forecast**	**Error**
Presidential Equation					
1980	44.8	46.4	1.6	45.7	0.9
1984	40.9	43.2	2.3	38.2	-2.6
1988	46.2	48.1	1.9	49.2	3.0
1992	53.6	43.1	-10.5	48.8	-4.8
1996	54.7	51.0	-3.7	53.2	-1.5
2000	50.3	50.8	0.5	49.3	-1.0
2004	48.8	42.3	-6.5	45.5	-3.3
2008	53.7	51.9	-1.8	55.2	1.5
MAE			3.60		2.33
On-Term House Equation					
2008	55.5	55.8	0.3	57.4	1.9
Mid-Term House Equation					
2010	45.9	49.2	3.3	48.8	2.9

- Ex Post forecasts from Table 3.
- Ex Ante forecasts explained in the text.

other six elections are forecast fairly well. Excluding 2000, which is hard to know how to count regarding winner, only 1992 was forecast incorrectly as to winner.

As noted in Section 2, some specification changes were made to the presidential equation after the 1992 election. This election remains, however, a poorly predicted one. The ex post error in Table 3 for 1992 is the largest of the 24 errors in absolute value at -4.8 percentage points.

There has been only one ex ante forecast for the on-term House election and only one for the mid-term House election. These are presented in Table 5 along with the ex post forecasts from Table 3. For the 2008 on-term House election the ex ante error is 0.3 percentage points and the ex post error is 1.9 percentage points, both within one standard error. For the 2010 mid-term House election the respective errors are 3.3 and 2.9, both larger than one standard error. The 2008 House vote was 55.5 percent and the 2010 House vote was 45.9 percent, a swing of 9.6 percentage points. The equation got about two-thirds of this, but clearly not all. This error, however, was not large enough to have much effect on the updated estimates of the mid-term House equation.

6 Forecasts for 2012

Assuming that President Obama is running in 2012, the values of the non economic variables are 1 for I, 1 for DPER, 0.00 for DUR, 0 for WAR, and 45.9 for V^{cc}. Using equations 1 and 2a in Table 2, the two equations for 2012 are:

$$V^p = 48.39 + 0.672 \cdot G - 0.654 \cdot P + 0.990 \cdot Z$$

$$V^c = 45.63 + 0.384 \cdot G - 0.373 \cdot P + 0.565 \cdot Z$$

The constant terms incorporate the non economic values just mentioned.

Given forecasts of the three economic variables, forecasts of the vote shares can be made. Table 6 presents three forecasts per equation. For the first, the economic forecasts, dated October 29, 2010, from my US model are used. These economic forecasts are fairly optimistic. The per capita growth rate in 2012 (G) is 3.69 percent, and the number of good news quarters (Z) is 6. (Through the third quarter of 2010 there has been only one good news quarter during the Obama

Table 6
Forecasts for 2012
Democratic Share of Two-Party Vote

Forecast	G	P	Z	
Presidential Equation (V^p)				
55.88	3.69	1.42	6	October 29, 2010, economic forecast
49.12	1.00	1.42	1	Modest economic recovery
46.44	-3.00	1.42	1	Double dip recession
On-Term House Equation (V^c)				
49.91	3.69	1.42	6	October 29, 2010, economic forecast
46.05	1.00	1.42	1	Modest economic recovery
44.51	-3.00	1.42	1	Double dip recession

The two equations are:

$$V^p = 48.39 + 0.672 \cdot G - 0.654 \cdot P + 0.990 \cdot Z$$

$$V^c = 45.63 + 0.384 \cdot G - 0.373 \cdot P + 0.565 \cdot Z$$

administration; the US model is forecasting that there will be five more through the third quarter of 2012.) Inflation (P) is predicted to be low at 1.42 percent. These economic values lead to 55.88 percent of the two-party vote share for Obama. The Democratic share of the two-party House vote is predicted to be 49.91 percent. So Obama gets a larger vote share than he did in 2008, which was 53.69 percent, and the Democrats improve their House vote share from the 45.90 percent value in 2010.

At the time of this writing (November 2010) the above economic forecasts are probably more optimistic than what most people think will happen in the next two years. Table 6 presents two other sets of vote forecasts based on more pessimistic economic values. The first set assumes a modest economic recovery, with no more good news quarters from the one that has already happened and a value of G of 1 percent. The inflation forecast is left the same. The second set assumes a double dip recession, with no more good news quarters and a value of G of -3.0 percent. In the modest recovery, Obama gets 49.12 percent, and in the double dip recession, he gets 46.44 percent. The corresponding House forecasts are 46.06 percent and 44.51 percent.

It thus comes down to what the economy will be in the next two years, which is, of course, what the equations are all about. If the recovery is robust, which my economic model predicts will begin to happen in the middle of 2011, Obama wins easily. If the recovery is only modest, the election will be close, with an edge for the Republicans. If there is a double dip recession, Obama loses by a fairly large amount.

Data Appendix

The data used in this paper are presented in Table A. Quarterly data on nominal GDP, real GDP, and population are needed to construct G, G^{cc},P, Z, P^{cc}, and Z^{cc}. Let GDP denote nominal GDP, let $GDPR$ denote real GDP, and let POP denote population. Let a subscript k denote the kth quarter of the sixteen-quarter period of an administration. Also, let $Y = GDPR/POP$, which is real per capita GDP, and let $GDPD = GDP/GDPR$, which is the GDP deflator. Then G, G^{cc}, P, and P^{cc} are constructed as:

$$G = [(Y_{15}/Y_{12})^{(4/3)} - 1] \cdot 100$$
$$G^{cc} = [(Y_7/Y_4)^{(4/3)} - 1] \cdot 100$$
$$P = [(GDPD_{15}/GDPD_{16}(-1))^{(4/15)} - 1] \cdot 100$$
$$P^{cc} = [(GDPD_7/GDPD_{16}(-1))^{(4/7)} - 1] \cdot 100$$

where (-1) means the previous four-year election period. To construct Z and Z^{cc} one needs to define the growth rate in a given quarter, which for quarter k is $g_k = [(Y_k/Y_{k-1})^4 - 1] \cdot 100$ for quarters 2 through 16 and $g_k = [(Y_1/Y_{16}(-1))^4 - 1] \cdot 100$ for quarter 1. Z is then the number of quarters in the first 15 quarters of an administration in which g_k is greater than 3.2, and Z^{cc} is $\frac{15}{7}$ times the number of quarters in the first 7 quarters of an administration in which g_k is greater than 3.2.

The data on nominal GDP were obtained as follows. Annual data for 1929–1946 and quarterly data for 1947:1–2010:3 were obtained from the Bureau of Economic Analysis (BEA) website on October 29, 2010. Quarterly data for 1913:1–1946:4 are available from Balke and Gordon (1986), pp. 789–795. The Balke and Gordon values for 1913:1–1928:4 were used exactly, but the values for

1929:1–1946:4 were adjusted to take account of the new BEA annual data. For 1929:1–1946:4 each quarterly value for a given year was multiplied by a splicing factor for that year. The splicing factor is the ratio of the BEA value for that year to the respective yearly value in Balke and Gordon (1976), pp. 782–783.

The data on real GDP were obtained in a similar way. Annual data for 1929–1946 and quarterly data for 1947:1–2010:3 were obtained from the BEA website on October 29, 2010. Quarterly data for 1913:1–1946:4 are available from Balke and Gordon (1986), pp. 789–795. The Balke and Gordon values were spliced to the BEA values. All the Balke and Gordon quarterly values for 1913:1–1929:4 were multiplied by the same number. This number is the ratio of the BEA value for 1929 to the 1929 value in Balke and Gordon (1976), p. 782. For 1930:1–1946:4 each Balke and Gordon quarterly value for a given year was multiplied by a splicing factor for that year. The splicing factor is the ratio of the BEA value for that year to the respective yearly value in Balke and Gordon (1976), pp. 782–783.

The data on population were obtained as follows. For 1913–1928 annual data were obtained from U.S. Department of Commerce (1973), pp. 200–201, A114 series. Each of these observations was multiplied by 1.000887, a splicing factor. The splicing factor is the ratio of the A114 value for 1929 in U.S. Department of Commerce (1973) to the value for 1929 in Table 8.2 in U.S. Department of Commerce (1992). For 1929–1945 annual data were obtained from U.S. Department of Commerce (1992), Table 8.2. Quarterly observations for 1877:1–1945:4 were obtained by interpolating the annual observations using the method presented in Fair (1994), Table B.6. For 1946:1–1946:4 quarterly data were obtained from the BEA website on October 27, 2006. For 1947:1–2010:3 quarterly data were obtained from the BEA website on October 29, 2010.

Turning now to the vote data, V^p is the Democratic vote divided by the Democratic plus Republican vote except for the 1924 election. For 1924, V^p is the Democratic vote plus 0.765 times the LaFollette vote divided by the Democratic plus Republican plus LaFollette vote. The presidential vote data for 1916 were obtained from U.S. Department of Commerce (1975), pp. 1078–1079. Data for the elections after 1916 were obtained from past issues of the *Statistical Abstract of the United States*, starting from the 2010 issue and working back.

V^c and V^{cc} are the Democratic House vote divided by the Democratic plus Republican House vote. No adjustments were made to these data. The vote data were obtained when possible from the website of the Office of the Clerk of the U.S. House of Representatives. Most of the data from 1930 on were available from this website. When data were not available, past issues of the *Statistical Abstract of the United States* were tried, working from the most recent back. When data from this source were not available, the data were obtained from U.S. Department of Commerce (1975), p. 1084. The data for 2010 are from David Mayhew's personal calculations.

I, $DPER$, DUR, and WAR are defined in the text. In the construction of $DPER$ Ford is not counted as an incumbent running again, since he was not an elected vice president, whereas the other vice presidents who became president while in office are counted.

Table A
Data for the V^p and V^c Equations

t	V^p	V^c	I	$DPER$	DUR	WAR	G	P	Z
1916	51.682	48.881	1	1	0.00	0	2.229	4.252	3
1920	36.148	37.957	1	0	1.00	1	-11.463	0.000	0
1924	41.737	42.093	-1	-1	0.00	0	-3.872	5.161	10
1928	41.244	42.838	-1	0	-1.00	0	4.623	0.183	7
1932	59.149	56.874	-1	-1	-1.25	0	-14.586	7.164	4
1936	62.226	58.476	1	1	0.00	0	11.836	2.475	9
1940	54.983	52.967	1	1	1.00	0	3.901	0.081	8
1944	53.778	51.718	1	1	1.25	1	4.233	0.000	0
1948	52.319	53.190	1	1	1.50	1	3.638	0.000	0
1952	44.710	49.944	1	0	1.75	0	0.726	2.349	7
1956	42.906	50.970	-1	-1	0.00	0	-1.451	1.897	5
1960	50.087	54.790	-1	0	-1.00	0	0.455	1.938	5
1964	61.203	57.324	1	1	0.00	0	5.087	1.269	10
1968	49.425	50.921	1	0	1.00	0	5.049	3.130	7
1972	38.209	52.660	-1	-1	0.00	0	5.949	4.795	4
1976	51.049	56.850	-1	0	-1.00	0	3.806	7.632	5
1980	44.842	51.383	1	1	0.00	0	-3.659	7.864	5
1984	40.877	52.778	-1	-1	0.00	0	5.424	5.249	8
1988	46.168	54.011	-1	0	-1.00	0	2.210	2.955	4
1992	53.621	52.744	-1	-1	-1.25	0	2.949	3.310	2
1996	54.737	50.158	1	1	0.00	0	3.258	2.027	4
2000	50.262	49.819	1	0	1.00	0	2.014	1.641	7
2004	48.767	48.632	-1	-1	0.00	0	1.989	2.245	1
2008	53.689	55.535	-1	0	-1.00	0	-2.260	3.052	1

• The values of P for 1920, 1944, and 1948 before multiplication by zero are 16.535, 5.690, and 8.420, respectively, and the values of Z are 5, 14, and 5.

Table A (continued)
Data for the V^{cc} Equation

t	V^{cc}	I	WAR	G^{cc}	P^{cc}	Z^{cc}
1914	50.338					
1918	45.096	1	1	22.006	0.000	0.0000
1922	46.400	-1	0	14.368	11.480	12.8571
1926	41.572	-1	0	3.461	0.117	10.7143
1930	45.741	-1	0	-11.349	2.611	4.2857
1934	56.509	1	0	12.883	4.056	8.5714
1938	50.815	1	0	4.404	0.009	6.4286
1942	47.664	1	1	15.508	0.000	0.0000
1946	45.277	1	1	-3.474	0.000	0.0000
1950	50.044	1	0	13.635	0.052	6.4286
1954	52.537	-1	0	-0.685	0.761	2.1429
1958	55.983	-1	0	-1.337	2.709	2.1429
1962	52.492	1	0	3.669	1.185	8.5714
1966	51.250	1	0	3.525	2.579	10.7143
1970	54.403	-1	0	0.018	5.034	2.1429
1974	58.530	-1	0	-3.013	8.195	4.2857
1978	54.416	1	0	6.035	6.728	8.5714
1982	55.994	-1	0	-2.877	7.041	4.2857
1986	55.085	-1	0	2.241	2.507	2.1429
1990	54.177	-1	0	0.729	3.897	2.1429
1994	46.476	1	0	2.819	2.164	4.2857
1998	49.533	1	0	3.120	1.371	6.4286
2002	47.562	-1	0	1.578	1.850	0.0000
2006	54.120	-1	0	1.325	3.399	2.1429
2010	45.900	1	0	1.637	0.973	2.1429

- Observation of V^{cc} for 1914 needed for the V^c equation.
- The values of P^{cc} for 1918, 1942, and 1946 before multiplication by zero are 15.735, 8.010, and 9.954, respectively, and the values of Z^{cc} are 10.7143, 15.0000, and 4.2857.

References

[1] Balke, Nathan S., and Robert J. Gordon, 1986, “Appendix B Historical Data,” in Robert J. Gordon (ed.), *The American Business Cycle: Continuity and Change*, Chicago: University of Chicago Press.

[2] Fair, Ray C., 1978, ”The Effect of Economic Events on Votes for President,” *Review of Economics and Statistics*, May, 159–173.

[3] Fair, Ray C., 1982, ”The Effect of Economic Events on Votes for President: 1980 Results,” *The Review of Economics and Statistics*, May, 322–325.

[4] Fair, Ray C., 1988, ”The Effect of Economic Events on Votes for President: 1984 Update,” *Political Behavior*, 168–179.

[5] Fair, Ray C., 1990, ”The Effect of Economic Events on Votes for President: 1988 Update,”, November, unpublished.

[6] Fair, Ray C., 1994, *Testing Macroeconometric Models*, Cambridge, MA: Harvard University Press.

[7] Fair, Ray C., 1996a, ”The Effect of Economic Events on Votes for President: 1992 Update,” *Political Behavior*, June, 119–139.

[8] Fair, Ray C., 1996b, ”Econometrics and Presidential Elections,” *The Journal of Economic Perspectives*, Summer, 89–102.

[9] Fair, Ray C., 1998, ”The Effect of Economic Events on Votes for President: 1996 Update,” November, unpublished.

[10] Fair, Ray C., 2002a, ”The Effect of Economic Events on Votes for President: 2000 Update,” November, unpublished.

[11] Fair, Ray C., 2002b, *Predicting Presidential Elections and Other Things*, Stanford, CA: Stanford University Press.

[12] Fair, Ray C., 2006, ”The Effect of Economic Events on Votes for President: 2004 Update,” November, unpublished.

[13] Fair, Ray C., 2009, ”Presidential and Congressional Vote-Share Equations,” *American Journal of Political Science*, January, 55–72.

[14] U.S. Department of Commerce, 1973, *Long Term Economic Growth, 1860-1970*, Washington, DC: U.S. Government Printing Office.

[15] U.S. Department of Commerce, 1975, *Historical Statistics of the United States, Colonial Times to 1970*, Washington, DC: U.S. Government Printing Office.

[16] U.S. Department of Commerce, 1992, *National Income and Product Accounts of the United States, Volume 2, 1959–1988*, Washington, DC: U.S. Government Printing Office.