

2012 FISCAL MODEL FAILURE: A PROBLEM OF MEASUREMENT?

AN ASSESSMENT

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*Abstract*

The Fiscal Model forecast of the 2012 presidential election published in the October issue of *PS: Political Science and Politics* not only failed to predict that President Obama would win reelection handily, but missed his actual share of the two-party vote by about five percent points (46.9% v. 51.8%). An “audit” of the model appears to show that the failure was likely caused by faulty measurement of fiscal policy of presidents who, like Obama, were in the first term of a new party reign. Taking account of those cases improves model fit and generates an out-of-sample forecast for 2012 that is within one percent point of the actual.

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## 2012 FISCAL MODEL FAILURE: A PROBLEM OF MEASUREMENT?<sup>1</sup>

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The Fiscal Model forecast of the 2012 presidential election published in the October issue of *PS: Political Science and Politics*<sup>2</sup> not only failed to predict that President Obama would win handily, but the error incurred in the forecast of his share of the two-party vote was of such magnitude (46.9% vs. 51.7% or more) as to warrant a rating of “inaccurate” or “quite inaccurate” in Campbell’s table of benchmarks for evaluating forecasts (Cuzán 2012; Campbell 2012, 611).<sup>3</sup> Although forecasts made with models that are constructed exclusively with fundamentals, without inputs from polls, should not be expected to be as precise as those that partly or largely rely on information on voter intentions or evaluations of the incumbents, this performance cannot be

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<sup>1</sup> A much abridged version of this article will appear in the January issue of *PS: Political Science and Politics*, 46 (1). Many thanks to Andreas Graefe, Randall J. Jones, Jr., Ray Fair, Douglas A. Hibbs, Richard J. Heggen and Charles M. Bundrick for their comments or encouragement on earlier drafts.

<sup>2</sup> James E. Campbell, Ed., “Symposium on Forecasting the 2012 American National Elections,” *PS: Political Science and Politics*, 45 (4): 610-674.

<sup>3</sup> By contrast, in 2004 and 2008 the ex-ante forecasts with the Fiscal Model were off only by 0.1% and 1.8%, respectively.

regarded as anything but a failure. In this recap, I offer an assessment of what went wrong.

Five predictors make up the Fiscal Model. These are shown in Table 1. Four are borrowed or adapted from Fair (2012): two measures of the economy, a weighted index of length of party reign, and the party of the incumbents. The values for the economic variables are forecasts that Fair posts every quarter starting two years ahead of the election and ending at the end of October, only a few days ahead of Election Day. For the purpose of forecasting, the latest I use are those posted at the end of July. Finally comes fiscal policy, the concept that gives the model its name. As shown in Table 1, fiscal policy is described by FPRIME, a measure derived from changes in  $F$ , the share of gross domestic product taken up by federal outlays, from one presidential election year to the next. Thus, if  $F_1 > 0$ ,  $FPRIME = 1$  (expansionary); if  $F_1 < 0$ ,  $FPRIME = -1$  (contractionary); and if  $F_1 = 0$ ,  $FPRIME = 0$  (neutral). FPRIME is a potent predictor of incumbent victory or defeat in presidential elections (Cuzán and Bundrick, 2005, 2008, 2009). Normally, incumbents under whose administration federal spending relative to GDP falls (or decelerates, as measured by FISCAL<sup>4</sup>) are returned to the White House, while those who pursue an expansionary fiscal policy are not.

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<sup>4</sup> On the performance of FISCAL, see Cuzán, Heggen and Bundrick (2009) and Cuzán and Bundrick (2009). But as reported in Cuzán and Bundrick (2008), FPRIME performs better, with fewer and on average smaller errors than FISCAL. As well as greater accuracy, the former has the advantage of simplicity, always a desirable trait, other things being equal. Time will tell, though, whether in future elections FPRIME

It is this relationship that prompted me to ask as early as the spring of 2009 whether Barack Obama would turn out to be a one-term president. As I wrote at the time, “The most recent estimate for 2012 is that federal outlays will take up 24.3% of GDP, up 3.5% points since 2008. This is the second-largest peacetime increase from one election year to the next since 1880, edged out only by Franklin D. Roosevelt’s first term surge of 3.6% points” (Cuzán 2009).

The Roosevelt parallel has not been lost on President Obama. In his acceptance speech at the Democratic National Convention, he explicitly invoked FDR’s name (*Huffington Post*, September 6, 2012); on other occasions, he has done so indirectly, by claiming to have “inherited the worst economy since the Great Depression” (*Washington Post*, October 26, 2010). The electorate appears to agree with this assertion: exit polls on Election Day show that a majority blames Bush for the poor economy (Shear 2012; Fox News Exit Polls 2012). If that is the case, there can be little doubt that in 1936, too, most voters held Hoover responsible for the double-digit unemployment rate during Roosevelt’s first term.

But if the electorate rationally<sup>5</sup> parcels out blame for a depressed or recessionary economy between a Democratic president and his Republican predecessor, might it not do the same with fiscal policy? After all, during a president’s first year in the White House spending is largely a function of the previous administration. It was in the fall of 2008, at the tail-end of Bush’s second term, that the bank and auto bail-outs were enacted into law. Therefore, neither Mr. Obama nor his party could be called to account

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will continue to trump FISCAL. Be that as it may, unless otherwise noted, in the analysis that follows I use only FPRIME as the measure of fiscal policy.

<sup>5</sup> On the rationality of the electorate, see Erikson, MacKuen, and Stimson (2001).

for any but a relatively small portion of the enormous spike in outlays, from 20.8% of GDP in 2008 to 25.2% in 2009 (Office of Management and Budget, Fiscal Year 2013, Historical Tables, Table 1.2). Actually, as economists Paul Krugman (2012) and Mark Thoma (2012) pointed out, from 2010 to 2012 federal spending under Obama was relatively restrained in the sense that it did not increase beyond the Bush years. Indeed, after peaking in 2009, F drifted down a bit, settling at 24.3% this year.

To test this idea systematically, I proceeded to calculate another measure of fiscal policy that, for now, I will call NEWPRIME. In cases of a president in the first term of a new party reign, fiscal policy is measured not between presidential election years but between his first year in the White House and the Election Year. Starting with the 1916 election which, following Fair, is the first in the series for estimating the Fiscal Model for forecasting purposes, this includes the first or only reelection bids of Wilson, Coolidge, F. D. Roosevelt, Eisenhower, Johnson, Nixon, Carter, Reagan, Clinton, G.W. Bush, and Obama. In the remaining fourteen cases, the value obtained with the traditional measure was retained.

Next, I calculated the values of both FPRIME and NEWPRIME from values of F shown in two data series. Data series #1 is the same series I used to make the original *ex ante* forecast for 2012 shown in Table 1, column 4 (Cuzán 2012: 649). It combines the values for F shown in The Office of Management and Budget, 2013 Fiscal Year, Historical Tables, Table 1.2, which starts only in 1930, with those in <usgovernmentspending.com> for the earlier years. The latter provides all the values of F for data series #2. The values for F, F1, FPRIME and NEWPRIME calculated with both series, 1916-2012, are shown in Data Appendix 1. The respective values of F and F1 from the two data sets correlate almost perfectly (Pearson's  $r=0.99$ ). FPRIME and

NEWPRIME correlate fairly strongly if calculated with data from the same data series (Pearson's  $r=0.85$ ) but moderately if from different series (Pearson's  $r=0.75$ ).

Of particular interest in this paper is the difference between FPRIME and NEWFPRIME for 2012: Whether measured by one or the other data series, they take opposite signs. That is, whereas with the old rule for measuring fiscal policy, wherein FPRIME was calculated according to changes in the value of F between presidential election years, Obama's first term was coded as expansionary, with NEWFPRIME his policy is coded contractionary. Also undergoing changes in coding with NEWPRIME, depending on the data series used, are the first terms of Johnson, Nixon and Reagan.

The results of estimating the Fiscal Model with FPRIME and NEWPRIME with the two sets of data appear in Table 2. The estimate shown in column 1, obtained with FPRIME calculated from data series #1 (combined OMB-usgovernmentspending.com) is identical to the one displayed in Table 1, column 4 in Cuzán (2012, 649). Next, in column 2, the Fiscal Model is estimated again using FPRIME, but according to the values of F drawn from the data series#2 (<usgovernmentspending.com>). In columns 3 and 4 fiscal policy is measured with NEWFPRIME, computed in the former with data series #1 and in the latter with data series #2.

In all four estimates of the Fiscal Model displayed in Table 2 the impact of fiscal policy on the vote is substantial: switching from contractionary (-1) to expansionary (1) policy on average costs the incumbents from three to four percent points in the two-party vote. Note, too, that except in Model II.A., the coefficients for fiscal policy vary little across data series, as do the coefficients for the four variables borrowed or adapted from Fair across all four models. But the difference in the forecast for 2012 is dramatic: whereas with the unrevised measure of FPRIME, Models I.A and I.B forecast Obama to

lose with 46.9% and 46.3% of the two-party vote, respectively, Models II.A and II.B, in which fiscal policy is measured with NEWFPRIME, have him winning with 51.1%. This is less than one percent point below what he is likely to receive when all the votes are counted.<sup>6</sup>

Also shown in Table 2 is the mean absolute error (MAE) incurred by all the models in out-of-sample forecasting of all elections, 1916-2012, as well as with the last nine elections, 1980-2012, along with the hit rate or batting average (the percent of all elections called correctly), the elections that were called incorrectly, and the MAE incurred with the wrong calls. All four versions of the Fiscal Model performed relatively well. Models I.B and II.B, which use the values from data series #2 for calculating FPRIME and NEWPRIME, respectively, did best in terms of the mean absolute error (less than 2% percent points) and the hit rate (88%). However, Model II.B outdid its closest competitor in one sense: the MAE of the missed elections was about 40% smaller. Indeed, the largest error in Model I.B, as with Model I.A., is with the 2012 election, where it was off by more than 5%, the largest single error in the Table. By contrast, the largest error in Models II.A and II.B was incurred with elections in which at least the winner was picked correctly. A forecast that the incumbent would win with 54% of the two-party vote when in fact he takes 60% constitutes a less serious error than one where he was forecast to lose with 48% but actually wins with 52%. Thus, in the interest of avoiding “blunders,” a criterion used in Cuzán and Bundrick (2008) for preferring FPRIME to FISCAL as a measure of fiscal policy, Models II.A and II.B, in

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<sup>6</sup> At the time of writing (end of November), Obama’s share of the two-party vote is around 51.8%.

which fiscal policy is measured with NEWPRIME, would seem to be superior choices. In sum, it appears that the Fiscal Model with NEWPRIME, especially when calculated with data series #2, performs best.

### **Discussion.**

When it comes to forecasting presidential election outcomes, a model constructed exclusively with fundamentals is unlikely to perform as well as those that take input from polls about voter intentions or evaluations. On the other hand, provided it is grounded in sound theory, it offers “insight about causal forces driving political valuation and electoral choice.” Indeed, “We learn nothing about the causes of electoral outcomes from correlations between aggregated poll data on pre-election candidate sentiments and Election Day outcomes” (Hibbs 2013, forthcoming).

That said, in the final analysis the bottom-line of an empirical political theory is its ability to make accurate predictions (Coleman 2007; Jones 2011). Its very validity is affirmed or questioned by its success or failure at predicting unknown or future events. This is the contribution that forecasting makes to the scientific enterprise: it provides what Herbert Simon called “the acid test of any hypothesis” (quoted in Jones 2011: 6). Thus, a model that purports to account for presidential elections outcomes proves its mettle with its record at *ex ante* forecasting of incumbent victory or defeat. One can make allowances for errors that, though small, fail to pick the winner in very close elections, such as those of 1960, 1968 or 2000 which were, metaphorically speaking, decided by a coin toss. But large errors in forecasting, such as the one incurred by the Fiscal Model this year, should, at the very least, call for an “audit” of the model to see what could have gone wrong and what, if anything, can be done to fix the problem.

This is what Fair did after his “Presidential Vote Equation” predicted an “easy victory” for George H. W. Bush over Bill Clinton in 1992, missing the outcome by almost 10 percent points in the two-party vote (1996b). Following that failure, Fair found that the model had been miss-specified, a common defect in elections models (Jones 2011). Accordingly, he dropped a time trend, made changes in the economic measures, zeroing two of them in “war” years, added “duration,” a weighted index of the length of party reign, and updated the economic data (Fair 1996a, 1996b). In 1998, Fair fine-tuned the “good news” variable (see Table 1) in the wake of a revision in the gross domestic product data from the Department of Commerce (Fair 1998). Between 1996 and 2008, the model correctly picked the winner every time with an error of 2 percent points or less. This year, Fair’s January and April forecasts called for Obama to win with 50.3% and 50.2%, respectively, but the July and October updates saw him losing by the same margin. Still, the error is a little over 2 percent points, so it will probably not lead to a revision of the model.

I am struck by the some of the parallels between Fair’s corrections to his “Presidential Vote Equation” after the 1992 error and the modifications to the Fiscal Model that appear to be indicated in light of this year’s failure to forecast Obama’s reelection victory. In this case, measurement of the defining variable was modified and the model recalibrated over a slightly different data series. These changes make for a better model fit and fewer and smaller out-of-sample errors. Only future elections will reveal whether these revisions will do for the Fiscal Model what Fair was able to do for his “Presidential Vote Equation.”

## **Conclusion.**

An assessment of this year's Fiscal Model failure suggests that the problem lay in the miscoding of Obama's fiscal policy caused by the spill-over in spending from the last year of the Bush administration into his own term. By recalculating the change in spending from the first to the fourth year of all presidents in the first term of a new party reign, the Fiscal Model (retrospectively) yields an accurate forecast for 2012.

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**Table 1.**

**Fiscal Model: Variable Definitions and Measurement.**

VARIABLE	DEFINITION AND MEASUREMENT
VOTE2	Percent of the two-party vote won by the incumbent party candidate, except that in the 1924 election Fair assigned 23.5 percent of the Lafayette vote to President Coolidge and the rest to the Democratic candidate.
GROWTH	The “growth rate of real per capita GDP in the first three quarters of the election year (annual rate).”
ALLNEWS	The “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 that, unlike Fair, no years are zeroed out for this variable in his “war” years. (I thank Prof. Fair for emailing me the actual values.)
DURATION	Coded “0 if the incumbent party has been in power for one term, 1 if the incumbent party has been in power for two consecutive terms, 1.25 if the incumbent party has been in power for three consecutive terms, 1.50 for four consecutive terms, and so on”
PARTY	PARTY=1 if the Democrats occupy the White House, and PARTY=-1 if the Republicans are the incumbents.
F	$F = (\text{federal outlays}/\text{GDP}) * 100$
F1	$F1 = F_{(t)} - F_{(t-1)}$
F2	$F2 = F1_{(t)} - F1_{(t-1)}$
FPRIME	FPRIME: expansionary (1) or contractionary (-): FPRIME=1 if $F1 > 1$ FPRIME=-1 if $F1 < 1$ FPRIME=0 if $F1 = 0$
FISCAL	Fiscal policy: expansive (1) or cutback (-): FISCAL=1 if $F1 > 0$ and $F2 \geq 0$ FISCAL=-1 if $F1 < 0$ or $F2 < 0$ FISCAL=0 if $F1 = 0$ and $F2 = 0$ (there is no such case in the data).

Note: All quotes are from Fair (2006).

**Table 2**

The Fiscal Model: 1916-2008

(t-statistics in parenthesis)

Predictor	Dependent variable: VOTE2 (Incumbent share of two-party vote)			
	Data series #1	Data series #2	Data series #1	Data Series #2
	Model I.A (1)	Model I.B (2)	Model II.A (3)	Model II.B (4)
FPRIME	-2.05 (-4.85)			
FPRIME		2.32 (-6.48)		
NEWFPRIME			-1.74 (-3.43)	
NEWPRIME				-2.22 (-5.14)
GROWTH	0.67 (8.36)	0.67 (9.93)	0.69 (7.39)	0.65 (8.31)
ALLNEWS	0.89 (5.81)	0.82 (6.46)	0.83 (4.56)	0.75 (5.03)
DURATION	-4.13 (-5.77)	-3.68 (-6.06)	-4.30 (-5.09)	-3.42 (-4.72)
PARTY	-2.17 (-4.88)	-2.29 (-6.19)	-2.19 (-4.16)	-2.02 (-4.68)
INTERCEPT	49.10 (45.88)	49.06 (55.09)	49.56 (39.17)	49.13 (44.47)
SEE	1.99	1.66	2.36	1.93
Adj. R2	0.91	0.94	0.88	0.92
D.W.	1.65	1.35	2.0	1.31
N	24	24	24	24
MAE out-of- sample forecasts(5)	2.0%	1.7%	2.2%	1.8%
Hit rate or batting average	84%	88%	84%	88%
Elections missed	1948, 1968, 1976, 2012	1948, 1976, 2012	1948, 1960, 1968, 1976	1948, 1968, 1976
MAE of missed elections	3.3%	4.0%	2.5%	2.3%

Largest error	2012 (4.7%)	2012 (5.3%)	1972 (5.5%)	1976 (3.3%)
MAE 1980- 2012 out of sample (6)	1.7%	1.6%	1.95%	1.5%
2012 forecast	46.9 (7)	46.3% (8)	51.1% (9)	51.1 (10)

*Notes:*

(1) In Model I.A, FPRIME is calculated between presidential election years, using data series #1, which combines two sources, <usgovernmentspending.com> for 1916-1932, and Office of Management and Budget, 2013 Fiscal Year, Historical Tables, Table 1.2, for 1936 to 2008. This is identical to the model estimate shown in Table 1, column 4, in Cuzán (2012: 649).

(2) In Model I.B, FPRIME is calculated as in I.A., but with values from data series #2, all of which are drawn from <usgovernmentspending.com>.

(3): In Model II.A, fiscal policy is measured with NEWPRIME, calculated between first and last year of term for 11 cases in which a president was in the first term of a new party reign, and between election years in the remaining 14 cases, using the values for F from data series #1 (the same combined series used to calculate FPRIME in Model I.A).

(4) In Model II.B, NEWPRIME is calculated according to the same rule as in Model II.A., but from data series #2 (the same source used in Model I.B to calculate FPRIME).

(5) The Fiscal Model estimated 24 times without the 2012 outcome. In each iteration, a different election result was omitted in order to “forecast” its value out of sample.

(6) The Fiscal Model estimated with elections 1916-1976, all later elections simultaneously out of sample.

(7) Predictor values: GROWTH=1.62; ALLNEWS=1; DURATION=0; PARTY=1; FPRIME=1. The values for the first two variables are those Fair posted at the end of July.

(8) same as (7)

(9) same as (7), except NEWPRIME=-1.

(10) same as (9), except NEWPRIME=-1.

### **Data Appendix I**

F, F1, FPRIME and NEWPRIME

Data series #1 and #2, 1912-2012

YEAR	Data series #1 (1)				Data series #2 (2)			
	F	F1	FPRIME Table 2, Col. 1	NEW- PRIME Table 2, Col 3	F	F1	FPRIME Table 2, Col. 2	NEW- PRIME Table 2, Col. 4
1912	2.47	-0.06			2.47	-0.06		
1913	2.48	0.01			2.48	0.01		
1916	2.1	-0.38	-1	-1	2.1	-0.38	-1	-1
1920	7.68	5.58	1	1	7.68	5.58	1	1
1921	7.49	-0.19			7.49	-0.19		
1924	4.22	-3.27	-1	-1	4.22	-3.27	-1	-1
1928	3.77	-0.45	-1	-1	3.77	-0.45	-1	-1
1932	7.27	3.5	1	1	7.27	3.5	1	1
1933	9.05	1.78			9.05	1.78		
1936	10.5	2.5	1	-1	10.94	1.89	1	1
1940	9.8	-0.7	-1	-1	9.92	-1.02	-1	-1
1944	43.6	33.8	1	1	45.73	35.81	1	1
1948	11.6	-32.0	-1	-1	13.23	-32.5	-1	-1
1952	19.4	7.8	1	1	19.97	6.74	1	1
1953	20.4	1.0			21.09	1.12		
1956	16.5	-3.9	-1	-1	17.37	-3.72	-1	-1
1960	17.8	1.3	1	1	18.48	1.11	1	1
1961	18.4	0.6			19.25	0.77		
1964	18.5	0.1	1	1	17.86	-1.39	-1	-1
1968	20.5	2.0	1	1	19.58	1.72	1	1
1969	19.4	-1.1			18.66	-0.92		
1972	19.6	0.2	-1	1	18.63	-0.03	-1	-1
1976	21.4	1.8	1	1	20.38	1.75	1	1
1977	20.7	-0.7			20.16	-0.22		
1980	21.7	1.0	1	-1	21.2	1.04	1	1
1981	22.2	0.5			21.69	0.49		
1984	22.2	0.0	1	0	21.67	-0.02	1	-1
1988	21.3	-0.9	-1	-1	20.87	-0.8	-1	-1
1992	22.1	0.8	1	1	21.78	0.91	1	1
1993	21.4	-0.7			21.14	-0.64		

1996	20.2	-1.2	-1	-1	19.91	-1.23	-1	-1
2000	18.2	-2.0	-1	-1	17.98	-1.93	-1	-1
2001	18.2	0.0			18.11	0.13		
2004	19.6	1.4	1	1	19.34	1.23	1	1
2008	20.8	1.2	1	1	20.76	1.42	1	1
2009	25.2	4.4			25.24	4.48		
2012	24.3	-0.9	1	-1	24.33	-0.91	1	-1
Mean	16.5	0.6	0.2	0.0	16.5	0.6	0.1	0.0
s.d.	8.2	7.9	1.0	1.0	8.3	8.2	1.0	1.0

*Notes*

(1) 1912-1932: <usgovernmentspending.com>; 1936-2012: Office of Management and Budget, 2013 Fiscal Year, Historical Tables, Table 1.2

(2) 1912-2012: <usgovernmentspending.com>

## **Data Appendix II**

VOTE2, GROWTH, ALL NEWS, DURATION, PARTY

YEAR	VOTE2	GROWTH	ALLNEWS	DURATION	PARTY
1916	51.68	2.229	3	0	1
1920	36.12	-11.463	5	1	1
1924	58.24	-3.872	10	0	-1
1928	58.82	4.623	7	1	-1
1932	40.84	-14.586	4	1.25	-1
1936	62.46	11.836	9	0	1
1940	55	3.901	8	1	1
1944	53.774	4.233	14	1.25	1
1948	52.37	3.638	5	1.5	1
1952	44.595	0.726	7	1.75	1
1956	57.764	-1.451	5	0	-1
1960	49.913	0.455	5	1	-1
1964	61.344	5.087	10	0	1
1968	49.596	5.049	7	1	1
1972	61.789	5.949	4	0	-1
1976	48.948	3.806	5	1	-1
1980	44.7	-3.659	5	0	1
1984	59.17	5.424	8	0	-1
1988	53.9	2.21	4	1	-1
1992	46.55	2.949	2	1.25	-1
1996	54.736	3.258	4	0	1
2000	50.27	2.014	7	1	1
2004	51.23	1.989	1	0	-1
2008	46.31	-2.26	1	1	-1
2012	51.60 (estimate)	1.62	1	0	1
Mean	52.1	1.3	5.6	0.6	0.0
s.d.	6.5	5.3	3.1	0.6	1.0

Source: Ray Fair <http://fairmodel.econ.yale.edu/vote2012/index2.htm>

Note: The value of ALLNEWS in 1920, 1944 and 1948 are not listed in most of his data file, but were graciously supplied to me by Professor Fair.