FISCAL POLICY, ECONOMIC PERFORMANCE, AND VOTE-GETTING EFFICIENCY: A DEA RANKING OF PRESIDENTS, 1880-2008

William B. Tankersley* and Alfred G. Cuzán**

Prepared for presentation at the 2010 meeting of the

Southern Political Science Association, Atlanta, GA

January 9th, 2010

*Associate Professor of Public Administration, Department of Professional and Community Leadership and Department of Government, The University of West Florida, Pensacola, FL, 32514, wtankers@uwf.edu

**Professor of Political Science, Department of Government, The University of West Florida, Pensacola, FL, 32514, acuzan@uwf.edu

FISCAL POLICY, ECONOMIC PERFORMANCE, AND VOTE-GETTING EFFICIENCY: A DEA RANKING OF PRESIDENTS, 1880-2008

William B. Tankersley and Alfred G. Cuzán

The University of West Florida

Abstract. Extending a previous study, we use DEA methodology to estimate and rank the relative efficiency of presidents at converting fiscal, economic, and political variables at the end-of-term election into votes for themselves or their party's candidate. Thirty-two administrations spanning the period 1880-2008 are compared. The analysis yields several efficient presidents from each party, and identifies a number of vote-getting champions. Future presidents or their advisors would do well to study these exemplars for clues on how to extract the most votes out of comparable situations.

Our objective in this paper is to apply Data Envelopment Analysis to estimate and rank the relative efficiency of presidential incumbents at converting fiscal, economic, and political variables into votes for their party's candidate at the end-of-term election. In the only other application of DEA to presidential elections that we know of, Berry and Chen (1999) ranked the efficiency of thirty incumbent party reelection campaigns between 1948 and 1996 by comparing two election-year "inputs," presidential popularity and the growth in employment during the twelve months ending on June 30th of the election year, to their "output," the percent of the popular vote garnered by the party

occupying the White House. In this paper, we take the percent of the two-party vote as our "output." This is the usual dependent variable in presidential elections forecasting (2002, 2008). For the "inputs," we turn to the "fiscal model" of presidential elections. Estimated over more than thirty elections since 1880, this model has performed well in *ex ante* forecasting (Cuzán and Bundrick 2005, 2008, 2009).

We proceed as follows. First, we briefly review the "fiscal model" of presidential elections. Then, we discuss DEA and provide a justification for choosing inputs and outputs that are somewhat different from those used by Berry and Chen. Next, we apply a standard DEA calculus to the results obtained with the "fiscal model" in order to rank presidents on relative efficiency in vote-getting. As well as identifying the efficient presidents, we also show who among them serve as reference points for their inefficient counterparts. Then we compare our set of efficient presidents with those of Berry and Chen, showing that, differences in output and inputs notwithstanding, there is considerable agreement between the two rankings of elections included in both sets. In other words, the overlapping efficient set is "robust." All data are displayed in an Appendix.

The "fiscal model": A Brief Summary

The "fiscal model" of presidential elections rests on the supposition that, given the incumbents' party and the number of consecutive terms that they have occupied the White House, their performance at the polls depends on the health of the economy and their spending policy. *Ceteris paribus,* the percent of the two-party vote going to the incumbents rises with a growing economy but falls when fiscal policy is expansive, the

longer they have resided at 1600 Pennsylvania Avenue, and if they are Democrats (Cuzán and Bundrick 2008). *Table* 1 displays definitions and measurement for all variables.

. . . . . .

Table 1 about here

. . . . . .

In Table 2, the "fiscal model" is estimated over two time periods. The model accounts for almost three fourths of the variation in the vote over the last 33 elections, the "long period," and over ninety percent over those since 1916, the "short period." (The latter is the same that Ray Fair (2008) uses for *ex ante* forecasting with his presidential equation, from which the economic variables included in the "fiscal model" are borrowed or adapted.) The out-of-sample mean absolute error is 2.44 percent points in the long period and 1.85 in the short one. Around 90 percent of all elections are correctly predicted in both time periods. This performance is comparable to that of models that include at least one public opinion variable, either presidential approval rating (Abramowitz 2008) or a trial heat of the major party candidates (Campbell 2008).

In the next section, grounding our work in Berry and Chen's (1999) assertion that DEA is an appropriate method for calculating relative efficiencies in presidential vote-getting, we offer a brief discussion of a very important issue related to the application of Data Envelopment Analysis, that is, the choice of inputs and outputs to be used in the model. We conclude that the "fiscal model" estimated over the longer period so as to encompass as many presidents as possible provides appropriate inputs and for the output in this application of DEA to presidential vote-getting. Again, our objective is to

assess and rank all presidencies but one[1] in terms of their relative efficiency at converting the conditions specified in the "fiscal model" into votes for themselves or their party's candidate at the end-of-term election.

Data Envelopment Analysis (DEA)

Data Envelopment Analysis (DEA) has grown in popularity in recent years as a methodology for measuring relative efficiency since the revival of earlier notions developed by Farrell (1957) and expanded by Charnes, Cooper and Rhodes, (1978a). Presently, it is the method of choice employed in many social science applications for purposes of comparing relative efficiencies of operations (Reisman 2003). For that purpose, DEA is favored over regression analysis and ratio analysis. Regression analysis estimates average efficiencies while DEA produces results using optimal performances as the benchmark; ratio analysis requires consideration of a complex multiplicity of individual ratios while DEA has the ability to produce one comprehensive measure based on multiple inputs and outputs (Tankersley, 2000). Berry and Chen (1999) adapt this methodology to presidential vote-getting efficiencies. Their Appendix includes an excellent explanation of the methodology. Hence, the discussion that follows is brief.

Utilizing a linear combination of inputs and/or outputs from actual historical operations of similar units called Decision Making Units (DMUs), DEA generates an ideal type, perfectly efficient, target model for generating the outputs that the organizations under study produce. Actual DMUs that match the ideal one in performance are deemed "perfectly efficient," and all others as inefficient to a greater or lesser degree. Various combinations of the efficient units become the "efficient reference set" for their inefficient

peers (Sexton, 1986; Tankersley and Tankersley, 1996). Thus, not only does DEA produce a measure of relative efficiency for the DMUs under investigation, the DEA analysis "leads naturally to highly specific managerial strategies for improving the efficiency of an inefficient DMU by indicating which inputs are being over-utilized, which outputs are being under-produced, and in each case by how much" (Sexton 1986, 12).

In the application of DEA to presidential elections, the principal issue revolves around the choice of inputs for the analysis. In the most general sense, the choice of both inputs and outputs can be thought of as needing to meet a minimalist requirement. That is, the inputs and outputs chosen may not be the only important inputs and outputs in the transformation process, but they must, at the very least, be important.[2]

In most presidential election models, the percent of the major party (or "two-party") vote going to the candidate of the incumbents, the party occupying the White House, serves as the dependent variable (2008). So in this paper, the choice of output is an easy one. There is no consensus, however, on the set of "independent" or "predictor" variables on the right-hand side of the equation in presidential election models. Almost always, though, at least one measure of how well the economy has performed during the presidential term is included (although the growth in employment, the variable chosen by Berry and Chen (1999), is not one of them). Beyond that, agreement breaks down (Jones 2008). As noted earlier, the inputs chosen for this application were taken from the "fiscal model" of presidential elections. Not only has this model performed well in *ex ante* presidential forecasting (Campbell

2005, Jones 2008), its principal attraction for our purposes lies in the fact that it can be estimated over a very long period, 1880-2008, the longest of any comparable model. This allows us to estimate the relative vote-getting efficiency of more than thirty presidents.

Evaluating Vote-Getting Efficiency

Presidents have to persuade voters to grant them or their party another term in the White House. As well as courting the general public, they massage their "base," appear at party fundraisers, court interest groups and the press, and keep the party machine well-oiled. In modern times, they and their advisers or consultants closely monitor approval ratings, survey voters, and study the responses of focus groups. In a sense, then, the incumbents are always more or less campaigning in all but in name. The "permanent campaign" was not invented by President Clinton. Moreover, campaigning is constrained by the political/economic environment.

As noted previously, Berry and Chen picked the incumbent share of the total vote as the output variable; for inputs, they selected "the incumbent president's July approval rating" and "the state of the economy in July as indicated by the growth rate of employment in the preceding 12 months (1 July of the preceding year to 30 June of the election year)" (Berry and Chen 1999: 382). Of the 13 presidencies Berry and Chen studied, six proved to be relatively efficient at translating the July conditions into November votes: 1948 FDR/Truman, 1952 Truman II, 1964 Kennedy/Johnson, 1972 Nixon I, 1980 Carter, and 1984 Reagan I.[3] These administrations, located at the DEA "efficiency frontier," serve as "reference" points for the others. By contrast, seven

administrations did not perform optimally: 1956 Eisenhower I, 1960 Eisenhower II, 1968 Johnson II, 1976 Nixon/Ford, 1988 Reagan II, 1992 GHW Bush, and 1996 Clinton I. These cases are located "behind the [DEA] frontier" (Berry and Chen 1999: 384). What this means is that a greater vote output could have been obtained had the incumbents been as efficient as others were at persuading the electorate that they deserved another term in the White House, again given the July conditions. Thus, "The [DEA] frontier identifies those campaigns that were most effective in converting the July baseline into their popular vote shares in November, those that were less effective and by how much" (Berry and Chen 1999: 385).

Be it noted that being located on the efficiency frontier and winning the election are not synonymous. Incumbents may wage a relatively efficient effort to persuade the electorate to vote for them yet still lose at the polls, and vice-versa. In fact, Berry and Chen found no relation between efficiency and victory (1999: 383). As we shall see, we did.

The DEA efficiency scores calculated with the fiscal model are shown in Table 2. All administrations with a DEA score of 1.0 (after rounding off to two decimal points) are considered efficient at vote-getting, and all those below 1.0 are rated as relatively inefficient.[4] The efficient Republican administrations are those whose terms expired in 1884 (Garfield/Arthur), 1904 (McK/TDR), 1908 (T.D. Roosevelt II), 1924 (Harding/CC), 1932 (Hoover), 1972 (Nixon), and 2004 (G. W. Bush); their Democratic counterparts are those that faced the voters in 1888 (Cleveland I), 1936 (FDR I), 1948 (FDR/Truman), and 1964 (LBJ I). Be it noted that three presidents with a reputation as vote-getters are

included in this list: both Roosevelts (Theodore and Franklin) and Lyndon Johnson (in his first term, shared with John F. Kennedy). Less intuitive is the appearance of Herbert Hoover among the efficient presidents. Recall, though, that being efficient does not necessarily mean winning an election or doing well in absolute terms or by conventional standards (but see below). It means that, given the terribly negative conditions that Mr. Hoover faced going into the election, he did as well as anyone could have done under identical circumstances.

Also relatively efficient, the "near efficient," are half a dozen presidencies whose score ranged from 0.95 to 0.99. Included in this group are, among the Republicans, are incumbents whose terms ended in 1880 (Hayes), 1928 (Coolidge II), 1956 (Eisenhower I), and 1984 (Reagan I); among the Democrats, those concluding in 1896 (Cleveland II) and 1944 (FDR III). Again, two presidents well known as vote-getters turn up: Franklin Roosevelt and Ronald Reagan. Perhaps the most intriguing member of this group, whose name also showed up in the efficient group, is Grover Cleveland, the only Democrat to occupy the White House between 1861 and 1916. At the opposite end of the continuum are found eight presidencies, all of which ended in defeat either in the popular vote or the Electoral College. In ascending order in terms of efficiency scores, they are those voted out in 1980 (Carter), 1920 (Wilson II), 1892 (Harrison), 1976 (Nixon/Ford), 1968 (LBJ II), 1960 (Eisenhower II), 2000 (Clinton II), 2008 (G. W. Bush II), and 1952 (Truman II).

The data in Table 3 suggest a relationship between DEA scores and success at the polls, measured by whether the voters granted them another term in the White House.

The far-right column in Table 3 indicates whether this was the case with the variable ELECT, which is scored 1 if it resulted in a victory in the popular vote or the Electoral College, and 0 if in defeat. The impression is confirmed statistically.[5] This finding is contrary to Berry and Chen, who did not find any such relationship. The difference may lie either in the small number of cases that they examined or in the fact that their dependent variable is the percent of the total vote rather than the percent of the two-party vote. Still, the relationship we find is not perfect. Twenty percent of the cases are not predicted correctly. The exceptions are found not in the bottom of the pile but in the middle. They are first-termers seeking re-election in 1900 (William McKinley), 1916 (Woodrow Wilson), and 1996 (Bill Clinton), and second-termers making a bid for a third term for themselves or their party in 1940 (Franklin Roosevelt) and 1988 (Ronald Reagan).

Comparing our findings of efficient vs. inefficient administrations with those of Berry and Chen (1999), four of the six administrations classified as efficient in their study earn the same rating in ours: 1948 FDR/Truman, Kennedy/Johnson, 1972 Nixon I, and 1984 Reagan I. The exceptions are 1952 Truman II and 1980 Carter. There is complete agreement between our respective analyses when it comes to the inefficient administrations. All seven are so ranked in our study: 1956 Eisenhower (although we include this one among the "near efficient"), 1960 Eisenhower II, 1968 Johnson II, 1976 Nixon/Ford, 1988 Reagan II, 1992 G.H.W. Bush, and 1996 Clinton. In all, the agreement rate is 85% (11 out of 13). One of the exceptions, however, is particularly glaring: Carter is considered "efficient" by Berry and Chen but ranks dead last in our analysis.

The Vote-Getting Champions

As well as enabling the researcher to rank cases according to relative efficiency, DEA analysis allows the investigator to compare the inefficient cases with one or more efficient cases which constitute their "peers," or reference points (a line of analysis that Berry and Chen (1999) did not pursue). These are administrations that, with input combinations comparable to those of the inefficient ones, managed to maximize the vote output. Also, DEA allows one to simulate what the vote output of inefficient administrations would have been had they behaved more like their efficient peers, showing what percent of the two-party vote they would have captured had they modeled themselves after a weighted combination of peer administrations. Stated differently, a theoretical "target model" (Ludwin & Guthrie 1989) of ideal, efficient levels for inputs and outputs for each relatively inefficient president can be derived from the DEA application based on a linear combination of the actual operations of the several efficient presidents included in a reference set provided for the inefficient president. The DEA score assigned to an inefficient president by the DEA algorithm suggests that other administrations in the efficient reference set are getting more "bang for the buck," i.e., a larger VOTE2, relative to similar combinations of the political and economic inputs specified in the "fiscal model" of presidential elections. Be it noted, however, that despite its quantitative features described here, we use the DEA technique simply as a heuristic device, a qualitative tool for refining our set of efficient administrations for the purpose of isolating a smaller number of exceptionally efficient presidencies for scholars and

presidential advisors to study in search for clues as to what administrations should be taken as models worthy of study and, possibly, emulation.

This exercise yields one presidency that stands head and shoulders above all the rest, serving as a reference point to nearly all its inefficient peers: 1904 Theodore Roosevelt. He takes the gold medal. The silver medal goes to 1972 Nixon, which at 10 appearances places a distant second. Finally, the bronze goes to 1884 Garfield/Arthur, which showed up 8 times. This last administration ranks among the efficient ones, even as with it the Republican six-term string came to an end. It is illustrative of the fact that even as it loses an election, an administration may yet manage to squeeze the most votes out of a highly adverse environment. Three other administrations made it as a reference point for an inefficient peer at least once: 1908 T. D. Roosevelt II (4 times), 1888 Cleveland (2 times), and 1932 Hoover (2 times). It is curious that, but for Cleveland, all the other reference points are Republican administrations. It would be beyond the scope of this paper to pursue this intriguing fact any further, however.[6]

Recapitulation, Conclusions, and Recommendations

Applying DEA analysis to a "fiscal model" of presidential elections estimated over 32 elections held since 1880 allowed us to separate the efficient from the inefficient vote-getting presidents. Interestingly, our findings correlate highly with those of Berry and Chen's DEA analysis of post-World War II elections. This coincidence in findings in post-war administrations should give us some confidence in the rankings obtained by applying DEA to the "fiscal model" when pre-war administrations going back to 1880 are included.

These findings beg the question, though, as to what, exactly, one is to look for in the search for clues as to what made these administrations so efficient. At this point, we have no answers. We hope that the identification of the most efficient presidents (which, as we said, coincide for the most part with Berry and Chen's, as well) will pique the interest of a few intrepid political scientists and historians to take up the challenge.

As to future uses of DEA analysis, with Berry and Chen we believe that it has the potential for raising "new questions" and providing "new measurements that might help integrate the quantitative and the qualitative schools of electoral analysis" (Berry and Chen 1999: 388). DEA yields insights not extracted from previous analysis of presidential election data, allowing us to interpret its quantitative measures in politically meaningful, qualitative terms. More political scientists, particularly students of the presidency, may want to consider collaborating with other social scientists steeped in this technique by experimenting with alternative output measures for the purpose of evaluating the efficiency or effectiveness of presidents and their policies.

REFERENCES

Adolphson, D.L., Cornia, G.C., and Walters, L.C. (1989). Railroad Property Valuation Using Data Envelopment Analysis. INTERFACES, 19, 18-26.

Anderson, D. R., D. J. Sweeney, and T. A. Williams. (1985). *Introduction to Management Science: Quantitative Approaches to Decision Making* (4th ed), New York: West.

Berry, B.J. L. and Young-Sheng Chen. (1999). Measurement of Campaign Efficiency Using Data Envelopment Analysis. *Electoral Studies*, 18: 379-395.

Campbell, J. E. 2005. Introduction—Assessments of the 2004 Presidential Vote Forecasts. *PS: Political Science and Politics*, 38 (1), 23-24. Charnes, A., W. W. Cooper, A. Y. Lewin, and L. M. Seiford. (Eds.). (1994). *Data Envelopment Analysis: Theory, Methodology and Applications.* Boston: Kluwer Academic.

Charnes, A., W. W. Cooper, & E. Rhodes. (1978a). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2, 429 - 444.

_____. (1978b). Evaluating Program and managerial Efficiency: An Application of Data Envelopment Analysis to Program Follow Through. *Management Science*, 27(6), 668-697.

_____. (1981). Evaluating Program and Managerial Efficiency: An Application of Data Envelopment Analysis to Program Follow Through. *Management Science,* 27, 668 – 697.

Cooper, W.W., L. M. Seiford, & K. Tone. (2000). *Data Envelopment Analysis: A Comprehensive Text with Models, Applications, References and DEA- Solver*

Software. Boston: Kluwer Academic.

Cuzán, A. G., and C. M. Bundrick. (2000). Fiscal Policy and Presidential Elections: Update and Extension. *Presidential Studies Quarterly*, 30 (2): 275-289.

_____. (2005). Deconstructing the 2004 Presidential Election Forecasts: The "fiscal model" and the Campbell Collection Compared. *PS: Political Science and Politics*, 38 (April): 255-262.

_____. (2008). Forecasting the 2008 Presidential Election: A Challenge for the the "fiscal model". *PS: Political Science and Politics*, 41 (October): 717-722.

_____. (2009). Forecasting the 2008 Presidential Election: The Challenge Met. *PS: Political Science and Politics* 42 (January): 23.

Dorfman, R., P., A. Samuelson, and R. M. Solow. (1986). *Linear Programming and Economic Analysis*. New York: Dover.

Fair, R. C. (2006). The Effect of Economic Events on Votes for President: 2004 Update. Available at Ray C. Fair, Presidential Vote Equation Page: http://fairmodel.econ.yale.edu/RAYFAIR/PDF/2006CHTM.HTM

Farrell, M.J. (1957) The Neasurement of Productive Efficiency, Journal of the Royal Statistical Society, A, CXX, Part 3, 253-290.

Ganley, J. A. & J. S. Cubbin. (1992). *Public sector efficiency measurement: Applications of data envelopment analysis.* Amsterdam: North-Holland.

Golany, B. and Roll, Y. (1989). An Application Procedure for DEA. OMEGA International Journal of Management Science, 17, 237 – 250.;

Jones, R. J. Jr. (2002). *Who Will Be in the White House?* New York: Longman Publishers.

_____. (2008). The State of Presidential Election Forecasting: The 2004 Experience. *International Journal of Forecasting*, 24, 2, 308-319.

Lewin, A. Y., Morey, R. C. and Cook, T.J. (1981). Evaluating the Administrative Efficiency of Courts. (Contract No. 80-IJ-CX-0051). Washington, D.C. National Institute of Justice.

Lichtman, A. J. (2005). The Keys to the White House: Forecast for 2008. Paper prepared for presentation at the International Symposium on Forecasting, San Antonio, TX, June 12-15.

Ludwin, W. G. & T. L. Guthrie. (1989). Assessing Productivity with Data Envelopment Analysis. *Public Productivity Review*, XII: 4 (Summer), 361-372.

Reisman A (2003). Data Envelopment Analysis**:** Preface to a Special Issue of Socio-Economic Planning Sciences. Forthcoming in *Socio Econ Plan Sci*. Corrected proof.

available online at *http://www.sciencedirect.com/science*

Sexton, T. R. (1986). The methodology of data envelopment analysis. In R. H. Silkman (Ed.), Measuring efficiency: An assessment of data envelopment analysis (pp. 7 - 29). San Francisco: Jossey-Bass.

Sexton, T. R., Silkman, R. H., and Hogan, A. J. Data Envelopment Analysis: Critique and Extensions. In R.H. silkman (Ed.), *Measuring Efficiency: An Assessment of Data Envelopment Analysis.* (pp. 73 – 105). San Francisco: Jossey-Bass.

Soteriou and Zenios (1998). “Data Envelopment Analysis: An Introduction and an Application to Bank Branch Performance Assessment” in *Modern Methods for business Research: Quantitative Methodology Series*, George A. Marcoulides (Ed.). Mahwah, N. J.: Lawrence Erlbaum Associates.

Tankersley, W. B. (2000). The Impact of External Control Arrangements on Organizational Performance. *Administration & Society*, 32 (3): 282 - 304.

Tankersley, W. B. and J. E. Tankersley. (1996). "Relative Efficiency of Electric Cooperatives in South Carolina: An Application and Test of Data Envelopment Analysis", *Coastal Business Review*, Vol. 5, pp. 41 - 48.

Table 1. Variable Definitions and Measurement

VARIABLE	DEFINITION AND MEASUREMENT
VOTE2	Percent of the two-party vote won by the incumbent party candidate (Fair 2006). Be it noted that in 1912 Fair combined the votes of Taft and Theodore Roosevelt and in 1924 he 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)" (Fair 2006).
ALLNEWS	This variable is adapted from Fair's GOODNEWS, 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" (Fair 2006). Fair zeroes out the values of a variable he calls GOODNEWS in 1920, 1944, and 1948, but in the "fiscal model" the actual values are entered in the model, hence the change of name in the variable. (Cuzán and Bundrick 2008).
FPRIME	FPRIME is expansive (FPRIME=1) if F1, the change in the ratio of federal outlays to gross domestic product between presidential election years, (F) is positive; FPRIME is contractionary (FPRIME=-1) if F1 is negative (Cuzán and Bundrick 2008).
DURATION	"DURATION= 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" (Fair 2006).
PARTY	PARTY=1 if the Democrats occupy the White House, and PARTY=-1 if the Republicans are the incumbents.

Table 2. "fiscal model", 1880-2008 and 1916-2008
(t-values in parentheses; out-of-sample predictions)

Variable	Time Period	
	1880-2008	1916-2008
	(*N*=33)	(*N*=24)
FPRIME	-2.65	-2.17
	(-4.80)	(-5.20)
GROWTH	0.53	0.68
	(5.04)	(8.49)
ALLNEWS	0.76	0.94
	(3.62)	(6.04)
DURATION	-4.13	-4.21
	(-4.88)	(-5.92)
PARTY	-1.54	-2.08
	(-2.70)	(-4.74)
INTERCEPT	49.98	48.71
	(34.30)	(44.82)
SEE	3.10	1.98
Adj. R^2	0.74	0.92
D.W.	1.74	1.63
MAE	2.44	1.85
Elections Missed	1892, 1976	1948, 1968, 1976
Hit Rate	94%	88%

Table 3. Presidential Terms Ranked by Relative Vote-Getting Efficiency

Presidential Term^	Rank	DEA score	Elect
1884# Garfield/Arthur, R	1	1	0
1888*# Cleveland I, D	1	1	1
1904* McK/TDR, R	1	1	1
1908* T.D. Roosevelt II R	1	1	1
1924*Harding/CC, R	1	1	1
1932# Hoover, R	1	1	0
1936* F.D. Roosevelt I, D	1	1	1
1972* Nixon, R	1	1	1
2004* G. W. Bush, R	1	1	1
1948* FDR/Truman, D	1	0.999618	1
1964* JFK/LBJ	1	0.995566	1
1896#Cleveland II, D	12	0.990133	0
1880#* Hayes, R	13	0.9873	1
1928* Coolidge II, R	14	0.98017	1
1944* FDR III, D	15	0.978955	1
1956* Eisenhower I, R	16	0.959263	1
1984* Reagan I, R	17	0.959184	1
1916* Wilson I, D	18	0.940796	1
1988* Reagan II, R	19	0.936408	1
1940* F.D. Roosevelt II, D	20	0.916497	1
1992# G.H.W. Bush, R	21	0.915693	0
1996* Clinton I, D	22	0.913285	1
1900* McKinley I, R	23	0.882891	1
1952# Truman II	24	0.877373	0
2008# G. W. Bush, R	25	0.85164	0
2000*# Clinton II, D	26	0.83761	1
1960# Eisenhower II, R	27	0.831745	0
1968# LBJ II, D	28	0.826462	0
1976# Nixon/Ford	29	0.815664	0
1892# Harrison, R	30	0.789804	0
1920# Wilson II, D	31	0.78873	0
1980#Carter, D	32	0.768504	0

Notes

^ 1912 Taft, R, excluded. See text.

*Won the two-party vote.

#Lost the two-party vote.

*#Won the two-party vote but lost in the Electoral College

#*Lost the two-party vote but won in the Electoral College.

DATA APPENDIX

Year	F	F1	FPRIME	GROWTH	ALLNEWS[1]	DURA-TION	PARTY	VOTE2
1880	2.55	-1.8	-1	3.879	9	1.75	-1	50.22
1884	2.22	-0.33	-1	1.589	2	2	-1	49.85
1888	2.16	-0.06	-1	-5.553	3	0	1	50.41
1892	2.41	0.25	1	2.763	7	0	-1	48.27
1896	2.65	0.24	1	-10.024	6	0	1	47.76
1900	2.79	0.14	1	-1.425	7	0	-1	53.17
1904	2.55	-0.24	-1	-2.421	5	1	-1	60.01
1908	2.38	-0.17	-1	-6.281	8	1.25	-1	54.48
1916	1.48	-0.27	-1	2.229	3	0.00	1	51.68
1920	6.95	5.47	1	-11.463	0	1.00	1	36.12
1924	3.43	-3.52	-1	-3.872	10	0.00	-1	58.24
1928	3.05	-0.38	-1	4.623	7	1.00	-1	58.82
1932	7.96	4.91	1	-14.499	4	1.25	-1	40.84
1936	10.13	2.17	1	11.765	9	0.00	1	62.46
1940	9.02	-1.11	-1	3.902	8	1.00	1	55.00
1944	44.93	35.91	1	4.279	0	1.25	1	53.77
1948	12.61	-32.32	-1	3.579	0	1.50	1	52.37
1952	18.49	5.88	1	0.691	7	1.75	1	44.60
1956	16.35	-2.14	-1	-1.451	5	0.00	-1	57.76
1960	17.85	1.50	1	0.377	5	1.00	-1	49.91
1964	18.50	0.65	1	5.109	10	0.00	1	61.34
1968	20.50	2.0	1	5.043	7	1.00	1	49.60
1972	19.60	-0.90	-1	5.914	4	0.00	-1	61.79
1976	21.40	1.80	1	3.751	5	1.00	-1	48.95
1980	21.60	0.20	1	-3.597	5	0.00	1	44.70
1984	22.10	0.50	1	5.440	8	0.00	-1	59.17
1988	21.20	-0.90	-1	2.178	4	1.00	-1	53.90
1992	22.20	1.00	1	2.662	2	1.25	-1	46.55
1996	20.30	-1.90	-1	3.121	4	0.00	1	54.74
2000	18.20	-2.1	-1	1.219	8	1.00	1	50.27
2004	19.62	1.42	1	2.690	1	0.00	-1	51.23
2008	20.88	1.26	1	0.22	3	1	-1	46.3

ENDNOTES

1. The exception is William Taft's presidency. That year the Republican Party split. Taft's predecessor, Theodore Roosevelt, ran as a candidate of the Bull Moose Party. He placed second, behind the Democratic standard bearer, Woodrow Wilson. Fair adds Roosevelt's share to Taft's. In estimating the "fiscal model" over the long period, we follow Fair. But for the rest of the analysis we exclude this unique case.

2. For very helpful theoretical discussions of the relevant factors involved in choice of inputs and outputs for DEA, see Adolphson, Cornia and Walters (1989), Charnes, Cooper and Rhodes (1981), Golany and Roll (1989), Lewin et al. (1981), and Sexton, Silkman and Hogan (1986).

3. In Cuzán and Bundrick (2000), administrations are identified by the name of the president (or both if the Vice-President succeeded to the office after the death or resignation of his predecessor), by order of terms (e.g., FDR I, FDR II, etc.), and year the end-of-term election was held. We follow that system here. Be it noted, though, that this is different from Berry and Chen's. In their model, the focus is on the incumbent party *candidate*, who may or may not be the president.

4. As Berry and Chen explain it, the DEA score "is an efficiency score that takes on a value of 1 when an IC [the incumbent party] lies on the efficiency frontier and a value exceeding 1 if the IC lies behind the frontier and could have utilized the available inputs to produce greater outputs" (1999: 383). Be it noted that in both their and our analyses an efficient "campaign" is scored 1.0. However, in Berry and Chen's computation, the relatively inefficient cases obtain a score that is greater than 1.0, while in ours they receive a score that is

less than 1.0. In our study, a "campaign" that scores 0.94 is interpreted as one that is 94% as efficient as efficient as it could be if it were operating at its ideal target based on the performance of others in the comparison set. The use of reciprocal reporting and interpretation is a function of the respective software packages utilized in the DEA computations by Berry and Chen and by us.

5. Point-biserial correlation = 0.59.

6. Another interesting, if ironic, fact, is that, having won their medals in their first term, T. Roosevelt and Richard Nixon subsequently went down to defeat. Nixon was forced to resign less than two years after his reelection; in 1912, "Teddy" Roosevelt, having bolted his party, failed to make a comeback as an independent.