

Influences on the Annual Success Rate of President-Supported Bills, 1954-1984

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Introduction

The following study uses regression and time-series techniques to examine factors which influence per-year success a United States president has in Congress on bills where he has taken a clear-cut stand. The work encompasses the period from 1954 through 1984, including seven American presidential administrations and fifteen full Congresses. Results from the work provide insights into the interaction between presidential leadership, congressional party politics, and public reactions to both of latter branches of government.

Presidential-Congressional Relations

The Constitution provides for sources of conflict as well as cooperation between Congress and the president. Corwin (1957) notes that, based on constitutional principles, their relationship is "an invitation to struggle." Madison asserts in the Federalist Papers (originally published in 1787; edited version released in 1961) that the affiliation between the two institutions was designed so that "these departments be so connected and blended as to give each constitutional control over the other." Yet Supreme Court Justice Robert Jackson (1952) states "while the Constitution diffuses power the better to secure liberty, it also contemplate that practice will integrate the dispersed powers into a workable government."

The constituencies which the respective branches must serve can be a source of conflict, according to Nelson (1984). The president is elected by catering to coalitions which are national in scope, whereas members of Congress represent local concerns and have different perspectives on them. Similarly, there is a disparity in the way the public judges presidents and members of Congress. That most legislators hold office longer than

presidents, therefore maintaining more stable policy preferences, is yet another potential source of conflict between executive and legislature. Alternately, party and ideological ties as well as public expectations of government sustenance create opportunities for alliance.

Light's (1982) study of presidential agenda formulation and implementation traces several stages which affect the success chief executives have in achieving policy goals. In the first stage, the president must decide how he will employ resources available to him. Next, he has to take account of the limits of policy choices, selecting issues consistent with such limits yet expressing the priorities of his administration. In the final stage, the administration implements a proposal based on goal compatibility, presumed presidential involvement, and anticipated degree of success vis-à-vis final legislative action.

In a similar vein, Watson and Thomas (1983) contend that a president's policy success with Congress is a function of his constitutional and political powers. Constitutionally-delegated powers include the veto power, the right to call special sessions of Congress, and the practice of sending messages to the legislature. Political powers encompass effective, innovative use of the bureaucracy as well as subtle methods of influence. The authors hold that the responsiveness of the Federal government to national problems, the content of proposals, and the order in which residentially-supported bills are introduced affect their outcome.

Specifying the Model

My model for explaining the yearly success rate the president has in Congress on bills where he takes a decided, public position consists of two explanatory factors: partisan support and public approval. Each is an indicator of presidential capital or assets possessed by the executive; both have the capability of influencing Congress' decision on proposed laws.

Watson and Thomas (op. cit.) state congressional support for the president is "built primarily on his fellow partisans and stems from their sense of party loyalty." Edwards (1980) finds that from 1953 to 1978, presidents consistently received strong support on roll call votes from congressional members of their own party.

The partisan support variable in this study is measured by the percent of members of Congress who share the president's party affiliation. It is weighed according to the following formula:

$$\frac{NHPP+NSPP}{N \text{ of Congress}}$$

NHPP refers to the number of representatives belonging to the president's party; NSPP stands for the number of senators sharing the president's party affiliation; and N of Congress represents the total membership of Congress for each two-year session from 1954 through 1984. The last part of the formula above takes into account fluctuating House and Senate composition over the 31-year period of analysis. The hypothesis accompanying inclusion of this variable is that the greater the percentage of partisan support the president enjoys in Congress during any given year, the higher his annual success rate on bills where he takes a definitive position.

The second independent variable in the model is the annual public approval rating given the incumbent president for the period 1954-84. Its relation to congressional support in general has been widely documented. For instance, Neustadt (1960) postulates the chief executive's prestige affects congressional response to his policies. Edwards (1980) suggests two explanations for the link between presidential popularity and congressional support for programs the executive advocates: (1) Congress believes that one of their functions is to discover and reflect public opinion; (2) members of Congress, when deciding whether to support or oppose the president, consider their own reelection prospects; they tend to favor the programs of a highly popular president while opposing or demonstrating independence from an unpopular one.

The annual public approval rating given the president derives from national responses to a Gallop Poll question asking, "Do you approve or disapprove of the way (incumbent's name) is handling his job as president?" Because of the latter's theoretical relation to congressional support, this author offers the hypothesis that the higher the president's annual approval rating with the electorate, the more yearly victories on congressional votes where he has announced his position. Such a belief recognizes presidents often appeal to the public for support on policy issues. Funderburk (1982) asserts these appeals are effective in placing issues on the national agenda, dramatizing events, projecting an image or style, and in maintaining public confidence.

The dependent variable, annual success rate of victories on congressional votes where the president took a clear-cut position, is measured in percentages and derives from scores furnished by Congressional Quarterly (1984). The guidelines for computing the yearly success rate include: (1) only issues which receive a roll call vote on the House or Senate floor are counted; (2) the president's support or opposition for the proposed legislation must be both public and clear; (3) all votes receive equal weight; no distinction is made between major or minor issues, close or overwhelming outcomes, or between administration or congressional proposals.

Because Congressional Quarterly presents two distinct stand success percentages for 1974—one for Nixon and one for Ford—my study has added an extra case so as to assure for unbiased annual percentages. In a similar vein, an additional public approval rating for 1974 is included to differentiate attitudes toward each incumbent that year. There is no change in partisan support during 1974 since President Nixon resigned during a congressional session. Subsequently, the study examines 32 cases over a 31- year duration.

Methodology

Multiple regression analysis is the most appropriate statistical technique to employ in order to evaluate the linearly- specified hypotheses. Lewis-Beck (1980) contends that, because multiple regression allows us to incorporate more than one dependent variable into an equation, we can more fully explain the dependent variable. Nie et al. (1975) state multiple regression "is a general statistical technique through which one can analyze the relationship between a dependent variable and a set of independent or predictor variables." According to these researchers, the most-used null hypotheses in multiple regression include: (1) there is not a linear relationship between

factors; (2) a particular independent variable has no linear effect on a dependent variable once the effect of other catalysts are adjusted for; and (3) the effects of two or more variables are not additive. Nie et al. hold multiple regression is both a descriptive and predictive tool.

The multiple regression model for my three-variable study is: $Y = a_0 + B_1x_1 + B_2x_2 + e$. Y is the dependent variable, percent annual success the president has on bills where he has taken a clear-cut stand. The subscript a_0 represents the intercept or constant, and indicates the point where a regression line intercepts the Y-axis on a scatterplot. The constant estimates the average value in the dependent variable when each independent variable (x) equals zero. B refers to the slope, or average change in the dependent variable Y associated with a one-unit change in an independent variable when all other independent variables are statistically controlled for. It is also known as a partial regression coefficient. The symbols x_1 and x_2 are the independent variables, percent annual partisan support in Congress (according to the aforementioned weighted formula) and yearly public approval rating of the chief executive, respectively. Finally, e in the above equation denotes the random disturbance (error) term; it is included due to the possibility that some factors have been omitted from the model, but also because of error arising from collection and measurement of data (Ostrom, 1980).

Several regression assumptions must be met before we can accurately infer true population values from the study sample. First, there can be no specification error, meaning that the linear relationship between each independent variable and the dependent variable is correct (including relevant independent variables while excluding irrelevant ones). Secondly, there cannot be any measurement error which could lessen the accuracy of estimates. According to Lewis-Beck (op. cit.), if measurement error is present "the magnitude of the estimation problem depend on the nature and location of the error."

A third set of regression assumptions concerns the error term. Included in this set are the notions of zero mean, homoskedasticity, normality, and no autocorrelation. For each observation, the expected value of the error term must be zero. Homoskedasticity means that the variance in prediction errors is constant across values of an independent variable, such that the points on a scatterplot are arranged in equal width above and below the regression line. Normality refers to the situation where the error term is normally distributed. This can be checked with the skewness statistic, which indicates that when the distribution is normal (95% of observations falling within two standard deviations, plus or minus, of the mean), skewness is equal to zero.

A final rule involving the error term is that no autocorrelation is present. That is, errors associated with an observation must not be correlated with errors for other observations. Autocorrelated residuals invalidate significance tests and confidence intervals (Lewis-Beck, op. cit.) in that true variances are underestimated and coefficients become unreliable (Ostrom, op. cit.). Autocorrelation is more often found in time-series data like that used in this study than in cross-sectional data, which deals with unique observations on different units at the same point in time. The most-used statistic to test for serial correlation is the Durbin-Watson d-statistic, a test based on a theoretical distribution (from zero to four) of regression residuals. When no autocorrelation exists in successive observations of error terms the p, or autocorrelation coefficient, is zero. Since $d = 2(1-p)$, a finding of no autocorrelation

implies $d=2$; if positive serial correlation is present the d -value is small, approaching zero; when the less frequent case of negative autocorrelation of error terms occurs, the d -statistic will be large, approaching four. There are also significance points in this range where the existence of serial correlation is uncertain. Whenever either type of autocorrelation takes place, the null ($p=0$) must be rejected, and a correcting procedure applied before results are valid.

The fourth regression assumption pertinent to multiple regression is the absence of perfect multicollinearity, meaning that no single independent variable is a perfect function of another independent variable or linear combination of variables. When the latter takes place, the equation is inestimable. Lewis- Beck (op. cit.) states that indicators of high multicollinearity include a substantial R^2 coupled with statistically insignificant coefficients; regression coefficients which change greatly in value if independent variables are added or dropped from the equation; and suspicion about the magnitude and direction of coefficients. High multicollinearity can be alleviated by enlarging the sample, combining highly intercorrelated independent variables into a single indicator, or discarding offending variables (Lewis-Beck, op. cit.)

Results

The results of the three-variable model are delineated in Table 1 below:

Table 1: Statistics Dealing With Three-Variable Model

Variable, Mean, and Standard Deviation

Partisan Support: 50.3%; 10.8

Public Approval: 55-6%; 12.2

Stand Success: 72.6%; 10.5

Correlation Coefficients

	Partisan Support	Public Approval	Stand Success
Partisan Support	1.0		
Public Approval	.12	1.0	
Stand Success	.74	.40	1.0

Multiple Regression Analysis

Multiple R: .80

R^2 : .65

Adjusted R^2 : .62

Standard Error: 6.45

F-Ratio: 26.67

F Distribution at 2, 29 (.01)=5.42

<u>Analysis of Variance</u>	DF	Sum of Square	Mean Square
Regression	2	2216.39	1108.20
Residual	29	1205.11	41.56

Variable	B	Beta	SE of B	F
Partisan Support	69	.71	.11	40.3
Public Approval	27	.31	.10	7.92

D-Statistic: 1.79

Significance Points for $K=3$, $N=32$ (.01): 1.04-1.43

An examination of the variable means reveals that the party support average is about 50%; the average annual public approval rating of presidents between 1954-1984 is about 56%; and the mean of the success rate on bills where the chief executive assumes a decided public position is approximately 73%. Of these figures, perhaps the most surprising is the partisan support mean, considering that for 18 of the 31 years encompassing the work, four Republican presidents faced hostile or split Congresses (one or both of the houses having a majority of opposing party members). The correlation coefficients for the variables show the partisan support and public approval measures are highly positively correlated with the dependent variable (.74 and .4, respectively), but that the two independent variables are only slightly positively related to one another (.12). The latter finding allows us to dismiss high multicollinearity as methodological problem in this study.

Results of the multiple regression analysis appear to confirm the hypothesized relationships accompanying the partisan support and public approval measures. The prediction equation for my model becomes: Y (stand success) = 23.14 + .69x1 (partisan support) + .27x2 (public approval). The partial regression coefficient B1 estimates that a 1% increase in partisan support is associated with a .69% increase in annual success the president has in Congress on bills where he takes a clear-cut stand, controlling for the chief executive's public approval rating during the same year. The partial regression coefficient B2 estimates that a 1% increase in annual public approval of the president augments stand success by 27%, independent of his level of partisan support in Congress.

By comparing the partial regression coefficients with their accompanying standard errors, we can assess whether the independent variables are individually significant. Generally, if a partial regression coefficient exceeds two times its standard error, the null hypothesis can be rejected and the relationship between two variables over a specified sample and/or time period declared statistically significant. A more formal procedure for testing significance is the t-ratio, which is figured by dividing the partial regression estimate by its standard error. Using this procedure, the author finds that the t-ratio of the partisan support partial slope estimate is 6.27 (.69/.11) and the t-ratio of the public approval partial regression estimate is 2.70 (.27/.10). Both of these values exceed the t-distribution value ($t_{n-3} .99$), which for 29 degrees of freedom is 2.46. Therefore, the parameter estimates for the independent variables are significant at the .01 probability level.

The beta figures refer to standardized regression coefficients, also known as beta weights. These figures allow us to assess the relative contribution or importance of each independent variable vis-a-vis the dependent variable. When two or more independent variables are measured on different units, the standardized regression coefficients constitute the most accurate method for comparing the effect which each independent variable has on the dependent variable (Nie et al., op. cit.). The beta weights for the explanatory variables in the present study clearly illustrate that the partisan support variable (.71) has much more of an independent impact on annual success than does yearly public approval of the president (.31).

However, the R², standard error of estimate, and the F-ratio for the multiple regression equation denote the importance of including both of the above variables. The R², or coefficient of multiple determination, is .65, indicating the two exogenous

variables together explain about two-thirds of the variance in the dependent variable. The R² is computed by dividing the regression (explained) sum of squares by the total sum of squares ($2216.39 / 3421.50 = .65$). Similarly, the low standard error of estimate (6.45), representing the standard deviation of residuals, connotes the accuracy of the regression equation.

The F-ratio is used to determine overall "goodness of fit" of the regression equation. It is computed by the following formula:

$$\frac{\text{regression sum of squares/DF} = 2216.39/2 = 1108.20}{\text{residual sum of squares/DF} = 1205.11/29 = 41.56} = 26.67$$

To determine whether the null hypothesis (that a sample was drawn from a population in which multiple correlation r equal to zero) can be rejected, the F-ratio is compared to the F-distribution for the degrees of freedom in the numerator and denominator. At the .01 probability level, the F-distribution value at two and 29 is 5.42. Therefore, because the F-ratio is larger than the above figure, the null hypothesis is rejected.

The final statistic of interest in this model is the d-statistic, which is used to determine whether residuals are serially correlated. At the .01 level, the significance points for a sample size of 32 with two explanatory variables and the constant ($k=3$) are 1.04 and 1.43. This means that if the d-statistic is less than the low point, positive autocorrelation is present; the range between these points is the uncertainty area; and a d-value of larger than 1.43 but less than 2.5 indicates that serial correlation is not a methodological problem. Since the d-statistic for the three-variable regression equation is 1.79, it can be asserted that the residuals are not autocorrelated or dependent on each other.

Results of Two-Variable Models

If separate regression runs are conducted using each independent variable alone, the problem of autocorrelation develops: the d-statistic for the partisan support model lies in the uncertainty region (1.30) and the d-value for the public approval model indicates positive autocorrelation is present (.96). The significance points for a sample size of 32 with $k=2$ are 1.10-1.35. When dealing with longitudinal-type data, autocorrelation is often a problem. Wonnacott and Wonnacott (1977) state there are three directions that observations' dependence on time may take: (1) trend (a constant increase in each period); (2) seasonal; or (3) random tracking (with autocorrelated error terms, where each value is related to the preceding value with random disturbance added).

Time-series analysis is a general statistical technique used to correct for serial correlation. Kelejian and Oates (1974) assert that autocorrelation produces systematic variation in values of the disturbance term for successive observations. While this pattern does not create biased estimates of parameters, it renders variance formulas invalid., thus preventing either hypothesis-testing or establishing confidence intervals.

The approach of transforming the data and applying ordinary least squares (OLS) to the transformed data is called generalized least squares (GLS). The least square principle is employed in multiple regression in that once we postulate a linear relationship, we want to calculate values for variables which minimize the sum of squares of the errors. Ostrom (op. cit.) states the GLS technique is available only if certain information is known. If this information is lacking, we can still determine the process generating errors, estimate its parameters, transform the data, and apply OLS through "pseudo-GLS" procedures. One of these methods is known as Hildreth-Lu; it estimates all the model parameters simultaneously through lagging them by one time period (corresponding to the way the data is coded), searching over different values of ρ , the coefficient of autocorrelation (positive values for positive autocorrelation; negative values for negative serial correlation), and choosing the equation which has the smallest sum of squared residuals (Ostrom, op. cit.).

The Hildreth-Lu procedure can be employed to verify the extent of serial correlation in both two-variable equations. First, the independent variable and stand success measures are lagged by one year (unit of analysis in the study) in each equation; the sample range is set at two and 32 so that the first year in the data set provides a starting point. Next the researcher specifies the range and increments of autocorrelation coefficient values to be searched. Because the d -values of the respective two-variable models reflect a tendency toward positive autocorrelation, the range of values runs from zero to one; the model is examined by successive increments of .10.

Tables 2 and 3 present the results of applying the Hildreth- Lu procedure for all values of ρ :

Table 2: Results of Hildreth-Lu Method Applied to Partisan Support Model

P	C	PSPRC	R2	SE	SSR	DW	T-Stat
.10	32.62	.73	.52	7.28	1536.19	1.46	5.60
.20	28.48	.74	.50	7.41	1592.88	1.62	5.39
.30	24.00	.77	.49	7.66	1701.06	1.78	5.31
.40	19.42	.81	.50	8.00	1854.49	1.92	5.35
.50	15.07	.86	.51	8.40	2046.30	2.05	5.51
.60	11.20	.91	.53	8.85	2271.62	2.15	5.75
.70	7-89	.96	.56	9.34	2528.93	2.24	6.03
.80	5.13	.99	.58	9.86	2819.57	2.31	6.33
.90	2.79	1.03	.60	10.42	3146.29	2.35	6.62
1.00	A77	1.05	.62	11.00	3511.96	2.38	1.32

N=31 Years

P-Value of autocorrelation coefficient

C-Constant

PSPRC-Party support partial regression coefficient

R2-Percent of variance in dependent variable explained by independent variable

SE-Standard error of the regression

SSR-Sum of squared residuals

DW-Durbin-Watson statistic

T-Stat-T-value; significance test for party support parameter

Table 3: Results of Hildreth-Lu Method Applied to Public Approval

P	C	PAPRC	R2	SE	SSR	DW	T-Stat
.10	61.82	.08	.01	10.44	3158.56	.93	.61
.20	58.69	.00	.00	10.49	3190.95	1.04	.00
.30	55.56	-.14	.01	10.69	3313.92	1.15	-.59
.40	52.44	-.48	.04	11.02	3527.48	1.25	-1.14
.50	49.31	-1.44	.09	11.49	3831.61	1.33	-1.64
.60	46.18	-4.81	.13	12.07	4226.34	1.40	-2.09
.70	43.06	-20.04	.17	12.75	4711.65	1.45	-2.47
.80	39.93	-120.26	.21	13.50	5287.54	1.49	-2.80
.90	36.81	-1403.07	.25	14.33	5954.02	1.51	-3.08
1.00	33.70	X	.30	14.99	6512.28	1.49	X

N=31 Years

P-Value of autocorrelation coefficient

C-Constant

PAPRC-Public approval partial regression coefficient

R2-Percent of variance in dependent variable explained by independent variable

SE-Standard error of the regression

SSR-Sum of squared residuals

D-W-Durbin-Watson statistic

T-Stat-T-value; significance test for public approval

X-No data

They reveal that the sum of squared residuals is lowest with an autocorrelation coefficient of .10 for both the partisan support and public approval equations. It appears the residuals are only slightly dependent on one another. The prediction equations for the models at .10 are: Y (stand success) = $32.62 + .73x_1$ (partisan support) and Y (stand success) = $61.82 + .08x_1$ (public approval). Generally, the partisan support model seems to explain much more variance in the annual success rate of presidentially supported bills than public approval (.52 and .01, respectively); the partisan support partial regression coefficient alone is significant. However, the effect of excluding the partisan support variable from an equation testing influences on stand success renders the remaining equation incomplete or misspecified (Kmeta, 1971).

Discussion

An examination of time plots (yearly data values) using the original three-variable model can establish whether patterns within and between presidencies exist. Employing the maximum annual values for the partisan support, public approval, and stand success variables as a starting point, the author observes that the most members of Congress sharing the president's party affiliation occurred during the 89th Congress, 1965-66 (68%); the highest public approval rating was given to President Kennedy in 1961 (76%); the greatest stand success by a president over the 31-year duration was achieved by President Johnson in 1965 (93%) None of the three variables fell below their median values (for partisan support, 51%; for public approval, 51%; for annual stand success, 72%) during Kennedy's tenure, and only public approval of the three variables fell below its midpoint during Johnson's administration. It is evident that partisan support and public approval contributed significantly and relatively equally to the success which both the Kennedy and Johnson administrations had on legislation they initiated and supported.

Conversely, all three of the variables in the study converged at their lowest point during the Nixon and Ford presidencies. From 1973 to the end of Ford's term, only one of the variables shows an annual percentage over the midpoint value (Ford's approval rating for 1974, which although it started out high, dropped off significantly by the end of the year). The congressional session where the president's partisan support was at its nadir occurred in 1975-76 (34%); the lowest annual public approval percentage was recorded by Nixon in 1974 (26%); the minimum data value for annual stand success was in 1973 (51%). Reactions to the Watergate scandal, the Vietnam War, rising inflation, Nixon's resignation, and Ford's subsequent pardon of him constituted environmental conditions causing a decline in partisan support and public approval, hence the stand success on congressional votes where a public position was assumed.

Two other patterns are recognizable from the data. The annual stand success values fluctuate over and under the median percentage (72%) during the Eisenhower and Reagan presidencies. These Republican incumbents faced Congresses where level of partisan support was below its midpoint throughout their tenures. However, unlike the situation with the Reagan Administration, in which no clear tendency vis-a-vis the variables is identifiable, public approval had a disproportionate positive influence on yearly stand success for President Eisenhower.

On the other hand, level of partisan support in Congress clearly had more of an impact on the degree of stand success achieved by President Jimmy Carter. He maintained high yearly partisan support and stand success but received below-median approval ratings for each of his last three years in office. Carter's unsuccessful reelection attempt highlights the importance of public approval, more so than either partisan support or stand success, to a president's political fortunes: since 1956, every president whose election-year public approval rating was over the median value for the 31-year duration defeated his opponent for office (Eisenhower, 1956; Johnson, 1964; Nixon, 1972; Reagan, 1984), while a below-median election-year public approval rating is associated with electoral defeat (Ford, 1976; Carter, 1980).

Overall, results of the study show that per-year presidential success on bills where the executive takes a clear-cut stand in Congress is influenced by both partisan support and public approval. Future work in the area should seek to incorporate additional factors pertinent to the interaction process between president, public, and Congress in order to improve the predictive capacity of the regression model offered herein.

References

- [1] Corwin, Edward, The President: Office and Powers. New York: University Press, 1957, p. 171.
- [2] Edwards, George. Presidential Influence in Congress. San Francisco: W.H. Freeman, 1980, p. 61-62, 88-90.
- [3] Funderburk, Charles. Presidents and Politics: The Limits of Power. Monterey: Brooks/Cole Publishing, 1982, p. 136
- [4] Jackson, Robert. Youngstown Sheet and Tube Company v. Sawyer, 343 U.S. 579, 635 (1952).
- [5] Kelejian, H.H., and W.E. Oates. Introduction to Econometrics: Principles and Applications. New York: Harper and Row, 1974.
- [6] Kent, J. Elements of Econometrics. New York: Macmillan, 1971.
- [7] Lewis-Beck, Michael. Applied Regression: An Introduction. Beverly Hills: Sage Publishing, 1980, p. 27, 28, 29, 47, 58-61.
- [8] Light, Paul. The President's Agenda: Domestic Policy Choice From Kennedy to Carter. Baltimore: Johns Hopkins University Press, 1982.

- [9] Madison, James, John Jay, and Alexander Hamilton. The Federalist Papers. New York: New American Library, 1961, p. 48, 308.
- [10] Nelson, Michael. The Presidency and the Political System. Washington, DC: Congressional Quarterly, 1984, p. 364-370.
- [11] Neustadt, Richard. Presidential Power: The Politics of Leadership. New York: Wiley, 1960.
- [12] Nie, Norman, C. Hull, Jean Jenkins, Karen Steinbrenner, and Dale Bent. Statistical Package for the Social Sciences. New York: McGraw-Hill, 1975, p. 320, 325.
- [13] Ostrom, Charles. Time Series Analysis: Regression Techniques. Beverly Hills: Sage Publications, 1980, p. 12, 38-39.
- [14] Watson, Richard, and Norman Thomas, The Politics of the Presidency. New York: John Wiley and Sons, 1983, p. 249-270; 271-2.
- [15] Wonnacott, Thomas, and Ronald Wonnacott, Introductory Statistics for Business and Economics. New York: John Wiley and Sons, 1977, p. 603-635.

Appendix

Table 1: Means, Correlation Coefficients, and Multiple Regression Analysis of Three-Variable Model

Table 2: Results of Hildreth-Lu Method Applied to Partisan Support

Table 3: Results of Hildreth-Lu Method Applied to Public Approval

Table 4: Annual Variable Percentages, 1954-1984

Table 1: Statistics Dealing With Three-Variable ModelVariable, Mean, and Standard Deviation

Partisan Support: 50.3%; 10.8

Public Approval: 55-6%; 12.2

Stand Success: 72.6%; 10.5

Correlation Coefficients

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Significance Points for K=3, N=32 (.01): 1.04-1.43

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.80	5.13	1.03	.58	9.86	2819.57	2.31	6.33
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.20	58.69	.00	.00	10.49	3190.95	1.04	.00
.30	55.56	-.14	.01	10.69	3313.92	1.15	-.59
.40	52.44	-.48	.04	11.02	3527.48	1.25	-1.14
.50	49.31	-1.44	.09	11.49	3831.61	1.33	-1.64
.60	46.18	-4.81	.13	12.07	4226.34	1.40	-2.09
.70	43.06	-20.04	.17	12.75	4711.65	1.45	-2.47
.80	39.93	-120.26	.21	13.50	5287.54	1.49	-2.80
.90	36.81	-1403.07	.25	14.33	5954.02	1.51	-3.08
1.00	33.70	X	.30	14.99	6512.28	1.49	X

N=31 Years

P-Value of autocorrelation coefficient

C-Constant

PAPRC-Public approval partial regression coefficient

R2-Percent of variance in dependent variable explained by independent variable

SE-Standard error of the regression

SSR-Sum of squared residuals

D-W-Durbin-Watson statistic

T-Stat-T-value; significance test for public approval

X-No data

Table 4: Annual Variable Percentages, 1954-1984

Year	PS	PA	SS
1954	51	66	83
1955	47	71	75
1956	47	73	70
1957	47	64	68
1958	47	54	76
1959	35	64	52
1960	35	61	65
1961	61	76	81
1962	61	71	85
1963	61	65	87
1964	61	75	88
1965	68	66	93
1966	68	50	79
1967	58	44	79
1968	58	43	75
1969	44	63	74
1970	44	58	77
1971	42	51	75
1972	42	58	66
1973	44	43	51
Nixon/Ford '74	44	26/54	60/58
1975	34	44	61
1976	34	49	54
1977	66	63	75
1978	66	45	78
1979	63	38	77
1980	63	42	75
1981	46	58	82
1982	46	44	72
1983	41	44	67
1984	41	55	66

Variable Values

Party Support: Maximum value=68%; Minimum value=34%; Midpoint=51%

Public Approval: Maximum value=76%; Minimum value=26%; Midpoint=51%

Stand Success: Maximum value=93%; Minimum value=51%; Midpoint=72%